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精密 Precision
創新 Innovation
節能 Energy-saving
環保 Environmental

宜得世 精密 立式 臥式 射出機

Edex Precise Vertical / Horizontal Injection Molding Machine

系列射出機擁有已核准及申請中專利 30項以上
There are over 30 patents for all series injection molding machines

CE

EDEX TECHNOLOGY CO., LTD.

ATOP 臥式柱塞式射出機
Horizontal Plunger Type Injection Molding Machine

ATOZ / AFOX
Horizontal Screw Type Injection Molding Machine

Atos 臥式分模線柱塞式微射出機
Horizontal Parting Line Plunger Type Injection Molding Machine

Atom 臥式柱塞式微射出機
Horizontal Plunger Type Micro Injection Molding Machine

ATOL 臥式多色多材質射出機
Horizontal Multi-color/resin Injection Molding Machine

ATOR 臥式轉盤雙色雙材質射出機
Horizontal Rotary Duai-color/resin Injection Molding Machine

VTOP 立式柱塞式射出機
Vertical Plunger Type Injection Molding Machine

VTOZ 立式螺桿式射出機
Vertical Screw Type Injection Molding Machine

VTOS 立式分模線射出機
Vertical Parting Line Injection Molding Machinehiinee

VTOL 立式多色多材質射出機
Vertical Multi-color/resin Injection Molding Machine

極簡風格 極限演繹 全方位應用的專業品牌

Minimal Style Extreme Deduction Integrated Professional Brand of Diverse Applications

2010 台灣精品獎
2010 創新研究獎
2010塑橡膠機械 研發創新特優獎
2011 台灣精品獎
2011 產業創新成果獎
2012塑橡膠機械 研發創新優等獎
2013 創新研究獎
2014 台灣精品獎
2014塑橡膠機械 研發創新佳作獎
2015 台灣精品獎

宜 得 世 股 份 有 限 公 司

2023/07

極簡風格 極限演繹
全方位應用的專業品牌

MINIMAL STYLE & EXTREME DEDUCTION

專利輻射式力學模板設計
Patented central-radial mold platen design

安全門視窗使用強化防爆玻璃
Tempered glass used in safety door

完美的無分力射出機構
None-Side-Force injection mechanism

活動模板搭配線性滑軌
Linear guides with movable platen

免調模兩板直壓式四缸鎖模機構
Mold-adjustment-free and 2-platen 4-cylinder direct clamping mechanism

外型美觀及最短機身設計
Great machine appearance and minimum machine size

最低的機身高度
Minimum machine height

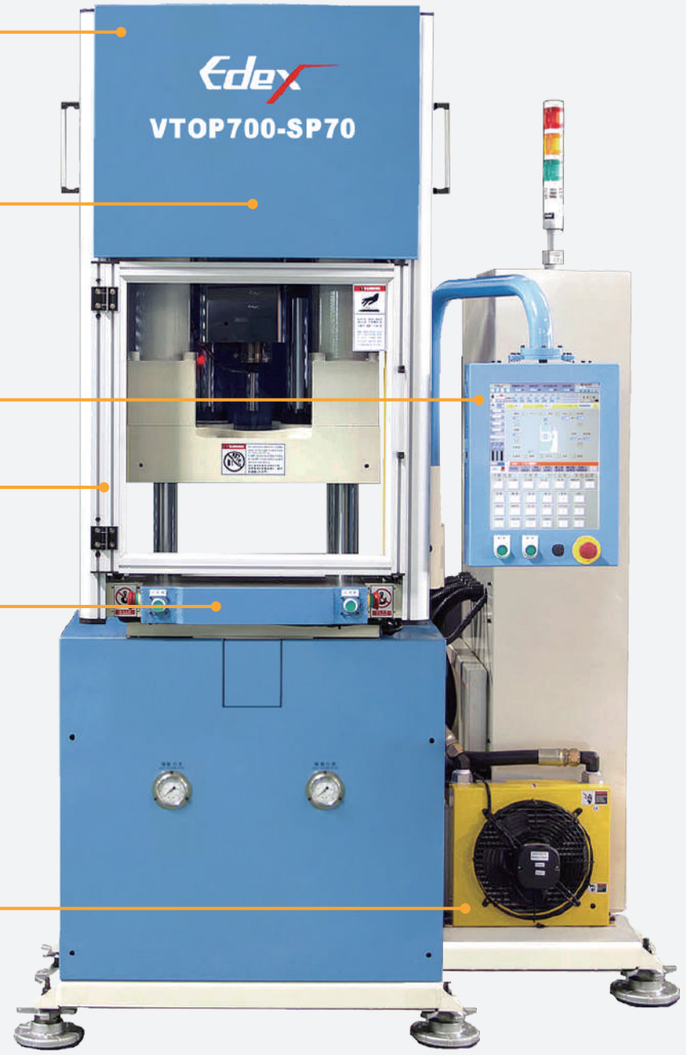
專利設計輔助進料系統
Patented active bypass auxiliary plasticization system design

15”多功能觸控式螢幕控制器
The 15” multi-fuction touch panel controller

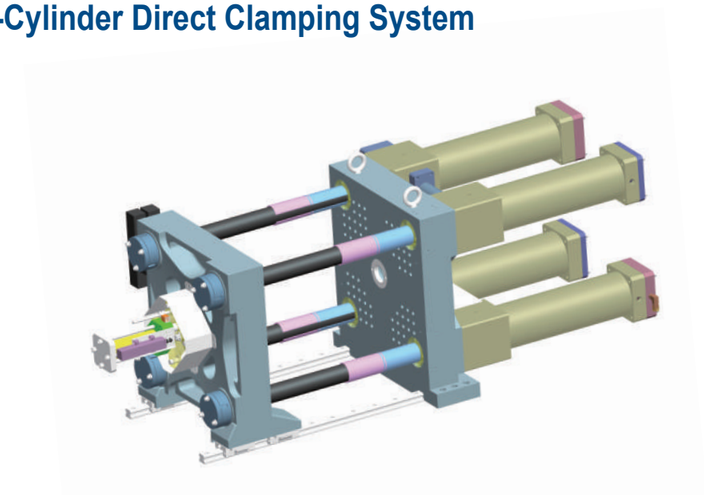
安全光柵及安全門雙重防護
Dual protection of safety door and safety light curtains

符合人體工學的工作檯高度
Human engineering design for minimum working table height

電腦控溫氣冷式油冷卻系統
All series use air cooling system for hydraulic unit



世界最精密、最耐用的鎖模系統
The Most Precise, Durable Clamping System in the World
兩板直壓式四缸鎖模機構
2-Platen 4-Cylinder Direct Clamping System



免調模設計確保鎖模精準度

不同於三片模板的鎖模機構需要調模的步驟才能校正鎖模力，兩板直壓式四缸鎖模機構只需設定低壓位置和鎖模高壓值，鎖模力即可校正完成，更換模具時間最短。

Mold-adjustment-free ensure precise clamping

Compare to conventional 3-platen clamping mechanism, 2-platen 4-cylinder direct clamping system only need to set up low-pressure and high-pressure positions. The clamping force finishes adjustment that make mold change quickly.

具力學自適性的模板設計

兩板直壓式四缸鎖模機構同步施力鎖模力最平均，對模具四角落平行度範圍內的微誤差具自適性，使模具平面各點所承受的力量相同，不易生毛邊，有效提升產品品質。

Self-adapt platen mechanism design

The clamping pressure evenly clamp on 4 corners with 4 cylinder direct clamping system, prevents platens from abrasion due to unevenly pressure of 4 platen corners. If the mold's level is not very precise, the clamping force is evenly adjusted mold clamping force for getting good quality parts.

無損耗、無污染、絕不退壓

兩板直壓式四缸鎖模機構完全沒有重摩擦的損耗，加壓後絕不退壓，線性滑軌耐用十年以上，只需3-6個月以固態潤滑油保養一次，無污染可於無塵室、無菌室使用。

No wear, no pollution, no pressure decreasing

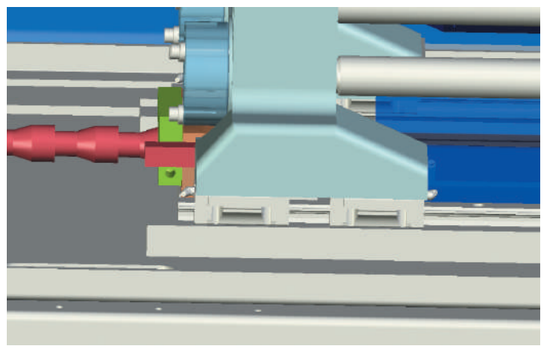
No heavy friction of 2-platen direct clamping mechanism and no pressure decreasing after pressurizing. Liner guides have more than 10 years durability, just need to grease every 3~6 months, no pollution and available to use in clean room.

精密線性滑軌，最高的鎖模精準度

- 公差只有0.01mm，滑動順暢，精密度高。
- 無曲手之重磨耗，十年以上的耐用年限。
- 模板滑座向前延伸至重心，模板不前傾。

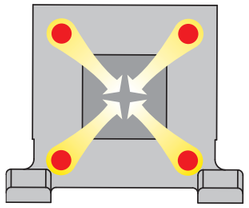
Precise linear guide unit

- Tolerance only 0.01mm, sliding smoothly, and high precision.
- Over 10 years durability and no heavy friction as toggle type.
- Platen's center-of-gravity position reached to the mold.



世界唯一以模具平面為基準的直接鎖模機構設計
Direct Clamping Mechanism Base on the Mold Plane Is the Exclusive Design in the World

不同鎖模方式對模板施壓的平均力度比較圖 Comparison of different clamping mechanism design

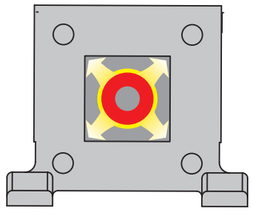


兩板直壓式四缸鎖模方式

模具受力最平均，對模具形成力學自適性，有利於精密射出。

2-platen 4-cylinder direct clamping

Evenly mold clamping force and self adapt mold clamping systemimproved the accuracy of injection system.

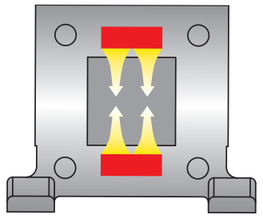


單缸直壓式鎖模方式

模具受力平均，但缺乏力學自適性。

Single cylinder direct clamping

Evenly mold clamping force but lack of self-adapt function.

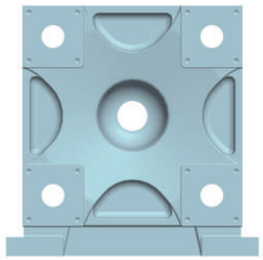


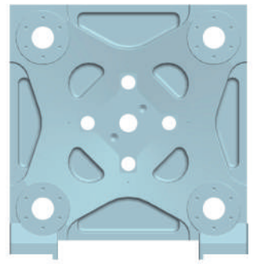
曲手式鎖模方式

模具受力不平均，缺乏力學自適性，且模板受力時橫向曲度大。

Toggle clamping

Unevenly mold clamping force,lack of self-adapt function and big platen deformation during clamping.





專利輻射式力學模板，強度增加一倍

- 最大變形量萬分之二以下，哥林柱永不斷裂。
- 輻射狀力學設計，模具壓力被模板平均吸收。
- 獨創內凹式模板設計，增加操作的空間縱深。

Central-radial platen provides double strengths

- The max deformation less than 0.0002, tie-bar never breaks.
- Average radial mechanism design, evenly clamping force.
- Patented cancave mold platen desugn, operation space increased.

哥林柱永不斷裂

不必受限曲肘式約20~24倍放大率的限制，可設計較高安全係數的哥林柱，配合智慧釋壓程式的運用，哥林柱可永久使用，絕不斷裂。

Tie-bars never break

Not limited by 20 to 24 times magnification rate of toggle, that could design tie-bars with higher safely coefficient with the intelligent pressure releasing program, tie-bars can use permanently, and never break.

