KEENPRO®
PET BOTTLE SOLUTION

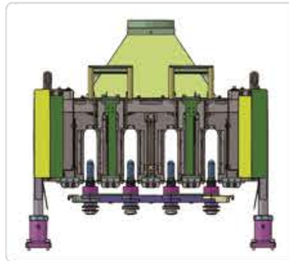
全自動 PET 吹瓶機 PET Automatic Stretch Blow Molding Machine

最節能環保吹瓶線 The world's most energy efficient bottle production line

機台優勢 OUTSTANDING

擁有許多先進功能的全自動PET吹瓶機EM系列，處處展現獨樹一幟的非凡性能!

Integrating with many advanced functions in one, KEENPRO EM Series fully automatic PET stretch-blow molding machine exhibits extraordinary performance throughout.

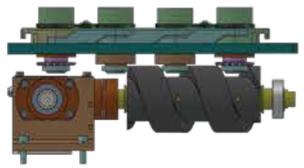


加熱系統優勢

1. 單支燈管雙邊集中方式加熱
2. 各道瓶胚加熱溫度可控制在3°C內
3. 加熱功率低

Heating System Outstanding

1. Single-lamp bilateral centralized heating
2. Temperature of all channel inside heating box controlled within 3°C
3. Low energy heating



公轉系統優勢

1. 採用「螺桿驅動」，實現快速連續運動及無級調速。
2. 穩定公轉系統採U字型軌道，滑塊只需要1/3的推動力，阻力較小
3. 玻璃纖維尼龍複材射出滑塊，受力可達945 kgf。

Transfer System Outstanding

1. Using "screw drive" for fast continuous movement and variable speed
2. Stable transfer system with U-shaped track and 1/3 sliding driving force, less resistance
3. Composite of glass fiber and Nylon carrier block with loading force up to 945 kgf

EM Series +

關鍵技術 Key point

使用E+H氣體流量計檢測
1. 並聯閥與封口缸關鍵性技術
2. 吹瓶耗氣量與同業比較節省15%以上
3. E+H實測與同業比較更節省45%以上

(Measured by ENDRESS+HAUSER flow meter)
1. Distance between valves module and neck sealing is short
2. Air wastage reduction above 15% over other similar category
3. Recycle rate as high as 45%, compare with other competitor

耗電量分析 Power consumption analysis

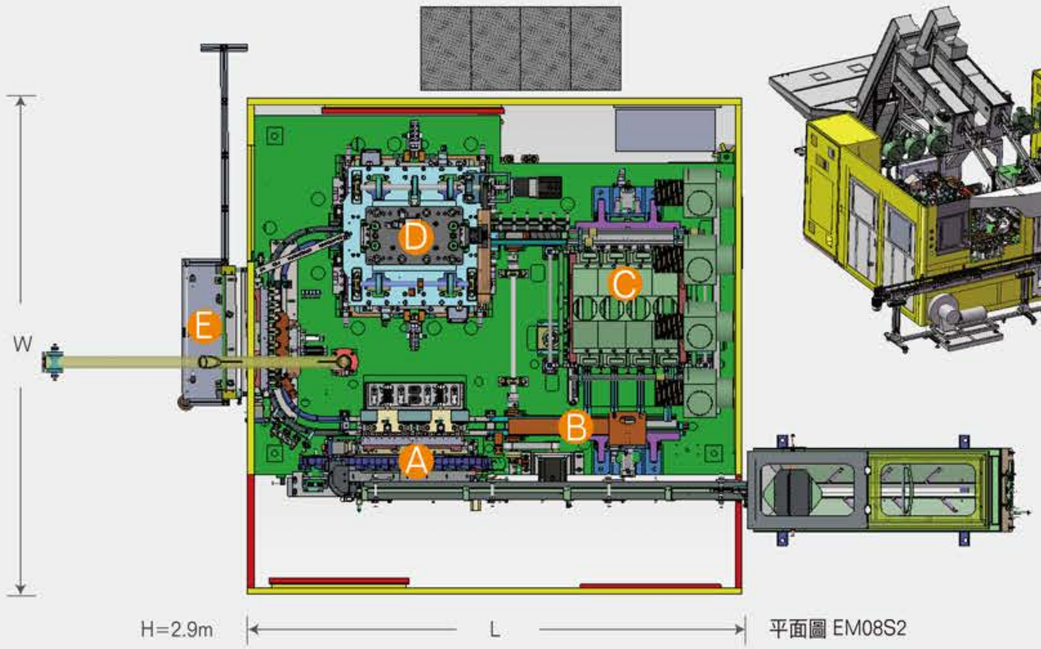
1. 每千支空瓶吹瓶機耗電2.0kwh
2. 每年節省耗電量13萬kwh
3. 比同業節省耗電47%

1. Every 1,000pcs bottle energy waste 2.0kWh
2. Reduce 130,000kg Carbon emission per year
3. Energy saving as high as 47%, compare with other competitor

