香港名牌　广东名牌　上海名牌　中国机械500强

大型 冷室壓鑄機

IMPRESS-II series

DCC1000 - DCC4500

LK COLD CHAMBER DIE-CASTING MACHINE

力勁集團
L.K. GROUP

IMPRESS-II Series

High performance 高性能的大型壓鑄機 large tonnage die-casting machine

力勁集團1979年創立于香港，是一家專業從事設計、制造和銷售冷、熱室壓鑄機及鎂合金壓鑄機、精密注塑機和電腦數控加工中心的技術和資本密集型企業集團，目前是全球最大的壓鑄機制造商、中國主要的注塑機制造商和中國最具解決方案的電腦數控加工中心制造商。集團于2006年在香港聯交所主板成功上市。力勁“LK”牌壓鑄機是享譽海內外的知名品牌，力勁壓鑄機被國家質量監督檢驗檢疫總局授予“中國名牌”，是迄今爲止業內唯一獲此殊榮的產品。

Founded in 1979 in Hong Kong, L.K. Group has continued its profession in design, manufacture and sales of hot and cold chamber die casting machine, magnesium die casting machine, precise injection molding machine and CNC machining center. L.K. is now the world's largest die casting machine manufacturer and one of the major injection molding machine makers in China. Its CNC machining center also provides the most comprehensive solution to user. In 2006, L.K. has been publicly listed on the Stock Exchange of Hong Kong Limited. With the continual effort throughout decades, L.K. has established a good international reputation. The success in the manufacturing industry has brought L.K. to receive award of “China Top Brand” from the governmental administration of China, which is the first company in the industry to get this award.

● 安裝在汽車客户廠房的DCC3000噸 全自動化生産單元，主要生産變速箱殼體及發動機缸體。
A DCC3000U installed in an automotive diecasting plant with ful automation for producing gear transmission housing and engine block.

力勁是中國壓鑄機械行業的領導者，運用當前工業的最新技術，并結合多家國内外一流壓鑄件生産廠家實際生産經驗，研發出IMPRESS－II系列壓鑄機。此系列具先進的壓射、鎖模、控制性能，適用于制造汽車及摩托車零部件(發動機缸體、汽缸蓋、曲軸箱體、鏈門罩蓋、油底殼、變速箱殼體、變速箱端蓋、儀表板等）、電動扶手梯級／踏板、工業／公路射燈外殼、建材零件等各類大型壓鑄件産品。

L.K., the leading die-casting machine manufacturer in China, has made use of the most up-to-date technology, and integrated with the experience of Chinese and overseas die casters in die casting practice, thus developing the IMPRESS-II series die-casting machine. The machine has consisted of advanced injection, die closing and control function, suitable for casting various kinds of large die-casting components, like automotive and motor cycle components (such as engine block, air valve cover, cam-shaft block, oil pan housing, gear box housing, gear box cover, instrument panel, etc.), escalator step/moving walkway pallet, industrial/highway light housing and construction components, etc.

- 快壓射及增壓比例閥電動調節
- 壓射和增壓液壓回路獨立設計
- 錘頭自動潤滑裝置
- 無接觸式傳感器檢測壓射行程
- 高品質的液壓密封技術大大提高可靠性
- Fast injection and intensification by proportional control
- Fast injection and intensification powered by individual hydraulic circuit and accumulators
- Plunger head auto lubrication device
- Non-contact type injection stroke measure
- Quality hydraulic sealing teahnology for reliable operation

- 國際優良PLC控制系統
- 采用高精度的電子位置傳感器鎖模
- 力勁專用壓鑄機控制系統
- 鑄件産品管理
- 强大的數據存儲監控功能

- Stable PLC base control platform
- High precision position transducer for die closing/ejector
- LK professional control software for die-casting process
- Casting production management
- Enhance data storage and monitoring function