一般機30~80%鎖模力即可生產

配合新柱塞式射出工法，高速射出更順暢，更大的射出穿透力讓塑流降低在模腔內的阻力，低鎖模力即可生產，小機大用途，大幅延長模具使用年限。

only 30~80% clamping force of conventional type

With the new plunger type injection method, high speed injection becomes smoother, higher injection penetration reduce the resistance of melting resin in the mold, producing with lower clamping force, multi-purposes of small machine, longer mold life.

精準的電子偵測低壓系統，確保模具安全

利用線性滑軌的高滑動特性，配合壓力波回溯電子偵測系統，達到極敏銳的低壓防護功能，可確保模具安全。

Accurate low pressure detection system

By using the features of linear guide slide with the pressure backtracking electronic detection systems that achieve low-pressure protection with extreme sensitivity, and ensure the safety of the mold.

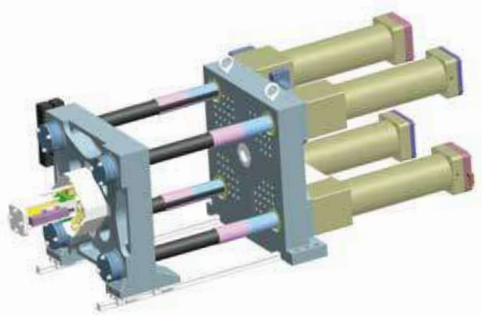
2-Platen 4-Cylinder Direct Clamping System 兩板直壓式四缸鎖模機構

兩板式鎖模運作原理

以連結於固定模板的四支高壓油缸直接透過四支哥林柱使活動模板往復運動，加壓鎖模運作時是以模具平面為基準，依巴斯噶液壓原理由四支油缸同步向模具平面平均加壓，在一定的偏差範圍內具有良好的力學自適性，足以使模具平面任何角落都承受均等的鎖模力，而模具水平移動的精準度是由活動模板下方的精密線性滑軌來承擔，產品不會產生毛邊，模具的精度要求可略為降低，機械模板間的平準度也不受影響，完全不必調校，雖然成本較高卻是最精準耐用的鎖模結構。

Operation principle of 2-platen direct clamping type

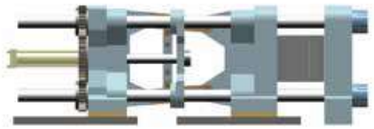
Movable platen reciprocation is made by 4 tie-bars linked up fixed platen and 4 high pressure cylinders, clamping force is based on mold plane, 4 cylinders synchronously evenly pressure to the mold plane, good self-adaptable platen within a certain range of deviation, evenly clamping force for every corner of the mold, the accuracy of the horizontal movement of movable platen taken by linear guide, no flash occurs, no need to adjust mold, although the cost is higher but equipping the most accurate and durable clamping structure.



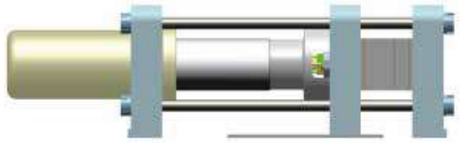
- ■直壓式鎖模配合智慧程式，哥林柱永不斷裂。
- ■模板受力點在正中央，模具鎖固佳不出毛邊。
- ■無複雜曲肘的耗損構件，精密耐用絕不退壓。
- ■免調模無鎖模壓力段差，鎖模力精確又好調。
- ■直壓傳動，使開關模的速度相等於驅動速度。
- ■兩板直壓鎖模設計，機身最短廠房利用率高。
- ■直壓式開模行程變動且更大，適合更多模具。
- ■可搭配高速射出壓縮動作，提昇射出機性能。
- ■只需極少量的固態潤滑油，不會汙染無塵室。

- ■ By using intelligent pressure release program, tie-bars never break.
- ■ The pressure evenly clamping on platen for good mold lock and reduce product flash occurs.
- ■ No wear, high accuracy, longer machine life and no pressure reduced.
- ■ Mold adjustment free design for no pressure gap and precise clamping force.
- ■ Direct clamping system, clamping speed is as same as setting speed.
- ■ The length of machine is reduced by 2 platen design, getting more space utilization.
- ■ Max mold open stroke equals to Max daylight - Mold thickness, available for more molds.
- ■ Control high speed compression injection easily, enhances injection performance.
- ■ Only need a few grease for lubrication, clean room won't be polluted.

曲肘式鎖模 Toggle clamping type



三板式鎖模 3-platen direct clamping type

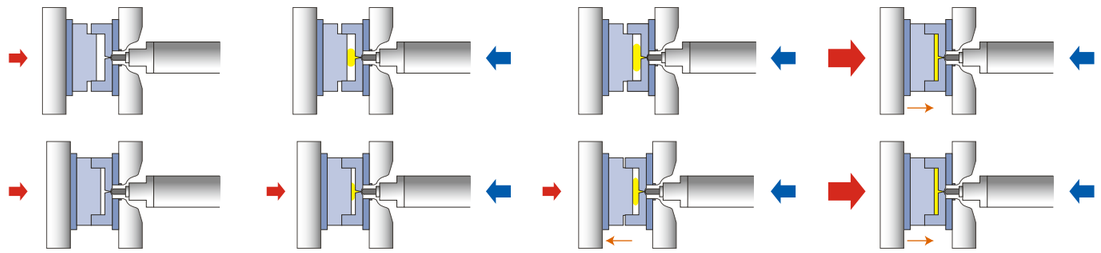


高速射出壓縮 (選配項目)

針對超薄產品，射出壓縮必須在0.05秒內完成，只有直壓式鎖模能以無階梯的高速加壓方式完成射出壓縮動作，確保高階產品的品質。

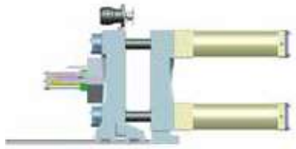
Compression injection (optional accessories)

For ultra-thin wall products, injection compression must completed within 0.05 second, only direct clamping type can complete injection compression action with high-speed pressure to ensure the quality of high-end products.



New Application System 最完整的新應用體系

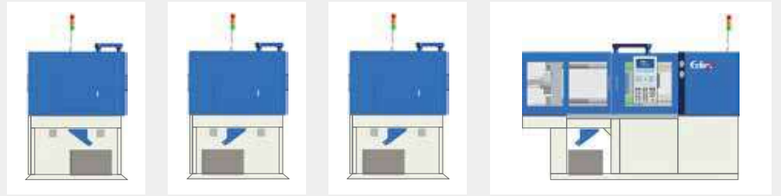
絞牙動作
Gear core action



托模及絞牙同軸動作
Ejector system combined with core function

高速模內切動作
High speed gate cut system

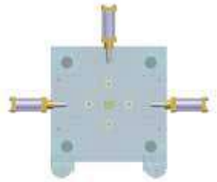
可任意方向產品裝箱設計
Multi-direction of product collection



產品、澆道分開放置
Separate runner and product

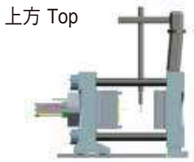
可任意方向產品輸送設計
Multi-direction of conveyer belt

中子動作
Core action

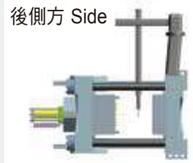


機械手取出裝置
Robert system

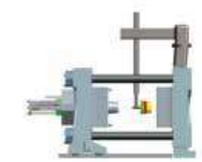
上方 Top



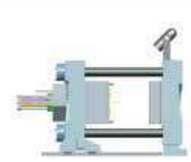
後側方 Side



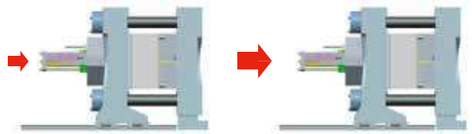
IMD模內貼標系統
IIn-mode display system



CCD模面偵測系統
Mold monitor system

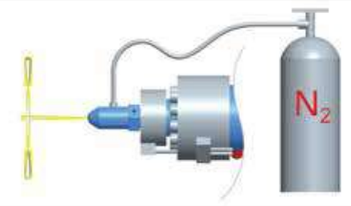


全面高速壓縮動作
Compression-injection system



局部高速壓縮動作
Partial Compression-injection system

氮氣充填中空射出系統
Nitrogen-assisted system



金屬拖帶式埋入射出系統
Metal belt/rope insert-molding system

LSR兩液射出
Liquid Silicone Rubber Injection

以上動作裝置，部分為選配項目 Certain items are optional accessories

Other Features 其他機種特點

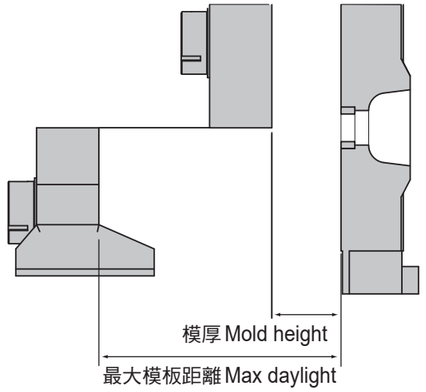
世界最短的量產型射出機

專利鎖模機構及射出整體設計，可較傳統機型機台長度縮短約30%，能有效降低機台長度，提高廠房利用率。

The shortest injection molding machine in the world

With patented clamping mechanism and structure design, the machine length reduced by 30% from conventional machines for getting more space utilization.

開模行程比曲手機更大 Mold opening stroke bigger than toggle type



EdeX 系列機機種長度只有一般機的60~70%

The length of EdeX all series machines are only 60~70% of conventional machine

模組化3D設計動力組合

以3D設計整合各動力元件，確保絕不漏油，故障率最低。

Modularized 3D design power combination

Power parts integrated by 3D design make sure no oil leakage and low machine failure rate.

其他便利設計

- 便利的動力插頭設計
- 多功能油箱設計

Other convenient design

- Convenient power socket design
- Multi-function oil tank design

全系列電腦溫控氣冷式冷卻系統

全系列油溫冷卻採氣冷式系統，不需循環水，免保養，氣冷式冷卻系統搭配智慧程式，油溫到達時才進行冷卻，節能且潔淨，更有助於射出的穩定度。

Air cooling system for all series

All series use air cooling system and intelligent program for controlling oil temperature, no cooling water and maintenance are needed. Operates when the oil temperature reaches, with energy saving and better machine stability.

Energy-Saving Hydraulic Servo Motor System 伺服油電節能系統

Energy-Saving

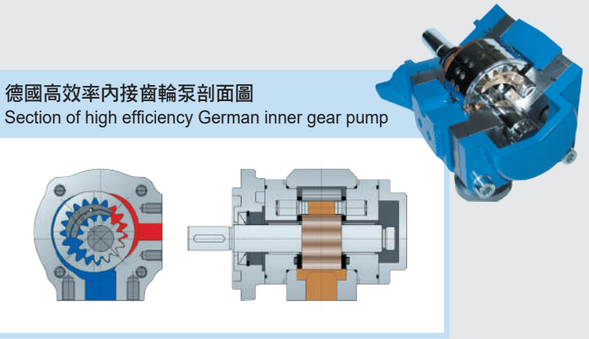
EdeX全系列使用更進化的節能系統

搭配高精密等級伺服馬達以及高效率內接齒輪泵浦可達到最佳的節能效果，依所生產產品的不同用電量約可節省用電40~70%。

All series use evolution energy-saving system

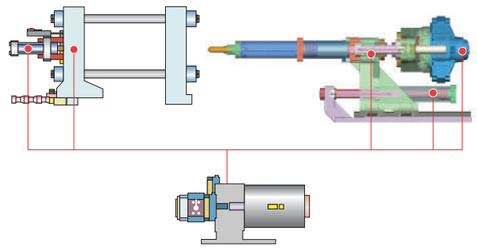
Adopt with precise servo motor and Germany inner-gear pump, it can save about 40~70% electric power of conventional injection molding machine.

