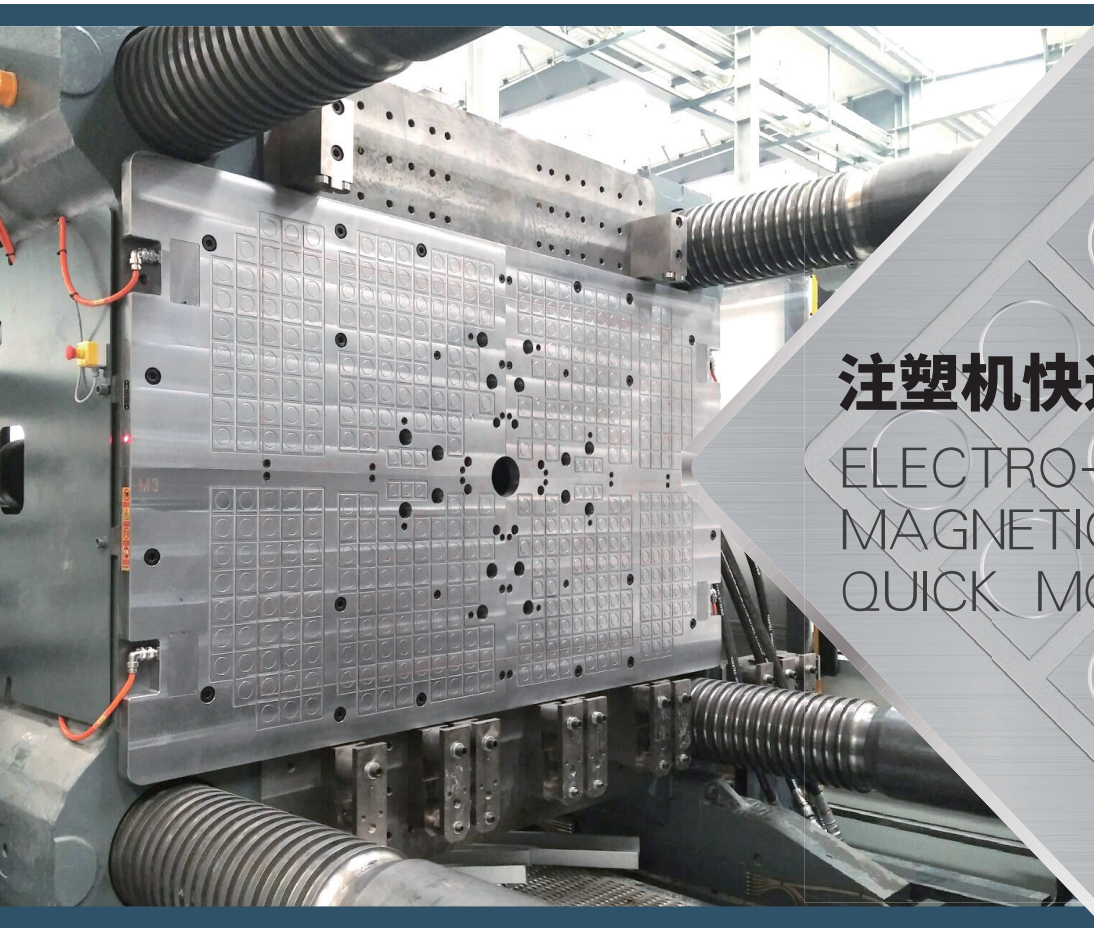
力磁电气
LICI ELECTRIC



注塑机快速换模磁力模板

ELECTRO-PERMANENT MAGNETIC SYSTEM FOR QUICK MOLD CHANGE

QINGDAO CHINA

QMC Manual Version2.6

磁旧迎新 · 科技先行

MAGNETIC SCIENCE · TECHNOLOGY FIRST

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力磁电气
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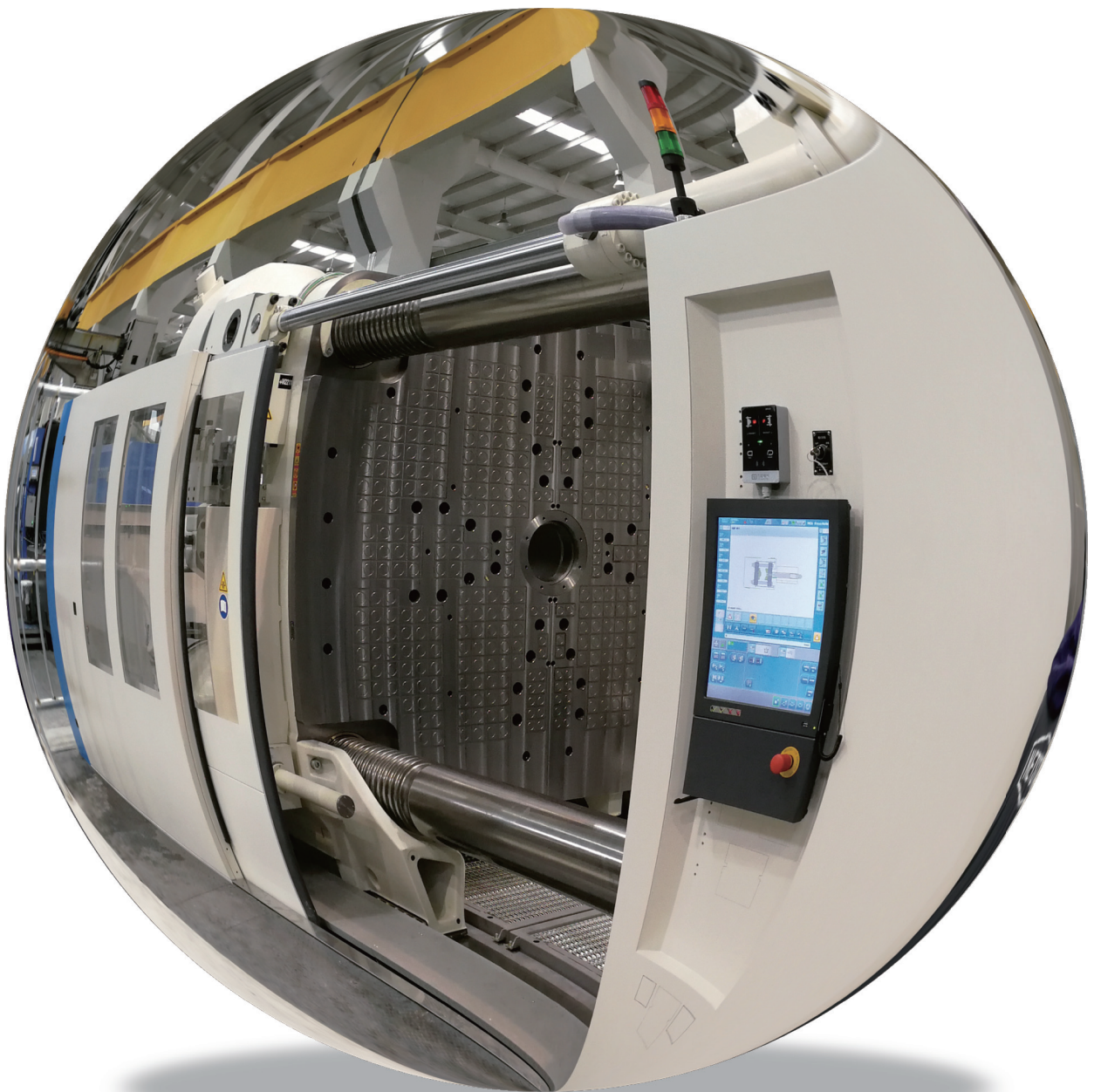
完美，尽在掌握！

PERFECT! EVERYTHING IN YOUR CONTROL!



力磁电气
LICI ELECTRIC

一切为了您的成功！

EVERYTHING FOR YOUR SUCCESS !

力磁电气
LICI ELECTRIC

COMPANY PROFILE
公司简介

青岛力磁电气股份有限公司是注塑机和冲压机快速换模整体方案提供商，是机加工磁力装夹与起重搬运的技术应用专家，也是快速换模行业技术领先的高新技术企业。

Qingdao Lici Electric Inc. is a professional provider of total QMCS solution in injection molding machine and punching machine, an expert of magnetic application in workpiece clamping and lifting, also a technology leading company in magnetism industry.