- 整體箱式模板
- 快速鎖模機構
- 獨立的背壓鎖開模系統
- 優化的調模系統
- 液壓抽哥功能

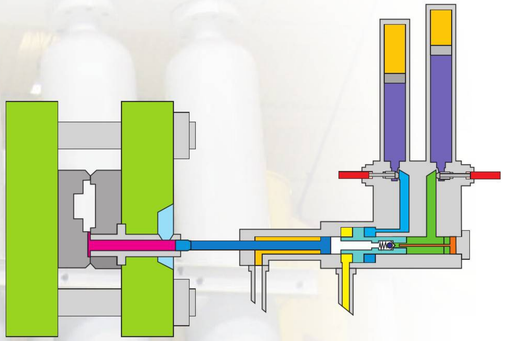
- Whole piece structural casting platen design
- Fast die closing circuit design
- Independent back pressure die open control
- Optimum die height adjusting mechanism
- Hydraulic tie bar extraction

1 壓射 —— 將熔化金屬注入模具的藝術

Injection—State-of-the-art system to push molten metal into die cavity

穩定的高性能壓射系統

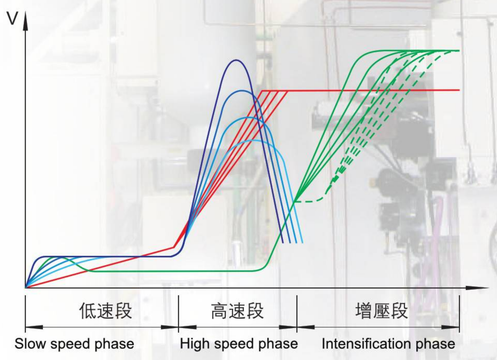
Stable and high performance injection system



主要特點 Features

- 快壓射及增壓采用高精密電比例閥，方便調節，重復性高。
- 快壓射速度及位置轉換控制精確，反應迅速。
- 壓射控制和增壓液壓控制回路各自獨立，互不影響。
- 壓射位置回饋采用高精度無接觸位置傳感器，速度轉換位置控制精確無誤。
- 力勁專利設計之壓射系統，經十年以上實戰操作，證明恒久耐用，維修率低。

- Fast injection and intensification by means of high precision proportional control valves, easy to manipulate and with high repeatability.
- Fast injection speed and changeover position are under accurate control with quick response.
- Injection and intensification are powered by individual hydraulic circuit without interference to each other.
- Injection position by means of high precision non-contact type position transducer, switching in speed-position is under high accuracy control.
- LK patent design injection mechanical system, over 10 years of real practice, prove to be tough, durable and less maintenance.



- **低速段**：可進行精確控制，避免空氣卷入引起藏氣問題
- **高速段**：可迅速達至高速，有效控制填充時間及鑄件成形效果
- **增壓段**：可按工藝隨意改變增壓速度，對鑄件加强密度而不引致變形

- Slow speed phase: can be controlled precisely to avoid air trap, reduce porosity problem.
- High speed phase: can easily reach desired high speed to achieve filling and forming of the casting.
- Intensification phase: can be adjusted according to the process required, increase the density of the casting and do not cause distortion.

2 鎖模 —— 把模具鎖緊的生產技巧

Die closing—Technique of holding the die firmly to get good production

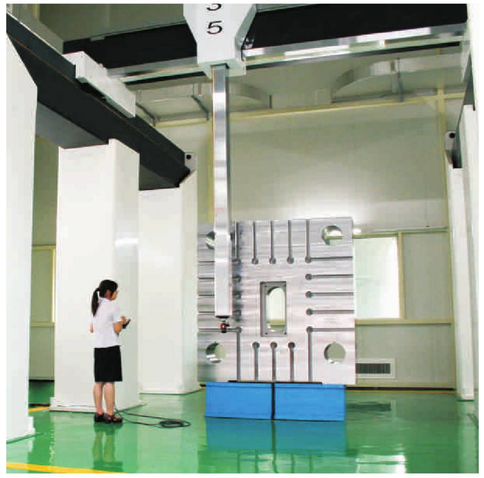
強勁耐用的鎖模單元

Powerful and durable die closing system

主要特點 Features

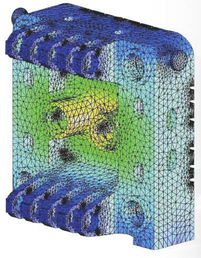
- 模板應用大型CNC加工中心一次性加工，保證尺寸精准。
- 國內獨有之大型CMM三位坐標儀確保加工質量。
- 多年大型壓鑄機鎖模制作及經驗，設計及生產都經時間考驗，保證經久耐用。
- 哥林柱采用高拉力合金鋼制作，配合力勁專利特殊設計，保證不易斷裂。

- Platens are machined on large size CNC to ensure high precision dimensions and tolerence.
- With large size CMM to check and ensure the machining quality.
- Years experience of large tonnage of die-casting machine die closing mechanism design and manufacturing, being proved by thousands of users for practical and less maintenance.
- The tie bars are made by high quality high tensile steel with LK patent optimal design, guarantee using for years.