德國高效率內接齒輪泵剖面圖
Section of high efficiency German inner gear pump



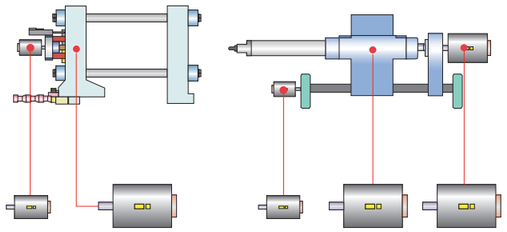
EdeX 射出機使用單一伺服馬達搭配精密的液壓系統，經濟又節能。

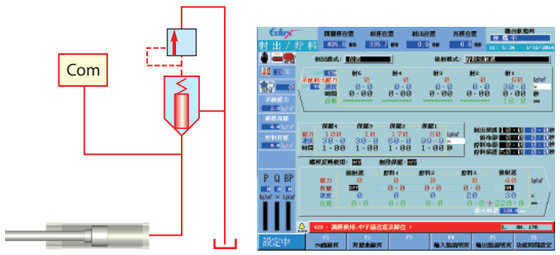
EdeX uses only one servo motor for high precision hydraulic system.



全電式機種各部位使用獨立的伺服馬達控制且結構複雜。

All-electric injection molding machines use independent servo motors for different unites, that make complicated structures.





精密的數位背壓控制，操作更方便。

Precise digital back pressure control system, easy to operate.

比全電機更環保的機電整合設計

- 伺服油電動力和全電機一樣節能。
- 機構更耐用，保養更簡易，維修費用更低。
- 無曲肘之重磨耗，鎖模精確，更耐用。
- 機構耐用30年，節省購機費用，珍惜地球資源。

More environment and energy-saving than all-electric types

- Same power consumption efficiency as all-electric types.
- Durable mechanism, simple maintenance, lower service cost.
- Without heavy wear mechanism as toggle type, more durable and precise.
- Durable structure extends lifetime, more environmental.

比全電機更高的射出壓力、保壓壓力，更精準的螺桿背壓

- 射出填充及保壓壓力均高於全電機，並可依產品需求再提升。
- 射出背壓是塑料受擠壓的實際數值，更精確。

Better injection pressure, packing pressure, back pressure precision than all-electric types

- Injection / hold pressure higher than all-electric type, also can be customized.
- Precise real-time back pressure display.

比全電機更低的噪音值

內藏式伺服馬達，噪音值比全電機低。

Less noise than all-electric types

All series use build-in servo motor, less noise than all-electric type.

Intelligent System 智慧程式控制系統

15吋多功能觸控式螢幕控制器

全系列使用15 吋32bit高解析度TFT-LCD全彩液晶螢幕清晰炫麗，主機、人機介面及PLC採用三顆獨立32位元高速CPU運算，達到最高的運算效能，PLC程式可無限制更換頁幕及動作，更可在世界任一角落利用網路即時更新程式，配備最大的239組記憶模組，並可轉存至你的USB隨身碟上達到無限擴充記憶模組的目標，SPC生產管理系統可紀錄多達14種數據，射出參數可記錄多達500組，精確控制每一個生產的細節，有效提升射出產品的精度目標。

- 32bit 全彩TFT-LCD 15”觸控螢幕，解析度高達1024x768
- 溫度採用比例微積分演算(PID)，溫度誤差可在1℃內
- 射出、射座、開關模及托模皆使用電子尺定位，操作極便利
- 射出高性能，填充五段、保壓四段、貯料三段，可依需要程式設計增加段數
- 數位式貯料背壓控制，可輕鬆於螢幕上設定，提升貯料品質
- 電腦各頁顯示畫面可經由單鍵輸入儲存至USB為BMP圖檔，方便記錄

The brand-new multi-function touch panel controller

15” 32-bit full color TFT-LCD touch panel. User interface and PLC program are very friendly to use, 3 independent 32-bit CPU, providing high performance calculation and unlimited operating windows of PLC program. You can upgrade system from any place of the world through the internet, and there are 239 mold data can be saved and copied into USB device. SPC production management system can record 14 different types of data. The injection parameters can be stored up to 500 records. By controlling every production details, improve the accuracy of injection products highly.

- 32bit 15” Full color 1024x768 dpi TFT-LCD touch panel.
- PID control temperature tolerance less than 1℃.
- Convenient operation with using position transducer to injection, injection base mold close/open mold fixing .
- Outstanding injection performance with 5 stages injection 4 stages holding pressure and 3 stages storages, which are all available to increase stages if necessary.
- Digital back pressure control, easy to set up on screen to improve resin stability.
- USB storage device for all screen settings saved by bmp format.

EdeX 電腦智慧程式讓射出更容易

- **射出速度設定可達0.1%的超低速水準。**
- **射出壓力可切換為實際料管內壓力值或系統壓力值。**
- **鎖模力有系統壓力及實際鎖模力可對照。**

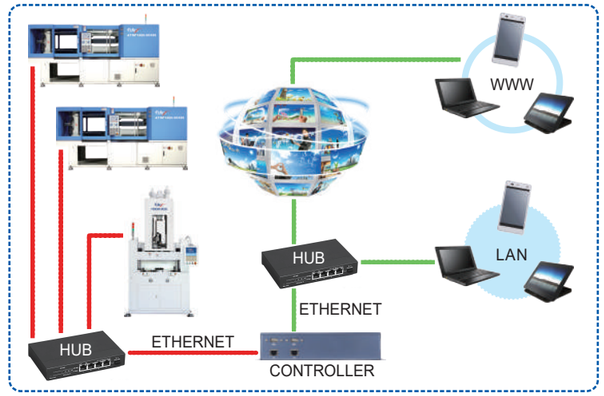
Easy operation with using Intelligent Program Controller

- Extremely low injection speed under 0.1%.
- Injection pressure is able to change to real barrel pressure.
- Clamping force appeared by kgf/cm2 and KN(actual clamping force) units.

Application of Industry 4.0 工業4.0應用

工業4.0應用 遠端網路連線監控

- 可即時監控廠內機台現況，並記錄生產資訊
- 透過網際網路，利用PC或手持裝置在世界任何角落皆可掌握生產狀況。
- 可記錄SPC資料，提供工程師更快速的線上分析。
- MIS人員可依公司需求規劃專用的界面，甚至可客製與ERP連線，在訂單產生時直接上載成型條件，自行設定產能目標，實現進階管理。
- 維修人員可透過網路進行問題排解，快速掌握機台狀況。

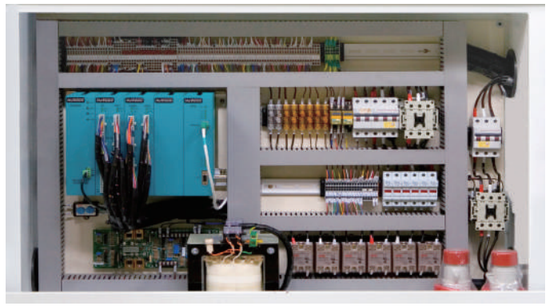


Application of Industry 4.0　Monitor machine by the internet

- Real-time monitoring of machine status in the factory and recording the production information.
- It allows users to master the production status anywhere in the world through the Internet with the help of a PC or handheld device.
- Able to record SPC data for the engineers to perform faster online analysis.
- The MIS personnel can plan exclusive interface following the company requirements, or even customize the ERP link to directly upload the molding conditions while dealing with the order, and personally set the production goals to achieve advanced management.
- The maintenance personnel can perform troubleshooting through the Internet to rapidly grasp the machine status.

電氣箱配置

動力、電熱、控制迴路均安裝獨立保護器，控制器並加裝突波吸收器，確保迴路不受干擾。
電源部各加裝符合安規的雙保險絲，確保迴路安全。
使用德國西門子最高等級動作保護元件，確實執行保護作用。
各部元件均以高阻計全檢，確保不會產生漏電造成危險。
接線使用德國WAGO歐規端子盤，配合邏輯佈線法配置，盤面清晰而整潔。



前後門緊急停止壓扣均採雙迴路設計，當軟體發生異常時，仍可將馬達及電熱順利關閉，確保安全。
所有訊號線均採用高規格雙隔離屏蔽線材，確保電腦控制器不受干擾。
所有電纜線均使用包覆防水耐蝕尼龍浪管的等級，確保不受油污腐蝕、鼠類咬噬或其他磨擦耗損。
料管電熱、機械手、模溫、中子…等動作線路，均以中繼盒轉接，確保不必在控制箱內接線及容易施工及維護。

Electric appliance box

Independent protector for power, heater and control unit, surge protection device for controller, keep the circuit from interfering.
Dual fuse for power unit, ensure circuit safety.
Use SIEMENS Contactor for protection part to protect thoroughly.
High resistance for every part avoids the risk of electric leakage.
Use WAGO for terminal block system. The front and back doors emergency stop pressure buckle adopted the double-loop design that could shut down the motor and heater power to ensure the safety under exceptions.

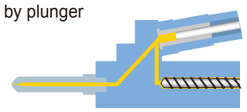
Use a dual electric circuit for emergency stop to ensure function well when any irregular occurs.
All cables coated waterproof corrosion resistant nylon flexible conduit free from oil pollution corrosion, rodent biting or other friction wear and tear. Barrel, mold temperature, core function.. such action lines are adapted in the relay-box to avoid connecting lines in the control box and make construction and maintenance easily.

無所不能的新柱塞式工法
登峰造極的射出革命
New Plunger Type Injection Revolution

射出工法的進化
The Evolution of Injection Methods

EdeX 螺桿貯料柱塞射出方式

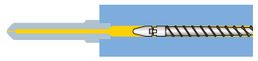
Plasticization by screw / Injection by plunger



- 貯料時螺桿自轉不後退，塑料混煉最完全柱塞可完全；防止塑料逆流，射終點最精準。
- Screw rotates in a fixed position ensure perfect plasticization, also plunger type design prevent resin from back-flow make sure shot-end position be controlled perfectly.

螺桿貯料線性射出方式

In-Line Type

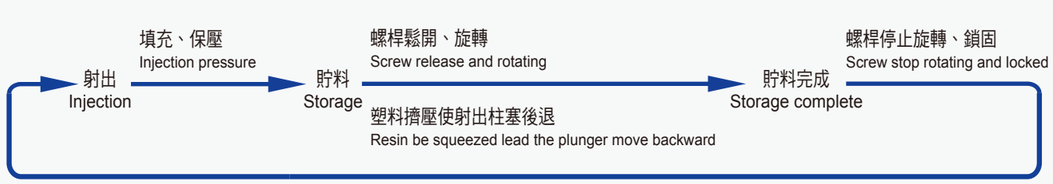


- 止逆裝置結構複雜容易故障，塑料逆流的可能性較高，射終點精準度較難掌控。
- Reflux ring of the screw's structure mechanism is complex and easy to be breakdown, moreover, hard to control shot-end position.

分料梭結合柱塞式射出方式

Mixed material shuttle combines with plunger injection method

- 以分料梭作為塑料傳導熱和摩擦熱的工具，塑料熱熔效率差，射出精度難掌控。
- Mix material shuttle as the tool of conducting heat and rubbing heat for plastic resin conduction is slow and incomplete, it would also cause inaccurate injection.



柱塞式射出動作順序圖示 **Inject movement of plunger type**

柱塞式射出是世界公認最精密的射出系統

柱塞式射出是世界公認最精密的射出系統，除了可讓每一顆塑料都經過相等節數螺牙的完美混煉之外，更因螺桿結構簡單可達成半永久性使用目標，柱塞式射出更可完全防止塑料逆流，射終點最精準，可輕易達成精密射出的目的。

Plunger injection is the most precise injection molding method in the world

Resin is homogeneous and well melted and the simplified screw structure design to make screw life longer. Plunger type prevents backflow risk and own the most precise shot-end position, it's easy to complete precise injection.