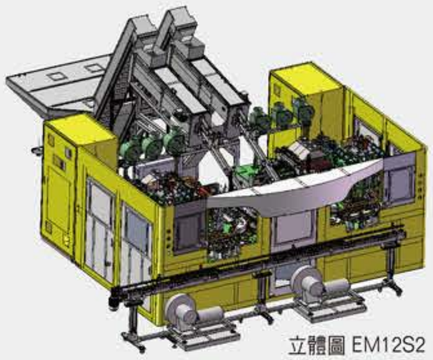
回收效率 Air Recycle Rate	45%
每千支空瓶吹瓶機耗電 Blow Power for 1,000 Bottles	2.0 kWh
每千支空瓶空壓機耗電 Air Compressor Power for 1,000 Bottles	6.0 kWh
每千支PET空瓶節省耗電 Power Saving for 1,000 Bottles	2.5 kWh
每年節省耗電(以5.3千萬支瓶子) Yearly Savings (Bases on 5.3 Million Bottle)	130,000 kWh
每年減少13萬kg排碳量 Yearly Reduction for Carbon Emission is 130,000kg.	Appr. 11,500 tree

瓶胚規格: Φ2925, 12.5 gram

機台結構 MACHINE STRUCTURE



平面圖 EM08S2



立體圖 EM12S2

A 入胚系統 Preform Infeed System

C 加熱系統 Heating System

E 出瓶系統 Bottle Discharge System

D 成型系統 Molding System

A 入胚系統 Preform Infeed System

- 輸送帶將瓶胚從料桶至整列機，再將瓶胚自動排列成序後單道送胚。
- 採用伺服馬達驅動分胚載塊作動及定位。
- 入胚夾爪將瓶胚取至公轉滑塊上。
- The conveyor delivers preforms from hopper to unscrambler, then preforms are automatically arranged in order for feeding at a single way.
- Movement and locating of preform dividing block is driven by servo motor.
- Preform in-feed gripper picks preforms and place them on the transfer system.

B 公轉系統 Transfer System

- 採用伺服控制的螺桿驅動，動作快速穩定及衛生環保。
  有別於傳統的直線機公轉採用鏈條傳動或氣缸驅動，噪音較大。
- Screw driven controlled by servo motor providing fast and smooth motion; meet sanitation and environmental protection. As distinguished from the conventional linear transfer system is normally transmitted through a chain or air cylinder, the noise is loud.

C 加熱系統 Heating System

- 瓶胚以併排橫列之矩陣模式送入加熱單元。
- 單邊燈管雙邊加熱與反射聚熱模式，確保瓶胚受熱均勻。
- 模組化設計，提昇紅外線燈管及冷卻水道維修保養便利性。
- 瓶胚出加熱箱後，配置溫度感應開關，顯示瓶胚溫度，利於加熱功率調整。
- The preforms are fed into the heating system in a parallel horizontal matrix mode.
- Double side single accommodation heating zone and reflect heat concentration concept make preform more evenly heat.
- Module design enhance maintenance of IR lamp and cooling ramp.
- Preform out from heating system, through thermocouple device to control preform temperature and adjust heating power efficiently.

D 成型系統 Molding System

- 鎖模機構採用伺服馬達配合凸輪驅動。
- 公轉滑塊將加熱後的瓶胚送至模具中吹瓶成型。
- 吹瓶後的高壓氣體回收，到儲氣罐，供增壓機或低壓系統使用。
- The clamping mechanism is driven by a combination of servo motor and cam.
- The transfer system delivers the heated preforms to the mold for blowing bottle process.
- The high-pressure air exhausted after blowing is recovered to air storage tank, which can be reused as air booster in low-pressure situation.

E 出瓶系統 Bottle Discharge System

- 出瓶處加裝出瓶銜接機構，與風送道連結，將成型瓶直接輸送至灌裝系統。
- The bottle discharge position is equipped with a connecting device that connects to air conveyor, which permits the formed bottles to be directly fed to the filling system.