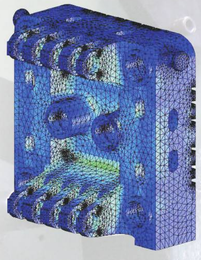


應用超大型三坐標測量儀檢測大型零件空間尺寸，保證加工精度
By means of super-large size CMM, the machining dimensions can be guaranteed.

新型的整體模板 New design platens



位移分析
Displacement Analysis



應力分析
Stress Analysis

高剛性

- 應用超大型有限元軟件優化設計
- 新型的整體模板，高剛性，提升鑄件質量

高強度

- 優化設計的新型整體模板，高强度，延長機器使用壽命

High rigidity

- By means of super FEA software to optimize the design.
- New whole piece platen design, result in high rigidity and raise the platen structure quality.

High strength

- Optimum design of the new type whole piece platens has high strength, increase the working life of the machines.

功能完善的壓鑄控制系統

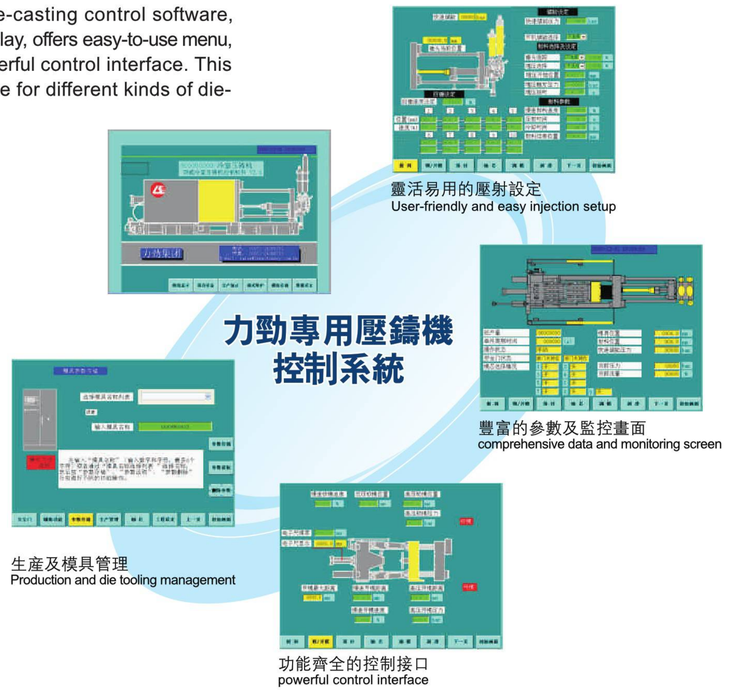
Die-casting control system with powerful function

力勁專用壓鑄機控製系統 [標準配置]

主要特點 Features

- 采用PLC 爲主要控制平臺，性能可靠穩定，維修率低。
- 在大型彩色顯示器，配置了力勁精心開發的壓鑄專用控制接口，簡單易用的操作菜單、豐富的參數及監控畫面、功能齊全的控制接口，必能令工藝工程人員／操作員得心應手。
- 控制組件經細心選配，可靠耐用。
- 配備生產管理及監測的軟件，可配合現今的生產品管及生產效益／成本控制的要求，完全符合汽車行業、大型企業生產管理的模式。
- 以人爲本，配備完善及多重的安全保護互鎖功能，確保操作人員的安全。

- With the reliable and less maintenance PLC platform, the control is stable and proven.
- The L.K. most advance professional die-casting control software, furnished with the big size colour LCD display, offers easy-to-use menu, monitoring screen with rich data and powerful control interface. This leads to easy manipulation of the machine for different kinds of die-casting processes and techniques.
- Selected control components for long working life purpose.
- Featured with production management and monitoring software, fulfil the nowadays production control and management's need, fit in the automotive industry and large enterprise production management modules.
- The control system is designed from the view of users, integrated with full and redundancy safety interlock to ensure safety.