精密射出的極致呈現

- 射終點最精準，產品再現性最高。
- 最高的射出穿透力，大幅提高產品等級。

The greatest performance in precise injection

- The most precise shot-end position, high repeatability.
- The highest injection penetration produces high-end products.

革命性新柱塞式射出工法 大幅提升生產效率

- 塑料完美混煉，射出時塑料分子堆疊效應低，產品固化迅速，可大幅縮短生產週期，最快達四倍產能。

Revolutionary new plunger injection method enhances the efficiency of production greatly

- Perfect mix of melted resin, stable resin density, can significantly shorten the cycle time up to four times the capacity.

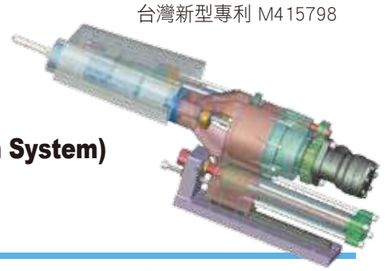
IPIS (Interchangeable Plunger Injection System) 可更換式柱塞射出系統

大陸發明專利 ZL200910161069.1
台灣新型專利 M415798

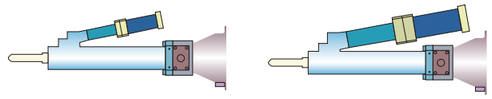
世界首創發明專利設計－IPIS可更換式柱塞射出系統設計
讓射出更容易、更精準、更全方位

New Invention patent – IPIS (Interchangeable Plunger Injection System)

Make injection easier, more precise and with full-fuctional



IPIS可更換式柱塞射出系統
(Interchangeable Plunger Injection System)



- 可藉由更換射出組件達到全功能射出的目標。
  By changing injection units to meet full-functional.

IPIS讓『全方位射出』成為可能

可更換式柱塞射出系統(IPIS)，可配合不同射出產品的性能需求更換不同的射出柱塞模組，即可實現全方位(All in one)射出機的終極目標，不必浪費資源頻繁購買、更換射出機，可延長射出機使用年限，讓客戶的投資更精準、更具綜效，折舊攤提率最低。

IPIS(Interchangeable Plunger Injection System)

Interchangeable Plunger Injection System (IPIS) adapts to different requirements of injection performance by changing injection units to meet full-functional (All-in-one). The final choice of injection machine extends injection machine life and saves money from replacing machines.

柱塞式射出 Plunger type

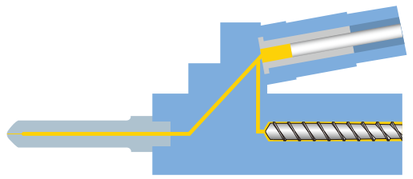
不受限力學定律 = 完美的貯料混煉 & 較大的射出穿透力

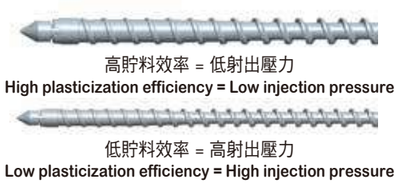
Perfect resin plasticization & highest injection penetration

螺桿式射出 In-Line type

受限於 作用面積 $\propto \frac{1}{\text{射出單位壓力 (kgf/cm}^2\text{)}}$ 力學定律

Limited by screw area $\propto \frac{1}{\text{Unit injection pressure (kgf/cm2)}}$

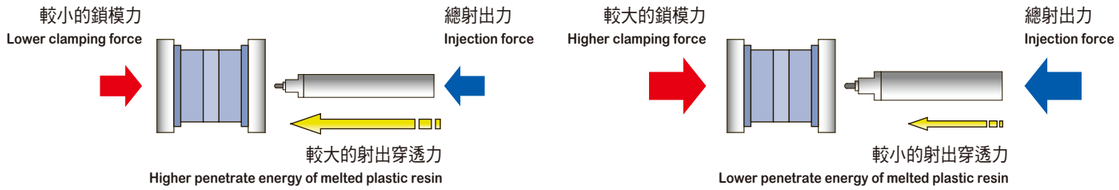




高貯料效率 = 低射出壓力
High plasticization efficiency = Low injection pressure

低貯料效率 = 高射出壓力
Low plasticization efficiency = High injection pressure

更低的鎖模力 Lower clamping force



最小的塑流阻力 / 最大的射出穿透力 The minimum resin resistance / The largest injection penetration

射出穿透力 **Penetrate energy of melted plastic resin**

所有塑料融熔後皆是非牛頓流體，螺桿式射出可產生 2^2, 2^3, 2^4 高倍數的液體阻尼效應。
柱塞式射出可有效降低液體阻尼效應，亦即增加數倍的射出穿透力。

All melted resin are non-Newtonian fluid, injection by in-line type can make 2^2, 2^3, 2^4 damping resistance.

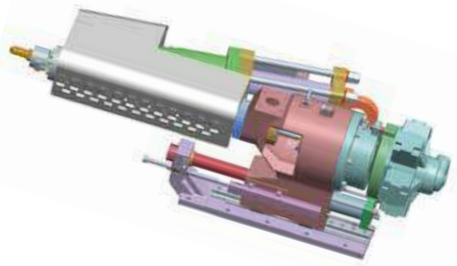
Plunger type injection can reduce damping resistance and increase few times injection penetration.

ATOP-series

柱塞式射出機

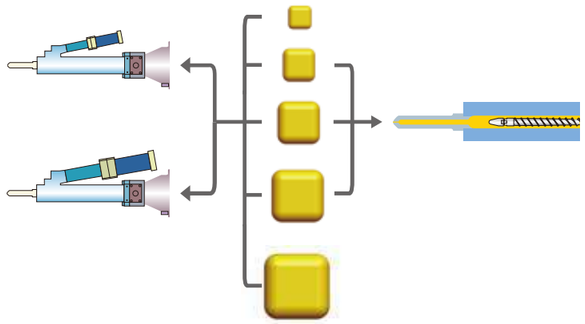
Plunger Type Injection Molding Machine

一步跨入精密射出領域



可生產更大或更小的產品，實用又節能

由於IPIS可更換式柱塞射出系統設計，完全可以根據逆向工程推演，搭配較大的柱塞射出較厚重的產品，也可搭配較小的柱塞射出較輕薄的產品，不但提供足夠的射出壓力，且能將多出的能源轉化成較高的射出速度，能量充分被合理運用達到最節能的目標。



Produce either bigger or smaller products

With IPIS (Interchangeable Plunger Injection System) design, it can produce either bigger products or smaller products by changing different injection units; moreover, it can not only provide full injection pressure but also transfer extra energy power into higher injection speed in order to reach the goal of energy-saving purpose.

超越業界的『塑料完美混煉』典範設計

- 每一顆塑料都通過19～21節螺桿的均勻混煉，塑料分子聚化及結晶還原能力最佳，可得到最穩定的射出產品。
- 射出螺桿及射出柱塞的結構單純化，螺桿變形度低，精密度高，使用壽命長。
- 塑料入料障礙排除設計，經由入料口淺化，入料口和電熱加溫段短化等設計，讓塑料完成玻璃點轉換過程，達到均勻融熔的狀態。
- 料頭內極細直徑的融熔塑料通道，有效清除塑料囤積防止塑料劣化，配合探針式感溫偵測，可控制最一致的塑料品質。

Perfect resin plasticization design

- Every single plastic pellets plasticized through 21 threads of the screw ensure perfect plasticization.
- Simple structure of Edex's screw and plunger to reach the goal of precise and long-term life.
- The resin feeder designed for small deeding volume, short heating and melting stages improved plasticization, the melting status is stable.
- The small channels for melted resin for preventing resin from overheating and adopt needle thermo-sensors to control resin quality.

Diversified Application Examples 多元化的應用例

柱塞式射出充分發揮 $F=\frac{1}{2}MV^2$ 的能量法則

塑流在射進模具過程中若被阻塞50%，射出能量將減至25%。柱塞式射出能達成最少的速度損失，能射出高難度的產品，更兼顧節省大量能源的目標。

射出穿透能量最高，較低射速即可生產高難度產品，如表列同樣的射出壓力在日本全電式機750kn射速500mm/s仍不能射滿，Atom600kn以200mm/s即可射出合格的高品質產品，是柱塞式射出工法最完美的理論驗證，而使用更低的能源更使客戶長期獲利。

Plunger type injection can meet the rule of $F=1/2\ MV^2$

The melted resin which is injected into the mold are blocked will lose half energy of injection. Plunger type injection method can cause energy-loss less and produce precise product in energy-saving way. The features of greatest injection penetration, lower injection speed can inject qualified complicated products. As following form, Japanese 750 ton injection machines can't inject products completely in 500 mm/s injection speed, however, Edex's Atom 600 can inject same products perfectly in just 200 mm/s injection speed.

薄殼類產品

輕薄產品首重尺寸穩定度和更快的生產週期，ATOP系列以最精準的鎖模力配合最高穿透力的射出系統，可以較小的機型和馬力生產，效率最高。

The thin wall products

Thin wall products require better stability and shorter cycle time to produce finely, ATOP series uses the most precise clamping force and high injection penetration to produce in the fastest way, moreover, product with smaller machine size and power.

柱塞式 Plunger Type 200mm/s V.S 螺桿式 Screw Type 500mm/s

高流長、高黏度比PEI塑料小點射出產品 High L/T ratio and high viscosity resin such as small gate PEI product	
Atom 600 kn	Japan brand 750 kn
射速 200mm/s即可順利生產	射速 500mm/s 射出仍不完全

連接器及零組件

重量輕、尺寸安定性要求極高的零組件產品，規劃適當的柱塞及射出條件，可生產出最精密的產品等級。

Connector and Components

ATOP series can produce the most precise components of light-weight and dimension-requirement by installing suitable plunger and using fine injection conditions.

薄型導光板

根據薄型導光板投影面大，產品重量輕的特性，發揮ATOP系列高射出穿透力，以及相對較低的鎖模力，可達成尺寸更標準、生產週期更快、更節能的多重綜效。

Thin wall light guide panel

According to the features of the thin wall light guide panel have large projection area and weight light, ATOP series uses the most precise clamping force and high injection penetration to produce standard size, faster cycle time and energy-saving products.

無分力射出機構為精密射出的保證

傳統射出機構當高速射出時，會因射出和底座間的距離以及其公差相乘形成分力，螺桿行進時和料管的公差因而不斷變動，甚至和料管內壁嚴重摩擦，更會在射出初始產生結構偏向拉扯，而使射出機構容易損壞，極低速射出時則因此產生「微震」現象，使精密射出產品表面形成波紋。無分力射出結構提供了完全的解決方案，不但相關機構永不損壞，且連超高速射出都能隨心所欲，超低速射出更能維持0.5mm/s時的平穩度。

None-side-force injection mechanism design

When conventional injection molding machine inject products in high speed, the distance between injection unit and the base of injection unit cause side-force, even when the screw moving, the base of injection unit is wearing inside and damage outside injection mechanism. These will cause great damage to the injection molding machine. Edex's none-side-force design provides this situation, both of the low speed injection and high speed injection can produce products stably without causing injection mechanism damage.

