

1

成品輕量化達20%以上、成型週期縮短達20%以上。

The finished product is lightweight by more than 20% and the molding cycle is shortened by more than 20%.

減重省料，降低生產成本

一般而言；成品減重率約10~30%。

從材料費用減少與生產效率提升來看，生產成本可低減20%以上。

In general, the finished product's weight can be reduced by approximately 10-30%.

Considering reduced material costs and improved production efficiency, overall production costs can be decreased at least 20%.

2

消除成品厚處的凹陷現象，改善成品表面的品質；減少產品殘留應力與翹曲變形，降低生產成本，提升產品品質及生產效率。

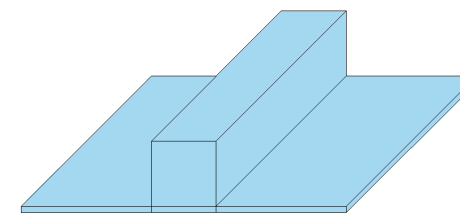
Eliminate dents in thick parts of the finished product and improve the surface quality of the finished product; reduce residual stress and warping deformation of the product, reduce production costs, and improve product quality and production efficiency.

增加結構強度 & 改善外觀品質

Structural enhancement & appearance quality Improvement

防止翹曲 Anti-warpage

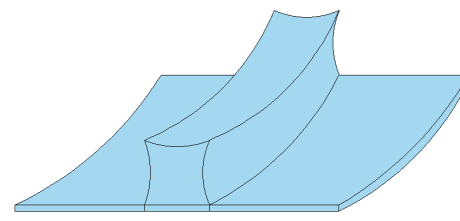
氣體輔助注塑成型  
GAM



N<sub>2</sub> Hollow Core

翹曲 Warpage

傳統射出成型  
General Injection Molding



Warpage

3

降低模穴內之壓力，減少鎖模力，降低生產成本。

Reduce the pressure in the mold cavity, reduce the clamping force, and reduce production costs.



應用領域：民生用品、家電、3C、汽機車、運動用品

Application areas : daily necessities, home appliances, 3C, automobiles and motorcycles, sporting goods



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AG Design 04-27071158

Gas Assisted Injection Molding **GAM**

氣體輔助注塑成型

鼎鉞奈米

# GAM

氣體輔助注塑成型  
Gas Assisted Injection Molding

為什麼選擇氣體輔助成型？

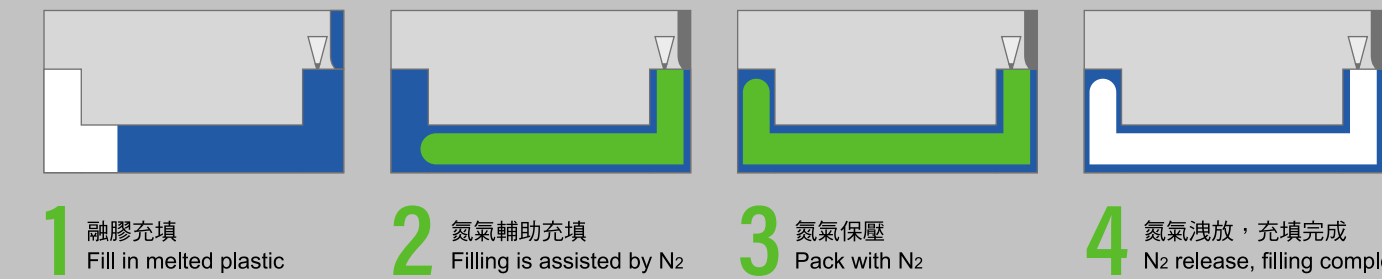
氣體輔助成型技術於1980年代初開發，徹底改變了許多塑膠成型產品的設計和製造。該工藝現已成為全球注塑產業的重要組成部分。

該工藝廣泛應用於汽車、電信、電腦、家用電器和材料處理等市場領域，因為它為零件設計者提供了更大的自由度，為成型商提供了更低的投資成本以及對成品零件品質的更多控制，最重要的是，它為最終提供用戶顯著的節約成本。

Why Gas Assisted Molding?