升級的控製系統[選配] Upgraded control system [Option]

1 LK-ADVANCE control system
LK-ADVANCE 先進控制系統

LK-ADVANCE是力勁集團獨立開發的一套操作方便、功能强大的先進控制軟件。
- 速度與位置自動化設置，具有智能化生產概念;
- 詳細的壓射曲綫顯示;
- 詳細的參數監控功能；SPC功能，准確了解壓射狀態;
- 生產管理，有助提高效率及節約管理成本。

LK-ADVANCE is developed by L.K., aimed to provide more powerful function to meet high requirements.
- Intelligent setting on speed and position
- Advanced injection curve display and monitoring
- Advanced data feedback monitoring and SPC for production management and PM preparation
- Advanced production management to achieve high efficiency and reduce management cost

2 LK-CAST professional control system
LK-CAST 專業控制系統

LK-CAST是力勁集團與澳大利亞著名的Castec Australia Pty. Ltd.公司合作開發的一套專業控制系統，它具有容易操作，功能强大的的特點。
- 根據參數，直接監測壓鑄機動作，實現最佳壓射設定;
- 內置强大的Castpulse壓射曲綫監測;
- 實時監察工藝參數，控制壓鑄質量;
- 龐大的生産、工藝數據存儲功能，便于産品質量追溯。

LK-CAST is jointly developed by Australia CASTEC and L.K. for professional die-casters. It is user-friendly with advanced die-casting process control.
- Optimal machine action with the injection parameters setting
- Built-in powerful Castpulse injection monitoring
- Real-time monitoring system on engineering parameters to control the casting quality
- Large storage of manufacturing and engineering parameters for tracking the casting quality

輔助的軟件系統[選配] Add-on softwave system [Option]

3 LK-NET management system
LK-NET 生產管理系統

LK-NET是力勁集團開發的一套壓鑄車間生產管理系統，通過對每臺單獨的壓鑄機聯網，實施電腦監控及管理，實現車間現場管理的集成化、智能化，可極大的提高生產效率、降低人力成本。
- 連綫生產數據監控;
- 連綫壓射過程參數查詢;
- 連綫產品統計;
- 連綫模具管理。

LK-NET is developed by LK for central management of all machines in the production floor. By means of the networking technology, the system can centralize all data collection and thus reduce expensive labour.
- Network for monitoring production process data
- Network for monitoring injection process
- Network for collecting production status and data
- Network for management of die parameters

4 LK-MONITOR system
LK-MONITOR 遠程監控系統

LK-MONITOR是力勁集團獨立開發的一款基于INTERNET互聯網之上的壓鑄機遠程監控管理系統。
- 技術人員可遠程連接异地客户現場生産機台;
- 遠程實現機臺程序監控、修改與在綫診斷;
- 可在網絡上爲客户解决疑難問題和程序問題。

LK-MONITOR is developed by L.K. based on the global internet networking technology for remote managing die-casting machines.
- L.K. Technical persons can remote access customer's die-casting machines which are located in any location in the world
- Able to achieve remote on-line monitoring, modify and de-bug machine program
- By means of internet, on-line service can be provided to users for solving problems

周邊設備［選配裝置］
Peripherals [Optional]

力勁爲客户提供高度集成的、高度自動化的、高效率的綜合壓鑄單元

L.K. offers highly integrated, automated and efficient die-casting cell.