Atom-series

柱塞式微射出機

Plunger Type Micro Injection Molding Machine

挑戰0.1g,0.01g,0.001g,0.0001g.....的精密微射出領域
在你的射出版圖中 最不可或缺的一塊

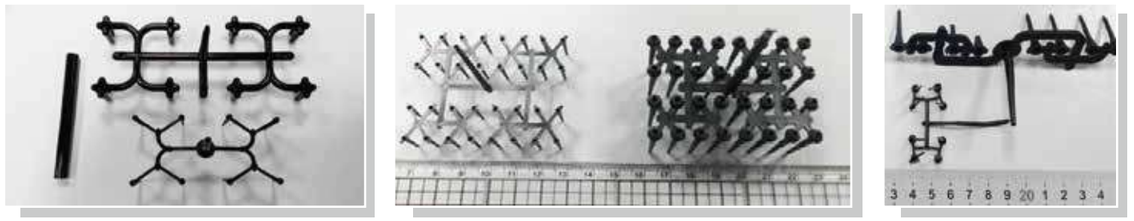
微射出產品例
Samples of Micro Injection Products

柱塞式射出工法是精密微射出的唯一選擇
Plunger Type Injection Method is the Only Choice for Precise Micro Injection

微 射 出 定 義 Micro Injection

一般泛指射出重量在1g或0.1g以下，或射出產品中具有μm級微結構者，均可定義為微射出產品。微射出屬最高等級的射出領域，特性為因射出量很小或結構極精密，射出瞬間即成型，且精密等級要求極高，使用微射出產品設備需具備高精密的射出性能，並外加潔淨的生產防護功能，微射出應用領域：微型端子、微型齒輪、超薄型導光板、微型風扇、微型醫療器材…等。

Generally believed that the shot weight is less than 1g or 0.1g or the parts with micro structure of μm dimensions can be considered micro injection. Micro injection is the highest level of injection molding which take very short time for injection with extremely high accuracy. The micro injection machines need high precise injection performance and clean room facilities like following application products: micro connectors, micro gears, micro LGP light guide panels, micro fans, micro medical parts.



高生產效率與節省澆道塑料的極限演繹 Sample of high efficiency production and mass runner saving

產品：精密鏡頭零組件：LCP+GF30%　Product : LENS holder / Resin : LCP + 30 % glass fiber

		EdeX Atom300-SP70	Japan brand 500kn
一模產品重量	Per mold weight	0.041gx4=0.164g	0.041gx4=0.164g
生產週期	Cycle time	5s	20s
24小時產能	24 hrs production capacity	69.12k (10k 10k 10k 10k 10k 10k 9.12k)	17.28k (10k 7.28k)
一模澆道重量	Runner weight / per mold	0.217g	5.412g
生產100萬產品時澆道所需塑料	Runner weight / 1KK products	54kg (25kg)	1353kg (25kg)

微射出產品例 Samples of micro injection products

Atos-series

分模線柱塞式微射出機

Parting Line Plunger Type Micro Injection Molding Machine

更微小、更精密、更節省澆道塑料的最佳選擇

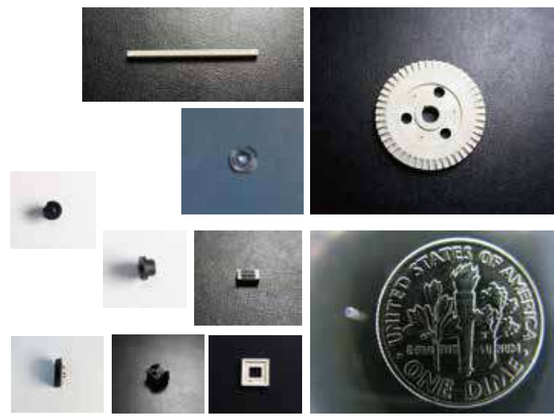
分模線射出是不可或缺的精密微射出工法

分模線射出的優越性

- 沒有直澆道，更節省澆道塑料。
- 可生產更精密、更微小的微射出產品。
- 沒有直澆道，可更快開模，增加生產效率。
- 模具不必開料頭深入孔，可減少厚度節省模具用料。
- 產品可向模具中心點靠攏，模具可微小化，更節省澆道塑料。

The superiority of the parting line injection molding

- Without sprue, resin usage reduced.
- Produce more precise and small product.
- Without sprue, cycle time reduce, better produce efficiency.
- No need to open deep hole for nozzle, mold height reduced.
- Center layout for product, mold size reduced.



分模線射出模具澆道示意圖 The parting line injection mold sprue diagram

上射式 Vertical injection type

側射式 Side injection type

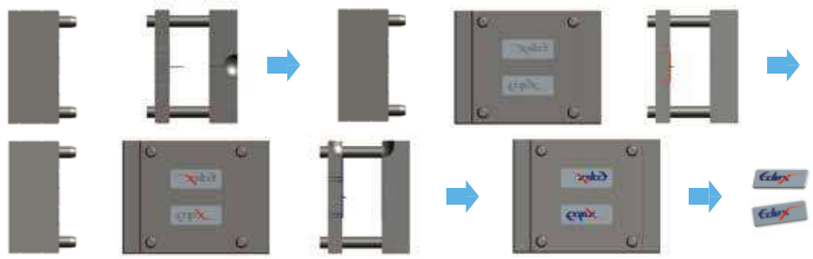
ATOL-series

多色多材質柱塞式/螺桿式射出機

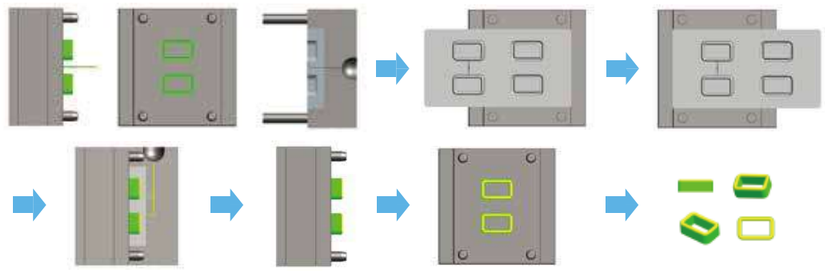
Multi-color/resin Plunger Type(Screw Type) Injection Molding Machine

最廣泛使用成本最低的多色多材質射出工法

三色三材質射出模具配合例 Example of triple-color/resin injection mold design



雙色雙材質射出模具配合例 Example of dual-color/resin injection mold design



單色射出

單色、單材質射出均可在ATOL系列穩定生產，機械可做多元化的用途，投資準確度大幅提升。

Single-color/resin injection

Conventional mold (single-color/resin) can also be used on ATOL-series type machine to create diverse uses and enhance the accuracy of investment.

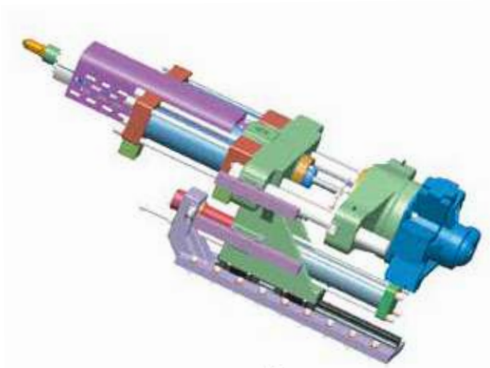
ATOZ-series

螺桿式射出機

Screw Type Injection Molding Machine

EdeX 無分力精密射出機構設計

讓射出更容易、更精準、更全方位



無分力射出機構是精密射出的保證

None-Side-Force Injection System Ensures Precise Injection

更換料管不需旋轉射出座，中心點永保精確

配合模板、射座整體規劃設計，拆修料管時，可直接抽出，永保射出中心點和模具注入澆口完全對準，簡易省時，更有利於精密射出的要求。

No need to rotate injection base when changing barrel

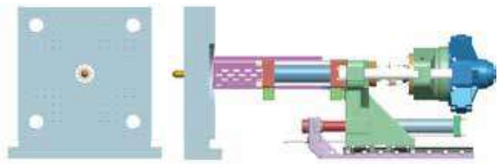
It's available to pull out barrel directly when replacing barrel, it makes the alignment of barrel center is always accurate.

更長的射出行程，使射出容積更大和更大射出壓力同時兼顧

- 採最高的22節螺桿設計，使用最大射出容積時仍保有塑料被均勻混煉，以及在出料段經充分舒緩化的效果。
- 只有最精密的結構，才能設計最長的射出行程，在增加射出容積又保有更大的射出壓力，是極限的完美組合。

Longer injection stroke makes injection volume larger and pressure higher.

- 22 threads screw design, all plastic pellets are well melted evenly with maximum injection volume.
- Only the most precise structure can have the longest injection stroke design. It's the best performance when injection volume is increased and the high injection pressure still existed.



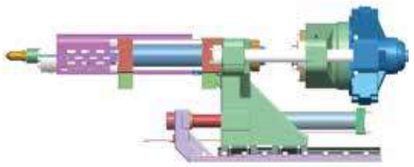
None-Side-Force Injection System 無分力射出機構

無分力就是無阻力，由零開始的精密貯料背壓

- 可由零調起的精準貯料背壓，可輕易生產須極低背壓的塑料，如TPR、PA...等。
- 可精確調整的貯料背壓，對所有塑料的完美混煉均是最重要的性能要求，將大幅提升射出產品等級。

None-Side-Force without drag force

- Accurate back pressure can be set precisely from 0 to 30, it can easily produce with TPR, PA…etc.
- The feature that accurate back pressure setting is the most important part of having every plastic pellets well melted.



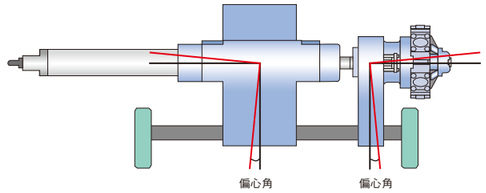
■ ATOZ系列射出機－無分力射出機構。
ATOZ series- None-side-force injection system.

專利自動鎖固螺桿逆流圈設計（選配項目）

不同於日本複雜昂貴的鎖固設計，精簡有效的自動鎖固設計，藉由定速、定軌跡的位移方式，輕易實到讓射終點更精準，射出更精密的目標。

Patent auto-luck checking ring design (optional accessories)

Patent auto-luck checking ring design can easily reach accurate shot-end position by uniform motion and position and the goal of precise injection.



■ 一般射出機－偏心角度即為射出分力的來源。
Conventional injection machine – The eccentric angle causes injection force.

更近水板、更低的進料口，讓螺桿更順暢剪切塑料

剛性大的塑料切入螺桿時，往往因螺桿溫度過低，而產生過大的剪切力，造成塑料融熔不均，空氣混入的現象，影響射出產品的品質，更近水板的進料口設計，使此段螺桿溫度得以精確控制，大幅提升射出品質；更低的進料口，則使停止機器運作時，可以更快速完成，減少浪費時間和塑料。

Resin entrance is lower and closer to water jacket design

When screw temp. become too low, the high rigid plastic can't be melted well, also some air get inside the screw, all these affect injection quality. Therefore, Edex designed lower resin entrance which keeps screw temp. controlled precisely to improve better quality of injection products.

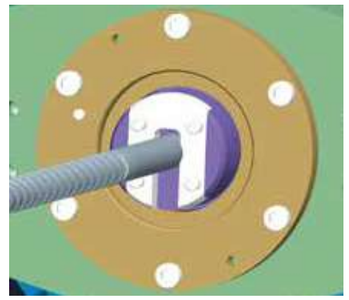
■ 自動鎖固螺桿逆流圈設計（選配項目）。
Auto-lock check ring design. (optional accessories)

冷卻水道設在料管上，控溫精確螺桿進料更順暢

- 圓環式冷卻水道可減少水垢阻塞，容易清理，更換料管時一併換新冷卻水道，可經常保持良好的冷卻效果。
- 冷卻水道接近電熱片，形成最佳的調節效果，可同時避免入料口太冷塑料剪切不易，入料口太熱結成塑料塊的問題。

Water jacket combined with barrel for more precise temperature control, resin into screw more smoothly

- Ring type water jacket decreases water scale remaining and easy to clean. The water jacket will be replaced when changing barrel, cooling effect is always good.
- The water jacket near by the heater can avoid plastic pellets melted before plasticizing.