機台規格表 EM SERIES SPECIFICATION

EM SERIES		Unit	STANDARD							HIGH-SPEED		
			TEM06S2	TEM08S2	TEM04S2-88	TEM08S2-88	TEM04M1	TEM04M2	TEM06M1	TEM12S2	TEM16S2	TEM16S2-88
			CEM06S2	CEM08S1	CEM04S2-88	CEM08S1-88	CEM04M1	CEM04M2	CEM06M1			
瓶子最大容量	Max. volume	Ltr.	0.75		1		2			0.75		1
模穴數	No. of cavities	cavity	6	8	4	8	4	4	6	12	16	16
胚頭數	No. of preform holder	pcs	168	224 (196)	128	224 (196)	120	144	168	336	448	448
加熱間距	Heating pitch	mm	54	54	54	54	54	54	54	54	54	54
瓶子間距	Cavity pitch	mm	80	80	88	88	128	128	128	80	80	88
牙口外徑尺寸	Preform neck	mm	18-38	18-38	18-38	18-38	18-38	18-38	18-38	18-38	18-38	18-38
最大瓶胚高度	Max. preform height	mm	100	100	100	100	160	160	160	100	100	100
最大瓶身直徑	Max. bottle diameter	mm	70	70	80	80	115	115	115	70	70	80
最大瓶身高度	Max. bottle height	mm	240	240	262	262	320	320	320	240	240	262
加熱箱數	Heating oven	units	1X3	1X4 (2X2)	1X2	1X4 (2X2)	1X2	2X2	1X3	2X3	2X4	2X4
燈管量	No. of infrared lamp	pcs	26	32	16	32	24	52	39	48	64	64
加熱最大功率	Max. heating power	kw	50	62	32	62	44	82	74	94	124	124
配置功率	Max. installed power	kw	62	74	44	74	56	94	86	118	148	148
機台電壓	Power supply	voltage	380V / 220V	380V / 220V	380V / 220V	380V / 220V	380V / 220V	380V / 220V	380V / 220V	380V / 220V	380V / 220V	380V / 220V
主機尺寸	Machine dimension	M	3.0X2.6X2.9	3.9X3.3X2.9	4.3X4.1X2.9	5.4X5.1X2.9	3.4X3.2X2.9	3.4X3.2X2.9	4.3X3.2X2.9	5.9X5.6X3.8	6.1X5.8X3.8	6.1X5.8X3.8
機台重量	Machine weight	kg	7000	7500	5500	7500	7000	7000	9000	15000	18000	18000
理論產能	Theoretical output	B.P.H.	9000	12000	6000	11000	5300	5300	7800	18000	21000	21000
實際產能	Actual output	B.P.H.	依客戶提供的瓶型規格、瓶胚設計和品質而定。 Based on the bottle shape, preform design and quality.									

※產品規格若有變更，恕不另行通知。Products are subject to change without notice.

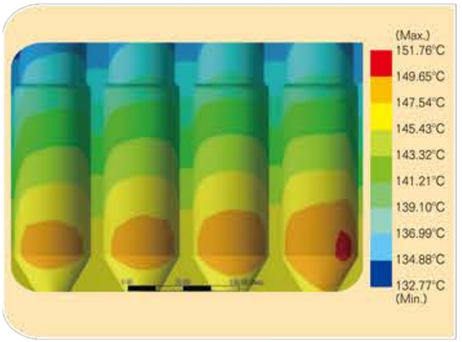
選配表 OPTIONAL

TPC	Top chain conveyor	頂板式輸送帶
SWI	Swing-arm conveyor	搖臂式輸送機
ARS	HP air-recovery system	氣體回收系統
ACS	HP air-cooling system	瓶子吹冷系統

RMS	Remote monitoring system	遠端監控系統
RMM	Remote management system	遠端管理系統
BRB	Burst bottle rejection	破瓶排瓶裝置
BRF	Full bottle rejection	滿瓶排瓶裝置

BRD	Broken bottle detection	破瓶檢測功能
ATF	Auto temperature feedback	溫度自動回溯
SSS	Servo stretcing ststem	伺服拉伸系統
WHM	Watt-hour meter	瓦時計

PET 熱模罐裝吹瓶模具加熱分析
HEATING ANALYSIS PET HOT-FILL BLOW MOLD



比較項目 Comparison Sheet	傳統油溫加熱 Thermal Oil Heating	電熱加熱 Electrical Heating
設備建置成本 Equipment Cost	較高 High	較低 Low
電力消耗 Power Consumption	較高 High	較低 Low
加熱管路配置 Heating Distribution	較複雜 Complicated	較簡單 Simple
環境 Environment Impact	會產生油霧 Oil Mist	較潔淨 Clean

EM SERIES		Unit	HOT-FILL			
			TEM06SH2	TEM08SH2	TEM04MH1	TEM06MH1
			CEM06SH2	CEM08SH1	CEM04MH1	CEM06MH1
瓶子最大容量	Max. volume	Ltr.	0.75		2	
模穴數	No. of cavities	cavity	6	8	4	6
胚頭數	No. of preform holder	pcs	168	224 (196)	120	168
加熱間距	Heating pitch	mm	54	54	54	54
瓶子間距	Cavity pitch	mm	80	80	128	128
牙口外徑尺寸	Preform neck	mm	18-38	18-38	18-38	18-38
最大瓶胚高度	Max. preform height	mm	100	100	160	160
最大瓶身直徑	Max. bottle diameter	mm	70	70	115	115
最大瓶身高度	Max. bottle height	mm	240	240	320	320
加熱箱數	Heating oven	units	1X3	1X4 (2X2)	1X2	1X3
燈管量	No. of infrared lamp	pcs	26	32	24	39
加熱最大功率	Max. heating power	kw	50	62	44	74
配置功率	Max. installed power	kw	82	94	76	106
機台電壓	Power supply	voltage	-	-	-	-
主機尺寸	Machine dimension	M	-	-	-	-
機台重量	Machine weight	kg	-	-	-	-
理論產能	Theoretical output	B.P.H.	4500	6000	2300	3500
實際產能	Actual output	B.P.H.	依客戶提供的瓶型規格、瓶胚設計和品質而定。 Based on the bottle shape, preform design and quality.			

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