輸送帶
Conveyor

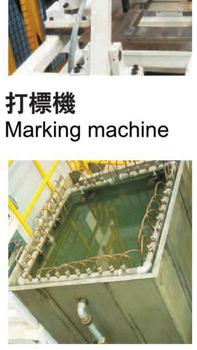
安全圍欄
Safety fence

平台
Working platform

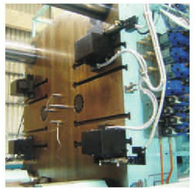
壓送機
Die lub. Auto-dilutor

模温機
Die temperature controller

打標機
Marking machine



冷却装置
Cooling station

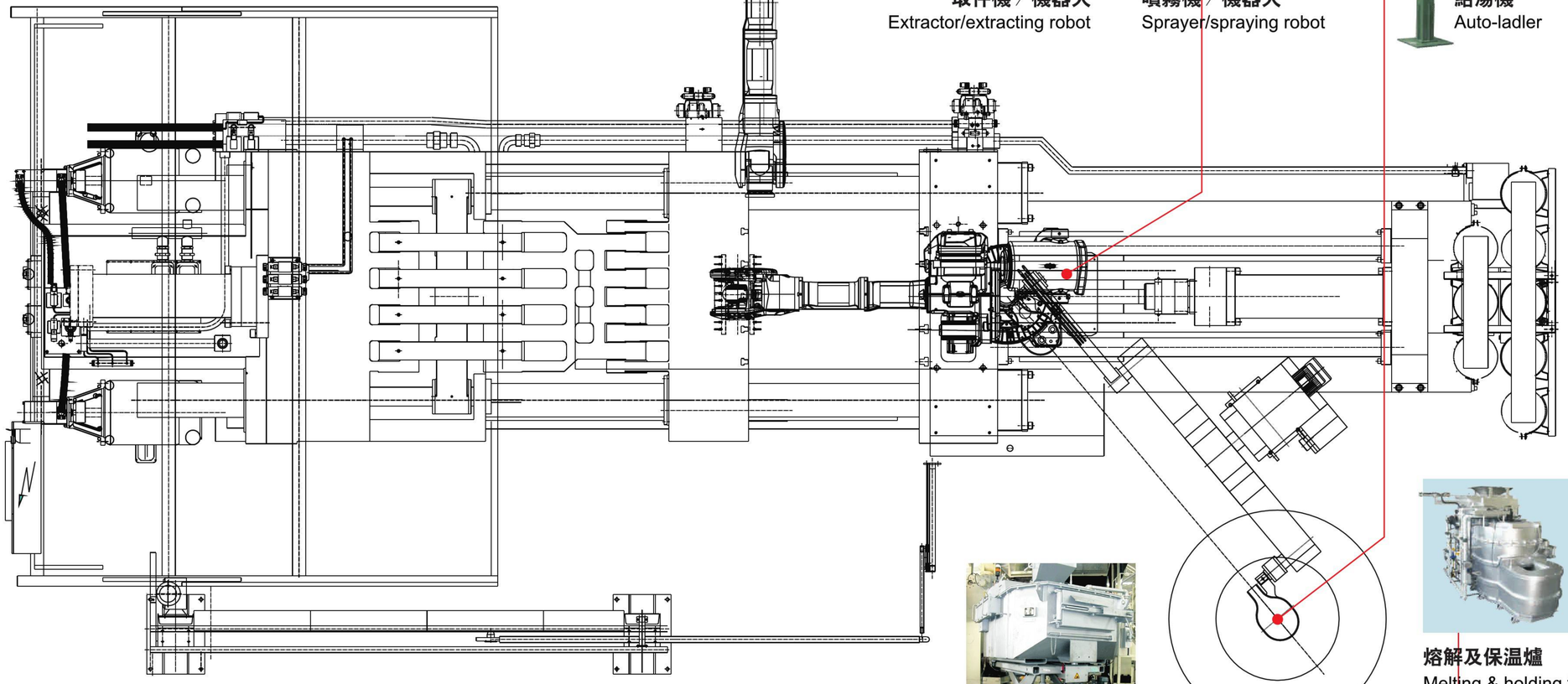


快速换模装置-1
Quick Die Change System-1

切邊機
Trim press

廢氣過濾集塵系統
Fume Extraction System

快速换模装置-2
Quick Die Change System-2

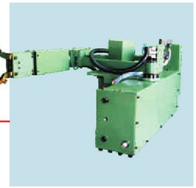


智能機器人—爲您提供高效靈活的自動化解決方案
Flexible robot—offering high efficiency and flexible automation solution