■ 簡化的連結設計，可快速更換料管。
Simplified mechanism design for changing barrel quickly.

超平滑表面加超硬化材質

■ **螺桿表面處理**

螺桿表面使用耐磨或耐酸披膜處理增長使用壽命，可達到最高的光潔度，減少積碳及腐蝕現象，能確保塑料在經過螺桿加熱的過程中不因塑料滯留造成黑點等射出不良情形。(選配項目)

Hardened material and fine surface treatment of the screw

■ Screw surface treatment
Nano Ceramic Reinforced Film or NITROFLON plating used to screw surface. Excellent surface polishing reduces erosion and carbon deposition. (optional accessories)

ATOR-series

精密轉盤雙色雙材質柱塞式/螺桿式射出機
Rotary Dual-color/resin Plunger Type(Screw Type) Injection Molding Machine

本機構發明專利申請中 Invention Patent Applying

台灣第一部轉盤雙色柱塞式微射出機
The First Rotary Dual-color/resin Micro Injection Molding Machine in Taiwan

精密電子零件 Electronic Components

		第一射 / First shot	第二射 / Second shot
產品材質	resin	PEI	POM
一模穴數	cavity	4	4
產品重量	Per mold weight	0.761g	0.352g
週期時間	cycle time	20s	

防水手機零件 Water-proof cellphone products

		第一射 / First shot	第二射 / Second shot
產品材質	resin	PBT	LSR
一模穴數	cavity	4	4
產品重量	Per mold weight	0.228g	0.012g
週期時間	cycle time	30s	

投資更精準 最少機種可涵蓋最廣泛產品
Broadest product coverage with less machine models

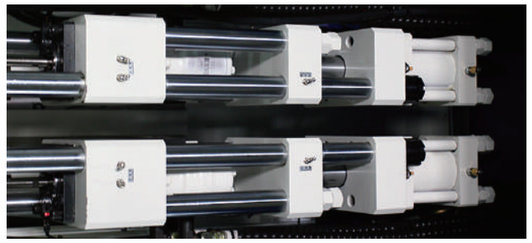
ATOR600 | ATOR1200 | ATOR2000 | ATOR2800 | ATOR5000

從60T~500T的鎖模力，從0.001~1350cm^3的射出容積，從150mm~720mm的雙模中心距，機身長度只有傳統機約60%長，可搭配柱塞式或螺桿式射出模組。

The clamping force ranges from 60T~500T, injection volume from 0.001~1350cm3 , and dual-mold center distance from 150mm~720mm.

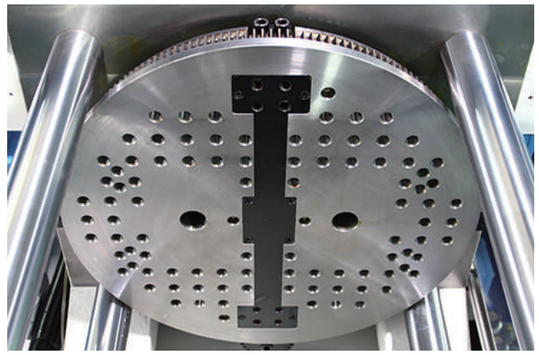
As the machine length is only about 60% of conventional machines, it can accommodate a plunger type or screw type injection molding module.

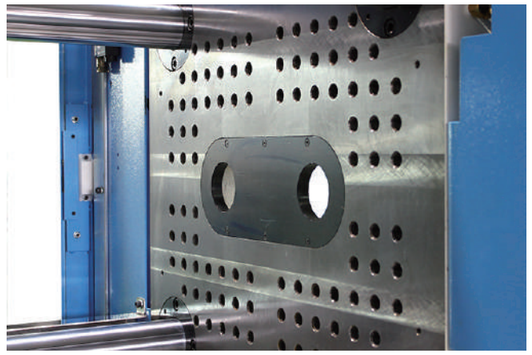
世界第一部可變更雙模中心距的轉盤式射出機
Variable Mold Center Distance Rotary Injection Molding Machine



■ 極窄化射座設計，可依需求調整兩個射座的中心距。
■ 獨立轉盤模組可搭配範圍內的所有中心距規格模具。
■ 轉盤採用隱藏式冷熱水路，使模具水管配置更整齊。
■ 固定模板活動中心距模組，可配合不同中心距更換。
■ 適用任何中心距的雙色模具，可減少購置機器成本。
■ 整機模組化設計，柱塞式和螺桿式射出單元可更換。

■ The narrowest injection seat design allows central distance adjustment of two injection seats according to requirement.
■ The independent rotary table can accommodate all molds as long as their central distances fall within the application scope.
■ The rotary table with hidden hot and cold water paths allows neat configuration of mold water channels.
■ The fixed mold platen module with movable central distance allows interchanging of different center distances.
■ The maintenance personnel can perform troubleshooting through the Internet to rapidly grasp the machine status.
■ Able to adapt dual-color molds in any central distances to reduce machine procurement costs.
■ Full modular machine design with interchangeable plunger type and screw type injection unit.





VTOP-series
立式柱塞式射出機
Vertical Plunger Type Injection Molding Machine

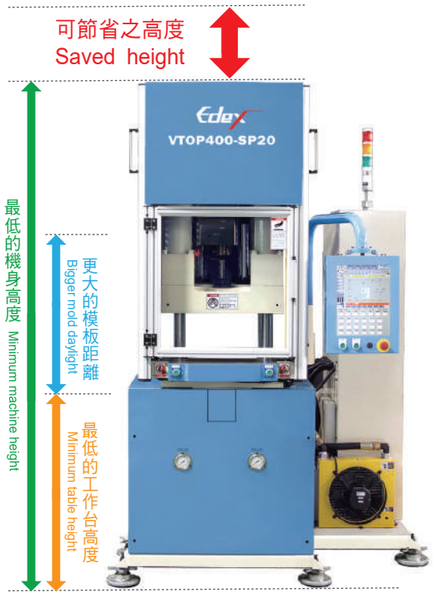
專利IPIS可更換柱塞式射出系統

採用最精密的柱塞式射出工法，可生產0.001-0.0001g的精密微射出產品，更可依產線變動，而更換不同大小規格的柱塞式射出系統，可減少投資浪費。

Patented IPIS Interchangeable Plunger Injection System

By using the most precise plunger type injection method, it's capable of producing precise products as micro as 0.001-0.0001 gram weight. Users are able to change the injection performances through replacing the injection components base on their requirements, and also saving investment expenses.

	機身高度 machine height	工作台高度 work table height
VTOP400	2.73 M	0.95 M
VTOP700	2.95 M	0.95 M
VTOP1200	3.60 M	0.95 M



VTOZ-series
立式螺桿式射出機
Vertical Screw Type Injection Molding Machine

專利無分力射出座設計

可達成貯料時螺桿混煉效果最佳，塑料熱傳導效率最高，射出最精密的目標。

Patented none-side-force injection unit design

The best plasticization, plactic resin melted, precise injection can be achieved.

專利模組化射出單元

專利模組化設計，可更換不同大小規格的射出單元，可依產品線改變、更換不同的射出單元，達到一機多用途。

Patented modular injection unit

Patented modular injection unit design adapts to different requirements of injection performance by changing injection units to meet full-functional (All-in-one). The best choice of injection machine.

VTOS-series
立式分模線柱塞式/螺桿式射出機
Vertical Parting Line Plunger Type(Screw Type) Injection Molding Machine

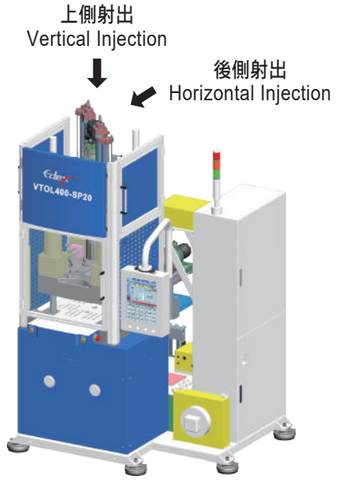
分模線射出的優越性

- 沒有直澆道，更節省澆道塑料。
- 可生產更精密、更微小的微射出產品。
- 沒有直澆道，可更快開模，增加生產效率。
- 模具不必開料頭深入孔，可減少厚度節省模具用料。
- 產品可向模具中心點靠攏，模具可微小化，更節省澆道塑料。

The superiority of the parting line injection molding

- Without the sprue, it saves a lot runner weight.
- Producing more precise and micro injection products.
- Without the sprue, the cooling time decreased and production time increased.
- The thickness of mold can be reduced and saved materials using by not opening the material hole.
- Products with multi cavities can be highly concentrated to the center and saved sprue resin.

VTOL-series
立式多色多材質柱塞式/螺桿式射出機
Vertical Multi-color/resin Plunger Type(Screw Type) Injection Molding Machine

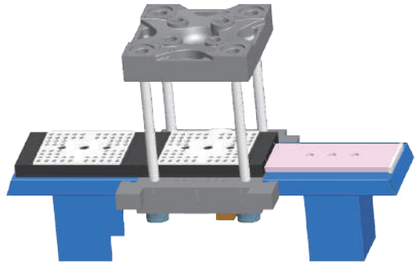


■ 雙色雙材質射出例 (Example of dual color/resin products)

專利三合一可更換滑板設計 立式機一機多用途
Interchangeable 3-in-1 Modular Slide Table Design
專利設計輔助進料系統
Patented Active Bypass Auxiliary Plasticization System Design

■ 無滑板 Non slide table

■ 單滑板 Single slide table



■ 雙滑板 Double slide table

專利模組化三合一可更換滑板設計 一機多用途

立式機開關模系統分為無滑板、單滑板、雙滑板三種，全系列採模組化的滑板設計，使用者透過更換組件的方式來變更滑板型式，而不需另購設備，大幅提高機台使用彈性，也降低資本支出。

New patent Interchangeable 3-in-1 modular slide table design

The high degree of modular design allows users to change the slide table structure depending on users requirements, without purchasing additional machines for the sake of producing different products. This will save the clients expenses dramatically; meanwhile, environmentally conscious for being able to optimize the application scope of the equipment.

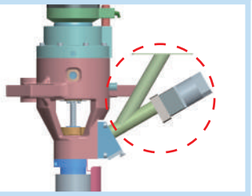
專利設計輔助進料系統(選配)

最新設計的主動式旁路輔助進料裝置，專為立式射出單元設計研發，大幅改善傳統立式射出單元因立式結構導致進料不順及生產不穩定的問題，使用次料也可正常生產，貯料可和臥式機一樣精確，自然也大幅提升射出的精密度。

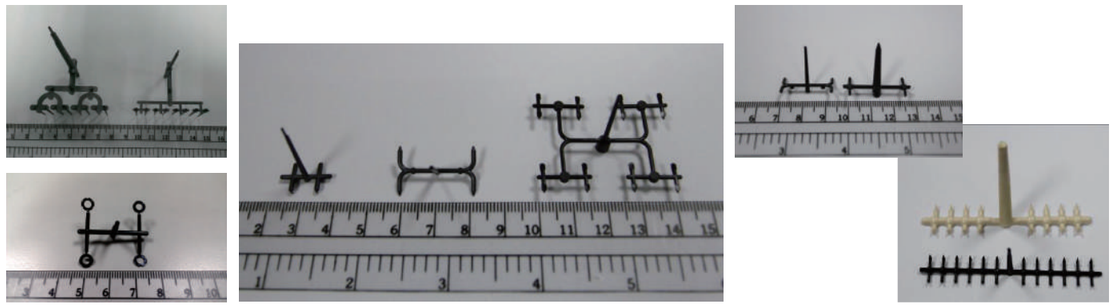
Patented active bypass auxiliary plasticization system design(optional)

The brand new active bypass auxiliary plasticization system is designed exclusively for the vertical injection unit to substantially improve non-uniform plasticizing and unsteady production problems caused by the vertical structure of conventional injection unit. The accuracy in stored material and the horizontal mechanism have naturally improved the injection accuracy substantially.