Developed in the early 1980's Gas Assisted Molding has revolutionized the design and manufacture of many plastic molded products. The process is now firmly established as an important component of the global injection molding industry.

The process is used across a wide range of market sectors including automotive, telecommunications, computing, domestic appliances and materials handling because it gives the component designer greater freedom, the molder lower investment costs and more control over the quality of the finished part, and most importantly it provides the end user significant cost savings.



1 融膠充填  
Fill in melted plastic

2 氮氣輔助充填  
Filling is assisted by N<sub>2</sub>

3 氮氣保壓  
Pack with N<sub>2</sub>

4 氮氣洩放，充填完成  
N<sub>2</sub> release, filling completion

節能、減碳、輕量化  
永續、效能、技術、綠色競爭力

Energy saving, carbon reduction, lightweight  
Sustainability, efficiency, technology and  
green competitiveness



# GAM Gas Assisted Injection Molding

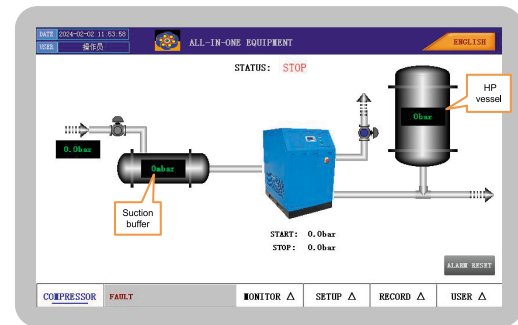
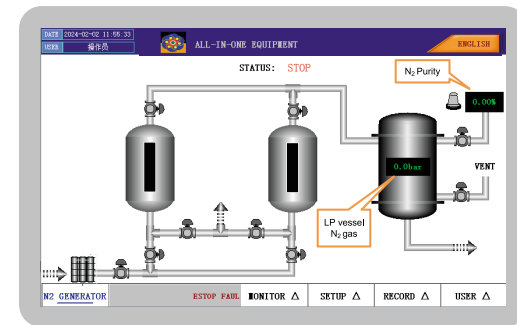
## 氣體輔助注塑成型

4 採用智慧彩色觸控螢幕控制，可監控注塑過程，顯示預設實際的注氣壓力和時間。

It adopts smart color touch screen control to monitor the injection molding process and display the preset actual injection pressure and time.

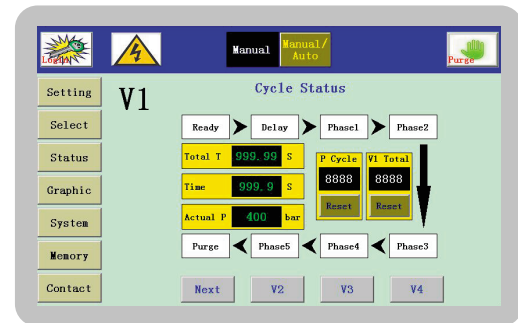
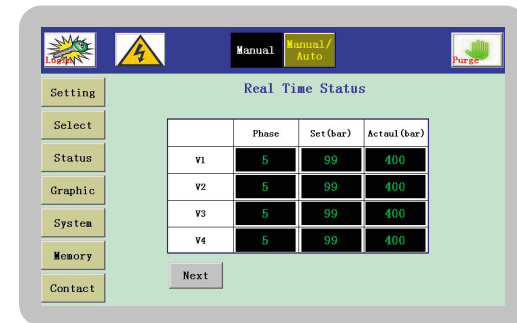
製氮機和增壓機運作監控視屏。

The nitrogen generator and high pressure compressor operating screen.