Kawasaki 機器人

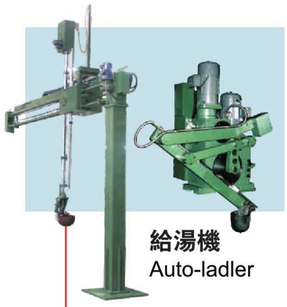
ABB 機器人

FANUC 機器人



取件機／機器人
Extractor/extracting robot

噴霧機／機器人
Sprayer/spraying robot



給湯機
Auto-ladler

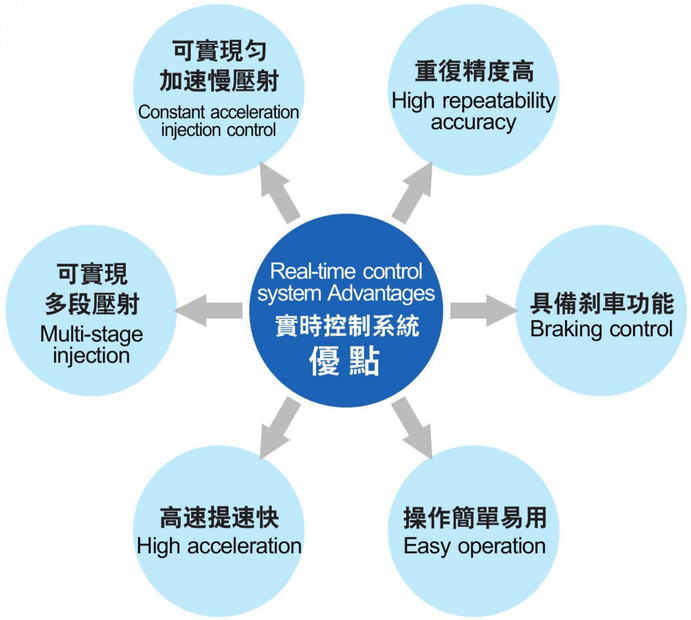
定量保温爐
Dosing furnace

熔解及保温爐
Melting & holding furnace

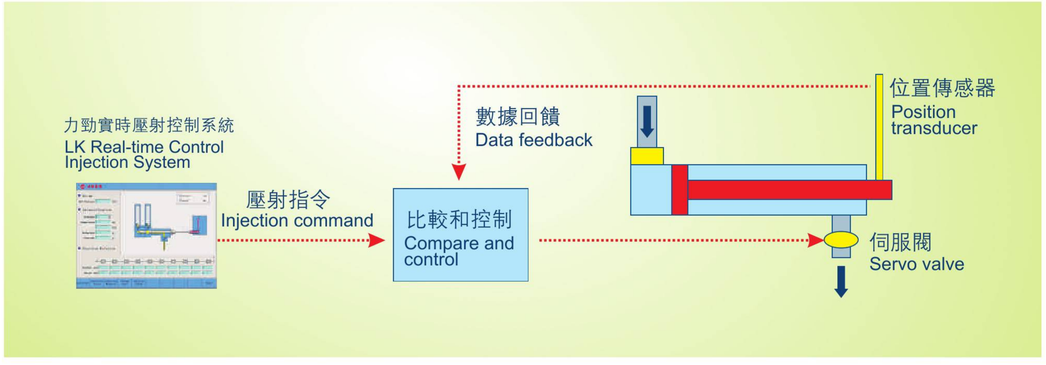
實時控制的壓射系統

Real-time control injection system

力勁的實時控制壓射系統結合了優良的油壓設計系統及精確細致的控制系統，能有效按指令執行要求的壓射速度，并在指定的位置進行速度轉換，響應性高而且實際速度與指令速度完全配合，提供完美的多段壓射速度控制曲綫，加上在低速具備匀加速、在填充完結的刹車等功能，提供給用户强勁的壓射控制能力，適用于制造結構復雜的高質量壓鑄件；本系統操作簡便，具有豐富的管理功能，可减少管理人員的勞動强度,提升生産效率;對産品例如汽車行業的可追溯性管理是不可或缺的。



LK Real -time Control Injection system has integrated optimal hydraulic design with precision control system, and is able to achieve injection speed control command and position switch over setting under high accuracy and effective way. Thanks to the quick response characteristic of the system, the actual speed match perfectly with the set profile and provide multi-stage injection speed control. In addition, the "Constant Acceleration Speed" control can help to reduce air trap problem while the braking control can reduce flash extensively. The system offers total control on injection which can fit all needs for producing complex and high requirement castings. The system is easy to use, built-in production management function can reduce lots of management level work, help to raise production efficiency.