輔助進料系統
Active Bypass Auxiliary Plasticization System



最高射出穿透力可節省大量澆道塑料案例
Sample of Saving Mass Runner by Highest Injection Penetration



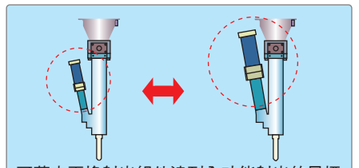
IPIS (Interchangeable Plunger Injection System) 可更換式柱塞射出系統

世界首創發明專利設計－IPIS可更換式柱塞射出系統設計

讓射出更容易、更精準、更全方位

New Invention patent – IPIS

Make injection easier, more precise and with full-fuctional



可藉由更換射出組件達到全功能射出的目標
Exchange injection units to meet full-function

最精密的射出效果
The Most Precise Injection Performance

完美的塑料混煉

貯料時螺桿只有原地旋轉而不後退，可達成完美的塑料混煉效果。

Perfect Plasticization

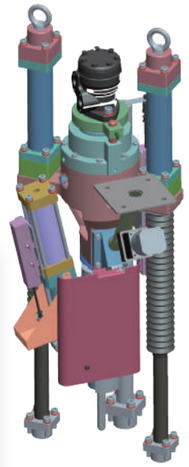
Screw rotates in a fixed position ensures perfect plasticization.

最高射出穿透力

柱塞式射出擁有最高射出穿透力，可節省動力，更可減少澆道塑料的使用量。

Highest Injection Penetration

Plunger type injection features high injection penetration, energy-saving and runner weight reduced.



無分力射出

專利無分力射出座設計，可達成精密的貯料跟射出的目標。

None-Side-Force Injection

Patented None-Side-Force injection unit design, achieved precise plasticization and injection.

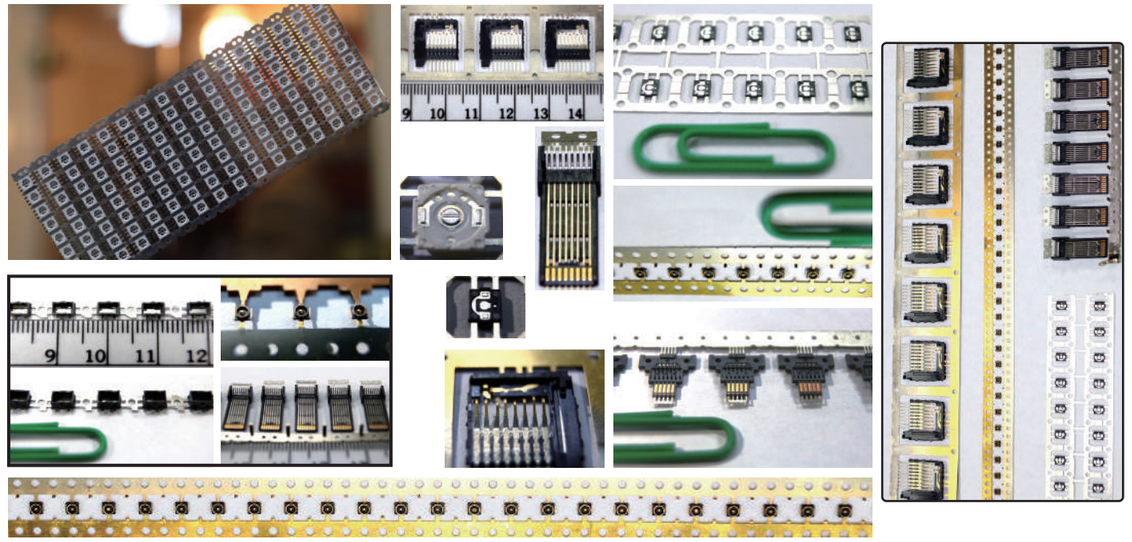
最精準的射出性能

柱塞式射出可達成最精密的射出效果，沒有逆流圈的飄移誤差，射終點最精準。

The Most Precise Injection Performance

Plunger type injection can reach the most precise injection, without the tolerance of checking ring mechanism. High precision of shot-end point.

精密微射出產品案例
Sample of Precise Micro Injection Products



規格表 Specification

Atom series

				Atom100-SP20						Atom300-SP70				Atom600-SP100			
射出單元	螺桿直徑	screw diameter	mm	14			16			18		22		22		26	
	柱塞直徑	plunger diameter	mm	8	10	12	10	12	14	12	16	16	20	16	20	20	24
	射出容積	injection volume	cm^3	2.5	3.9	5.6	6.2	9	12.3	13.5	24.1	24.1	37.6	24.1	37.6	37.6	54.2
	射出壓力	injection pressure	kgf/cm^2	2589	2509	2951	2509	2951	2623	2951	2635	2635	2720	2635	2720	2720	2663
	射出速度	injection speed	mm/s	1045	690	407	690	407	336	407	256	256	159	427	265	265	188
	螺桿轉速	screw speed	RPM	400						400				400			
開關模單元	最大鎖模力	max. clamping force	kn/tonf	100 / 10.2						300 / 30.6				600 / 61.2			
	支柱內距	distance b/w tie-bars	mm	210 X 210						280 X 280				360 X 360			
	模板尺寸	platen dimension	mm	350 X 350						460 X 460				580 X 580			
	最大模板距離	max. daylight	mm	350						450				600			
	最小模厚	min. mold thickness	mm	100						150				150			
	托模力 / 行程	ejector force/stroke	tonf/mm	1.6 / 40						2.13 / 70				3.3 / 100			
	電熱段數	heater zone	set	N3＋H3						N3＋H3				N3＋H3			
	電熱容量	heater capacity	kw	4						6				8			
	馬達馬力	motor capacity	kw	7.5						7.5				15			
	機械尺寸	dimension	m(LxWxH)	1.9 X 0.9 X 1.43						2.2 X 1.05 X 1.45				2.85 X 1 X 1.55			
	機械重量	weight	ton	1.5						2.2				3.1			

ATOP series

				ATOP700-SP180			ATOP1000-SP300		
射出單元	螺桿直徑	screw diameter	mm	30			35		
	柱塞直徑	plunger diameter	mm	16	22	28	22	28	34
	射出容積	injection volume	cm^3	32	61	98	68	111	163
	射出壓力	injection pressure	kgf/cm^2	3253	2845	2390	3169	2623	2297
	射出速度	injection speed	mm/s	346	209	154	282	210	163
	螺桿轉速	screw speed	RPM	320			300		
開關模單元	最大鎖模力	max. clamping force	kn/tonf	700 / 71			1000 / 102		
	支柱內距	distance b/w tie-bars	mm	360 X 360			410 X 410		
	模板尺寸	platen dimension	mm	580 X 580			680 X 680		
	最大模板距離	max. daylight	mm	600			750		
	最小模厚	min. mold thickness	mm	150			150		
	托模力 / 行程	ejector force/stroke	tonf/mm	3.3 / 100			4 / 120		
	電熱段數	heater zone	set	N4＋H3			N4＋H3		
	電熱容量	heater capacity	kw	6			7		
	馬達馬力	motor capacity	kw	18.5			22		
	機械尺寸	dimension	m(LxWxH)	2.85 X 1 X 1.55			3.45 X 1.31 X 1.65		
	機械重量	weight	ton	3.1			5.0		

ATOZ series

				ATOZ300-IS70		ATOZ500-IS170			ATOZ800-IS250			ATOZ1100-IS430			ATOZ1400-IS630		
射出單元	螺桿直徑	screw diameter	mm	18	22	22	25	28	25	28	32	30	35	40	35	40	45
	射出容積	injection volume	cm^3	25	37	56	73	92	83	104	136	134	182	238	211	276	349
	射出壓力	injection pressure	kgf/cm^2	2754	1844	2827	2189	1745	2828	2255	1726	3012	2213	1694	2664	2040	1611
	射出速度	injection speed	mm/s	194		210			163			159			132		
	螺桿轉速	screw speed	RPM	350		320			300			300			300		
開關模單元	最大鎖模力	max. clamping force	kn/tonf	300 / 31		500 / 51			800 / 81			1100 / 112			1400 / 142		
	支柱內距	distance b/w tie-bars	mm	280 X 280		370 X 370			415 X 415			470 X 470			515 X 515		
	模板尺寸	platen dimension	mm	460 X 460		580 X 580			680 X 680			770 X 770			880 X 880		
	最大模板距離	max. daylight	mm	450		600			700			800			900		
	最小模厚	min. mold thickness	mm	150		150			150			200			200		
	托模力 / 行程	ejector force/stroke	tonf/mm	2.13 / 70		3.3 / 100			4 / 120			4 / 120			5.6 / 140		
	電熱段數	heater zone	set	N2＋H3		N2＋H3			N2＋H3			N2＋H3			N2＋H3		
	電熱容量	heater capacity	kw	3.5		5.5			6.5			7			8		
	馬達馬力	motor capacity	kw	7.5		18.5			18.5			22			22		
	機械尺寸	dimension	m(LxWxH)	2.5 X 1.06 X 1.45		2.85 X 1 X 1.55			3.45 X 1.31 X 1.65			3.6 X 1.43 X 1.74			4.2 X 1.44 X 1.85		
	機械重量	weight	ton	2.6		3.1			5.0			6.2			7.7		

■ 最大開模行程=最大模板距離-實際模厚

Max mold-open stroke = Max daylight - mold thickness.

■ 最大射出重量=射出容積 X 塑料密度 X 92%

Max injection volume weight = Injection volume X plastic density X 92%.

■ 基於研發需求，本公司保有修改上述規格之權利，如未減低性能，得不另行告知。

Based on R&D needs, Edex retains its right to amend the specifications. If not reduce machinery performance, specifications sucjuct to change without notice.

規格表 Specification

Atos series

				Atos100-SP20						Atos300-SP70				Atos600-SP100			
射出單元	螺桿直徑	screw diameter	mm	14			16			18		22		22		26	
	柱塞直徑	plunger diameter	mm	8	10	12	10	12	14	12	16	16	20	16	20	20	24
	射出容積	injection volume	cm^3	2.5	3.9	5.6	6.2	9	12.3	13.5	24.1	24.1	37.6	24.1	37.6	37.6	54.2
	射出壓力	injection pressure	kgf/cm^2	2589	2509	2951	2509	2951	2623	2951	2635	2635	2720	2635	2720	2720	2663
	射出速度	injection speed	mm/s	1045	690	407	690	407	336	407	256	256	159	427	265	265	188
	螺桿轉速	screw speed	RPM	400						400				400			
開關模單元	最大鎖模力	max. clamping force	kn/tonf	100 / 10.2						300 / 30.6				600 / 61.2			
	支柱內距	distance b/w tie-bars	mm	210 X 210						280 X 280				360 X 360			
	模板尺寸	platen dimension	mm	350 X 350						460 X 460				580 X 580			
	最大模板距離	max. daylight	mm	350						450				600			
	最小模厚	min. mold thickness	mm	100						150				150			
	托模力 / 行程	ejector force/stroke	tonf/mm	1.6 / 40						2.13 / 70				3.3 / 100			
	電熱段數	heater zone	set	N3＋H3						N3＋H3				N3＋H3			
	電熱容量	heater capacity	kw	4						6				8			
	馬達馬力	motor capacity	kw	7.5						7.5				18.5			
	機械尺寸	dimension	m(LxWxH)	1.9 X 0.9 X 2.34						2.2 X 1.05 X 2.5				2.6 X 1.13 X 2.6			
	機械重量	weight	ton	1.5						2.4				3.1			