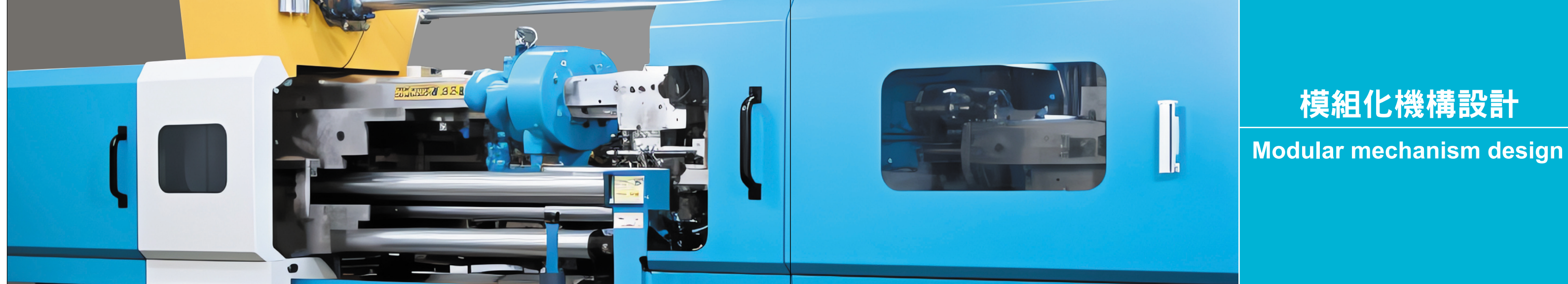
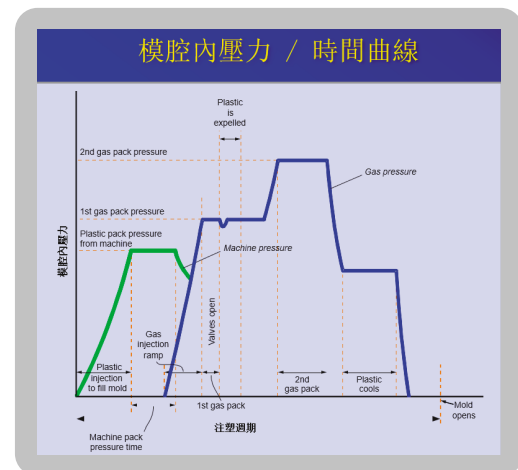
控制器系統可設定五階段壓力/時間，每階段可設定斜率，保壓時間和壓力。

The control system can use up to five pressure/time phase, each having ramp time, holding time and pressure.



氣體的壓力和時間曲線。

Pressure and time curve of gas.



## 模組化機構設計 Modular mechanism design

Customized according to customer needs, suitable for small-volume and diverse production.

針對客戶需求客製化，符合小量多樣生產。

5 適用於注塑的熱塑性塑膠 (加強或不加強) 及一般工程塑膠 (如PS、HIPS、PP、ABS、POM、PBT、PES) 皆可用於氣體輔助射出成型系統。

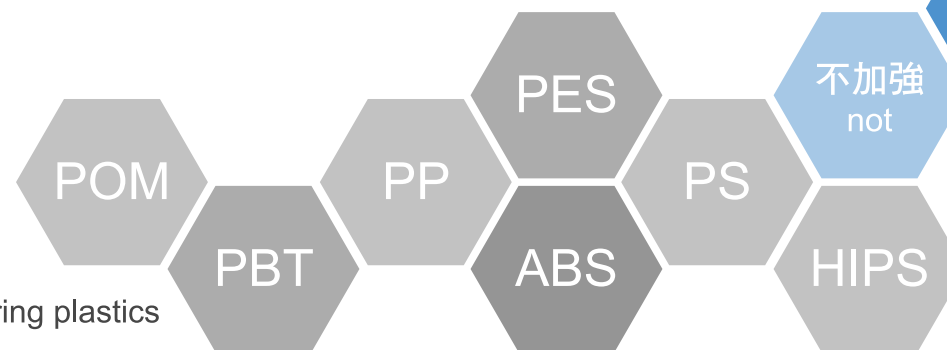
Thermoplastics suitable for injection molding (reinforced or not) and general engineering plastics (such as PS, HIPS, PP, ABS, POM, PBT, PES) can be used in gas-assisted injection molding systems.