實時控制與標準控制壓射系統的比較 Comparison of real-time with standard control

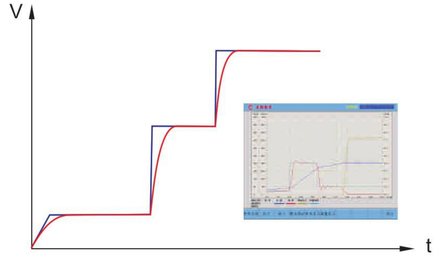
	實時控制壓射系統 Real-time Control Injection System	標準控制壓射系統 Standard Control Injection System
項 目 ITEM	特 點 Main Features	特 點 Main Features
控制方式 Control	循環實時控制，自動實時反饋與修正 Closed loop real-time control. Automatic real-time feedback and correction	開環控制，手動修復參數偏差 Open loop control. Parameters deviation because of the manual correction
壓射段數 Injection Stage	多段壓射 Multi-stage injection	三段速度控制＋增壓 3-stage speed control with intensification
速度重復精度 Speed Repeatability Accuracy	+/-2%	+/-5%
控制系統 Control System	工控機平台,存儲能力高及靈活 Efficient IPC with large storage	PLC控制平台，存儲能力有限 PLC with limited storage

主要特點 Main Features

速度 Speed

可實現速度多段絶對值控制，在閉環的控制設計下，甚至在高速都可以實現速度實時控制，使壓射工藝可以更靈活的實現，解决各類填充的困難。

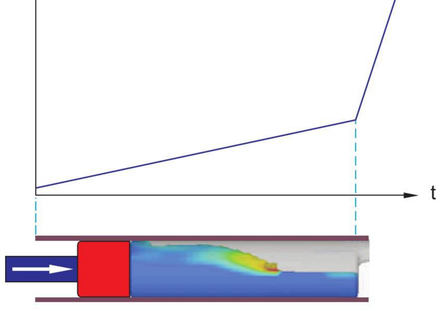
The control system is able to achieve real time close loop control for multi-stage real speed value setting. The speed can be controlled even in the high speed phase. The injection process can be put into real operation to solve any kind of filling problems.



控制 Control

在低速段可實現“匀加速”控制，大大减少空氣卷入熔化金屬内，大大提升鑄件質量。

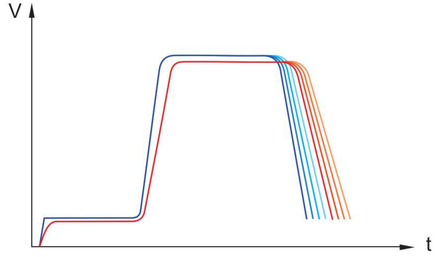
In the slow speed phase, the "Constant Acceleration" can be achieved to reduce air trap inside the molten metal, improve the porosity problem extensively.



刹車 Brake

利用閉環控制，可在填充接近完成時進行刹車控制，减少飛邊的問題，并延長模具的壽命。

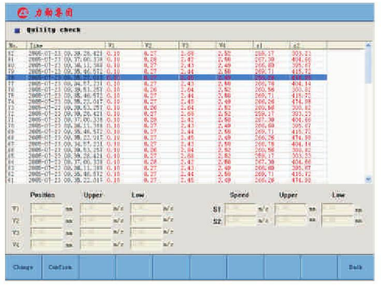
By means of the real time close loop control, the system can reduce the speed like a brake when come to the end of filling, therefore, reduce flash problem and elongate the die life.



重復 Repeat

閉環控制可减少外來因素對壓射速度的影響，從而提高重復性，鑄件質量控制大大提高。

Thanks to the real time control loop, the speed can be repeated for every shot despite the influence of outside variables, the quality control of casting can be ensured.



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