ATOP series

				ATOP1400-SP450			ATOP1800-SP770			ATOP2500-SP1500		
射出單元	螺桿直徑	screw diameter	mm	40			45			55		
	柱塞直徑	plunger diameter	mm	28	34	40	30	40	50	40	50	60
	射出容積	injection volume	cm^3	123	181	251	177	314	491	377	589	848
	射出壓力	injection pressure	kgf/cm^2	2867	2485	2082	2720	2390	1965	2720	2454	2285
	射出速度	injection speed	mm/s	192	150	129	221	141	110	165	117	87
	螺桿轉速	screw speed	RPM	300			300			300		
開關模單元	最大鎖模力	max. clamping force	kn/Tonf	1400 / 143			1800 / 184			2500 / 255		
	支柱內距	distance b/w tie-bars	mm	460 X 460			510 X 510			610 X 610		
	模板尺寸	platen dimension	mm	770 X 770			880 X 880			930 X 930		
	最大模板距離	max. daylight	mm	900			1000			1100		
	最小模厚	min. mold thickness	mm	200			250			250		
	托模力 / 行程	ejector force/stroke	tonf/mm	4 / 120			5.6 / 140			7.5 / 200		
	電熱段數	heater zone	set	N4＋H3			N4＋H3			N4＋H3		
	電熱容量	heater capacity	kw	8.5			9			12		
	馬達馬力	motor capacity	kw	22			30			33		
	機械尺寸	dimension	m(LxWxH)	3.68 X 1.43 X 1.74			4.25 X 1.44 X 1.85			5.6 X 1.64 X 1.98		
	機械重量	weight	ton	6.1			7.7			11		

AFOX series

				AFOX1800-LS400			AFOX2200-LS550			AFOX3000-LS850			AFOX4200-LS1200		
射出單元	螺桿直徑	screw diameter	mm	40	45	50	45	50	55	50	58	65	58	65	75
	射出容積	injection volume	cm^3	314	397	491	437	540	653	628	845	1061	951	1194	1590
	射出壓力	injection pressure	kgf/cm^2	2555	2019	1635	2581	2091	1728	2601	1933	1539	2448	1949	1464
	射出速度	injection speed	mm/s	132			138			139			131		
	螺桿轉速	screw speed	RPM	250			250			250			200		
開關模單元	最大鎖模力	max. clamping force	kn/Tonf	1800 / 184			2200 / 224			3000 / 306			4200 / 428		
	支柱內距	distance b/w tie-bars	mm	560 X 510			610 X 560			710 X 610			860 X 710		
	最小模厚	min. mold thickness	mm	200			250			250			300		
	最大模厚	max. mold thickness	mm	560			610			710			860		
	最大模板距離	max. daylight	mm	1010			1100			1280			1550		
	托模力 / 行程	ejector force/stroke	tonf/mm	5.6 / 150			6.5 / 200			7.5 / 200			9.6 / 200		
	電熱段數	heater zone	set	N2＋H3			N2＋H3			N2＋H3			N2＋H3		
	電熱容量	heater capacity	kw	9			9.5			10.2			13		
	馬達馬力	motor capacity	kw	22			33			37			45		

■ 最大開模行程=最大模板距離-實際模厚

Max mold-open stroke = Max daylight - mold thickness.

■ 最大射出重量=射出容積 X 塑料密度 X 92%

Max injection volume weight = Injection volume X plastic density X 92%.

■ 基於研發需求，本公司保有修改上述規格之權利，如未減低性能，得不另行告知。

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規 格 表 Specification

VTOP series

				VTOP400-SP20						VTOP700-SP70				VTOP1200-SP300		
射出單元	螺桿直徑	screw diameter	mm	14			16			18		22		35		
	柱塞直徑	plunger diameter	mm	8	10	12	10	12	14	12	16	16	20	22	28	34
	射出容積	injection volume	cm^3	2.5	3.9	5.6	6.2	9	12.3	13.5	24.1	24.1	37.6	68	111	163
	射出壓力	injection pressure	kgf/cm^2	2589	2509	2951	2509	2951	2623	2951	2635	2635	2720	3169	2623	2297
	射出速度	injection speed	mm/s	1045	690	407	690	407	336	679	427	427	265	352	263	203
	螺桿轉速	screw speed	RPM	400						400				300		
開關模單元				無滑板 non-slide table		單滑板 single-slide table		雙滑板 double-slide table		無滑板 non-slide table		單滑板 single-slide table	雙滑板 double-slide table	無滑板 non-slide table	單滑板 single-slide table	雙滑板 double-slide table
	最大鎖模力	max. clamping force	kn/tonf	400 / 40.8						700 / 71.4				1200/122.4		
	支柱內距	distance b/w tie-bars	mm	360 X 360						460 X 460				580 X 580		
	模板尺寸	platen dimension	mm	560 X 560						700 X 700				880 X 880		
	最大模板距離	max. daylight	mm	500		440		440		600		540	540	750	680	680
	最小模厚	min. mold thickness	mm	150		90		90		200		140	140	250	180	180
	滑板行程	slide table stroke	mm			420		650				485	800		610	1000
	滑板尺寸	slide table dimension	mm			350 X 550		350 X 1200				450 X 630	450 X 1430		570 X 570	570 X 1810
	托模力 / 行程	ejector force/stroke	tonf/mm			2.13 / 100						3.3 / 100			4 / 150	
	電熱段數	heater zone	set			N3+H3						N3+H3			N4+H3	
	電熱容量	heater capacity	kw			3.5						4			7	
	馬達馬力	motor capacity	kw			7.5						18.5			30	
	機械尺寸	dimension	m(LxWxH)	1.56 X 1.47 X 2.73		1.8 X 1.47 X 2.73		1.5 X 1.96 X 2.73		1.7 X 1.53 X 2.95		1.97 X 1.53 X 2.95	1.63 X 2.32 X 2.95	2.32 X 1.91 X 3.67	2.65 X 1.91 X 3.67	2.22 X 2.9 X 3.67
	機械重量	weight	ton	1.92		2.07		2.15		2.69		2.84	3.04	5.3	5.5	5.8

VTOZ series

				VTOZ400-D50			VTOZ700-D100			VTOZ1200-D160			VTOZ2000-D350		
射出單元	螺桿直徑	Screw diameter	mm	22	25	30	25	30	35	35	40	45	40	45	50
	射出容積	Injection volume	cm^3	42	54	78	74	106	144	163	214	270	276	350	432
	射出壓力	Injection pressure	kgf/cm^2	2318	1795	1247	2190	1521	1117	2082	1594	1259	1812	1431	1159
	射出速度	Injection speed	mm/s	154			152			113			100		
	螺桿轉速	Screw speed	RPM	300			250			200			200		
開關模單元	滑板形式	Table type		固定模	單滑板	雙滑板	固定模	單滑板	雙滑板	固定模	單滑板	雙滑板	固定模	單滑板	雙滑板
	最大鎖模力	Max. clamping force	KN/Tonf	400 / 40.8			700 / 71.4			1200 / 122.4			2000 / 204		
	支柱內距	Distance b/w tie-bars	mm	360 X 360			460 X 460			580 X 580			580 X 580		
	最大模板距離	Max daylight	mm	500	440		600	540		750	680		750	680	
	最小模厚	Min. mold thickness	mm	150	90		200	140		320	250		320	250	
	托模力/行程	Ejector force/stroke	Tonf/mm	2.1 / 100			3.3 / 100			4.0 / 150			4.0 / 150		
其他	馬達功率	Motor Power	KW	7.5			15			18.5			18.5		
	電熱段數	Heater zone	set	N2 + H2			N2 + H2			N2 + H2			N2 + H2		
	電熱功率	Heater Power	KW	4.45			4.8			7.5			8.1		
	設備尺寸	Dimension	m(LxWxH)	1.5X1.5X2.8	1.8X1.5X2.8	1.5X2X2.8	1.7X1.5X2.9	1.9X1.5X2.9	1.6X2.3X2.9	2.4X1.9X4.2	3.1X1.9X4.2	2.4X2.8X4.2	2.4X1.9X4.2	3.1X1.9X4.2	2.4X2.8X4.2
	設備最小高度	Min. Height	M	2.3			2.4			3.5			3.5		
	工作平台高度	Table Height	M	0.95	1.01		0.95	1.01		1.33	1.4		1.33	1.4	
	設備重量	Weight	Ton	2.0	2.15	2.25	2.7	2.9	3.0	5.5	5.7	6.0	5.8	6.0	6.3

■ 最大開模行程=最大模板距離-實際模厚

Max mold-open stroke = Max daylight - mold thickness.

■ 最大射出重量=射出容積 X 塑料密度 X 92%

Max injection volume weight = Injection volume X plastic density X 92%.

■ 基於研發需求，本公司保有修改上述規格之權利，如未減低性能，得不另行告知。

Based on R&D needs, Edex retains its right to amend the specifications. If not reduce machinery performance, specifications sucjuct to change without notice.

規 格 表 Specification

ATOR series

				ATOR600-SP70			ATOR1200-SP100				ATOR2000-SP300			ATOR2800-SP770		
射出單元	螺桿直徑	screw diameter	mm	18		22		22		26		35			45	
	柱塞直徑	plunger diameter	mm	12	16	16	20	16	20	20	24	22	28	34	30	40	50
	射出容積	injection volume	cm^3	13.5	24.1	24.1	37.6	24.1	37.6	37.6	54.2	68	111	163	177	314	491
	射出壓力	injection pressure	kgf/cm^2	2951	2635	2635	2720	2635	2720	2720	2663	3169	2623	2297	2720	2390	1965
	射出速度	injection speed	mm/s	679	427	427	265	427	265	265	188	282	210	163	221	141	110
	螺桿轉速	screw speed	RPM	400			400				300			300		
射出單元				ATOR600-IS70			ATOR1200-IS170				ATOR2000-IS250			ATOR2800-IS630		
	螺桿直徑	screw diameter	mm	18	22	25	22	25	28		25	28	32	35	40	45
	射出容積	injection volume	cm^3	25	37	49	56	73	92		83	104	136	211	276	349
	射出壓力	injection pressure	kgf/cm^2	2754	1844	1795	2827	2189	1745		2828	2255	1726	2664	2040	1611
	射出速度	injection speed	mm/s	210		257	210				244			165		
	螺桿轉速	screw speed	RPM	350			300				300			300		
開關模單元	最大鎖模力	max. clamping force	kn/tonf	600 / 61.2			1200 / 122.4				2000/204			2800 / 285.4		
	容模尺寸	max. mold dimention	mm	150 X 300 / 200 X 400			200 X 400 / 300 X 600				300 X 600 / 420 X 840			380 X 760 / 500 X 1000		
	轉盤直徑	rotary table dimension	mm	550			700				980			1170		
	最大模板距離	max. daylight	mm	550			800				1100			1300		
	最小模厚	min. mold thickness	mm	150			200				250			300		
	雙模中心距	distance b/w nozzle	tonf/mm	150~200			200~300				300~420			380~500		
	電熱段數(SP)	heater zone(SP)	set	N3+H3 / N3+H3			N3+H3 / N3+H3				N4+H3 / N4+H3			N4+H3 / N4+H3		
	電熱容量(SP)	heater capacity(SP)	kw	4+4			6+6				7+7			9+9		
	電熱段數(IS)	heater zone(IS)	set	N2+H3 / N2+H3			N2+H3 / N2+H3				N2+H3 / N2+H3			N2+H3 / N2+H3		
	電熱容量(IS)	heater capacity(IS)	kw	3.5+3.5			5.5+5.5				6.5+6.5			8+8		
	馬達馬力	motor capacity	kw	15+15			15+15				22+22			30+30		

■ 最大開模行程=最大模板距離-實際模厚

Max mold-open stroke = Max daylight - mold thickness.

■ 最大射出重量=射出容積 X 塑料密度 X 92%

Max injection volume weight = Injection volume X plastic density X 92%.

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