熱塑性塑膠  
Injection molding

加強  
reinforced

一般工程塑膠  
General engineering plastics



6 氣輔設備一體化設計

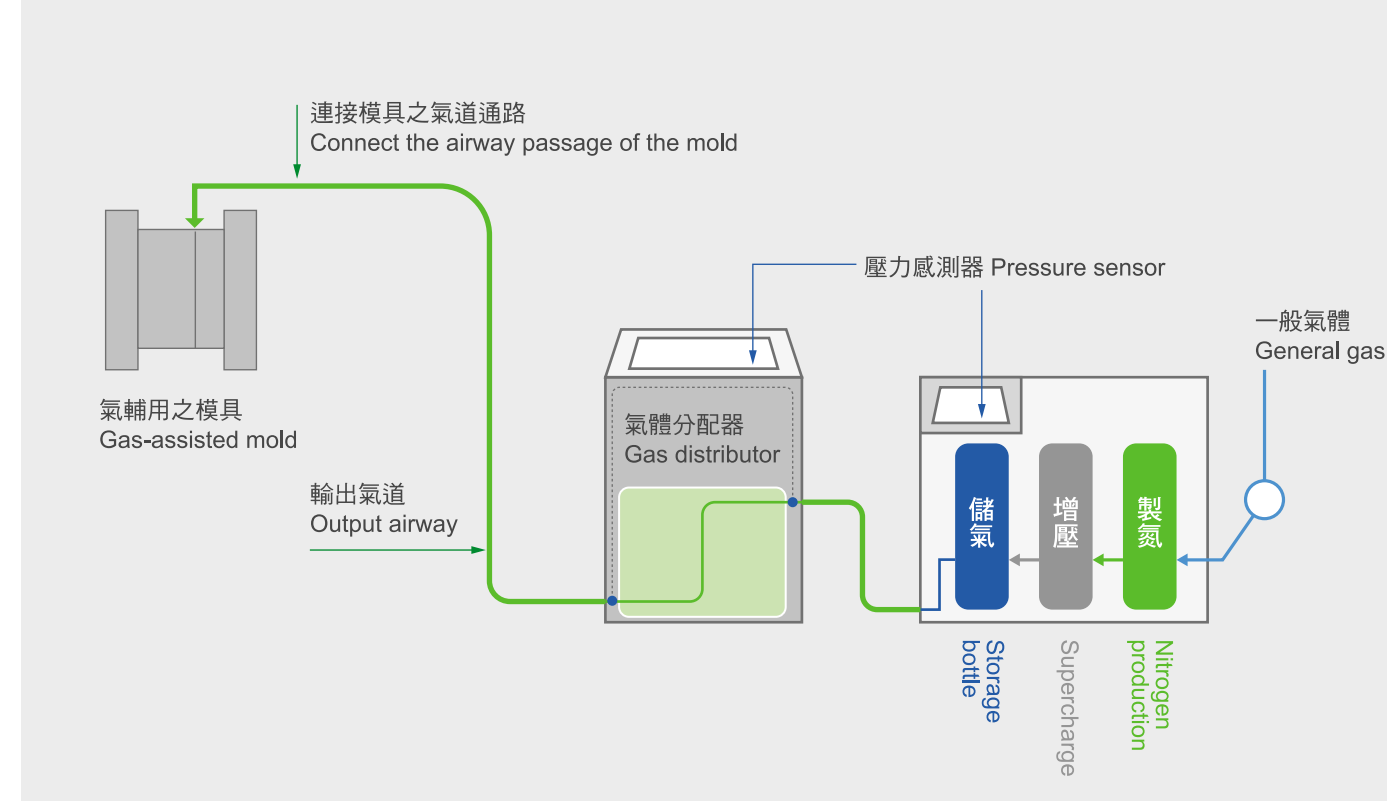
Integrated design of gas assisted equipment

多功能之氣輔成型複合機，整合氮氣製造機、氮氣增壓機、氮氣儲存鋼瓶、壓力感測元件，以減少設備和設備之間的管線連接，可提升設備效能穩定度，有效節省站地空間。

The multi functional gas assisted system integrates components such as a nitrogen booster, nitrogen generator, nitrogen storage tank, and pressure sensor, reducing pipeline connections between equipment, enhancing equipment performance and stability, and effectively saving manufacturing facility floor space.

### 氣體輔助機構一體化設計與配置示意圖

Concept and Diagram of the multi functional gas assisted system.



制氮機系統  
Nitrogen Generator Systems



增壓機系列  
High Pressure Compressor Systems



一體機  
All-In-One Equipment



控制器  
Controller



控制器Fx  
Controller



控制器Fx  
Controller