力磁电气是哈尔滨工业大学的产学研合作单位，双方合作成立哈尔滨工业大学磁力技术研究所，专业从事磁力技术的研究与开发。现已成功开发出涵盖快速换模、模具制造、智能终端、起重搬运等多个行业的产品，并获得了几十项国家专利。

Lici Electric is the University-Industry collaboration with HIT. With the cooperation of HIT, we founded the magnetic technology research institute, which mainly focuses on the R&D of magnetic technologies. We have already successfully developed various products that could be applied in different fields, such as: QMC system, mold manufacturing, Intelligent terminal and lifting-handling, ect. Meanwhile, we have obtained dozens of national patents.

我们本着“**为用户创造价值，为员工创造平台，为股东创造利益，为社会创造繁荣**”的创业精神，以“**技术持续创新，服务永无止境**”的服务理念，诚信为本，永续经营，竭诚欢迎国内外各界朋友合作共赢！

We are in conformity with the enterprising spirit: create value for customers,create a platform for employees, create benefits for shareholders,create prosperity for the society. We are in line with the service conception: continuous technology innovation, service endless.Based on integrity operation, sustainable management, we sincerely welcome friends from all over the world to get a win-win cooperation!

OUR STRENGTH
实力展示

与高校合作的磁力技术研究机构
Magnetic technology R&D institute collaborated with HIT

力磁电气与哈尔滨工业大学产学研合作并共同创建磁力技术研究所，全力推进电永磁技术进步！目前拥有几十项电永磁技术相关国家专利，并全面通过ISO9001国际管理体系认证和欧洲CE认证。

We established the magnetic technology university-industry R&D institute with HIT to promote the development of electro-permanent technology. We have already obtained dozens of national patents related to electro-permanent magnetic technology, and also acquired ISO9001 certificate and European CE certification.

获得国家认定的高新技术企业
National recognized new high-tech enterprise

力磁电气在技术研发方面不断投入，努力为客户提供性能更优、质量更好的电永磁产品，帮助客户提高效率、节约成本。

With continuous investment on R&D, we are trying our best to provide better performance & quality electro-permanent products to customers to help them to improve efficiency and save cost.

不会磁化模具的双磁极磁力线对流技术
Bipolar magnet technology without magnetization of mold

基于对称磁路的双极性磁极技术，不仅具有磁力强、无散射，磁力均匀的特点，而且不会导致模具背板磁化。融合了高新传感技术使磁力模板系统在安全性、可靠性和使用寿命上更具优势。

Based on the symmetrical bipolar magnet technology, with the feature of strong magnetic force, no scattering, no residual magnet and will not magnetize the backboard of mold. With the blend of high & new sensor technology, the magnetic platen system has more advantages on security, reliability and sustainability.

最大的快速换模系统制造基地
Maximum manufacturer base of quick mold change system

占地28,000平方米的现代化工厂，高度自动化流水线保证了产品的品质和可靠性。

With 28,000 m^2 modern factory and automation assembly lines realize good quality and reliability.

人工智能机器人自动装配生产线
Artificial intelligent robot automatic assembling line

力磁电气与中国科学院联合研发的具有人工智能的全自动机器人装配生产线，打破了全球范围内磁力模板自动装配生产线行业空白的局面。

With the cooperation of Chinese Academy of Sciences, we have successfully developed artificial intelligent fully automatic robot assembling line, which is the first automatic assembling line in magnetic industry all over the world.

与众多500强企业建立合作关系
Cooperate with numerous world top 500 enterprises

通过海泰科模具，方正模具，法雷奥，双林，长城汽车，安通林，威高医疗，鱼跃医疗，松下电子，精密电子，第一轧机等知名企业验厂认证，并成为长期战略合作伙伴。

Lici has passed the factory audit of Hi-tech Moulds, Fangzheng Tool, Valeo, Shuanglin Group, Great Wall Motors, Antolin, Weigao Medical, Yuwell Medical, Panasonic, WYZZ etc., and now we are the long-term strategic partners.

力磁电气
LICI ELECTRIC

PRODUCT OVERVIEW

产品概述

公司的主要产品有注塑机、冲压机、合模机等快速换模系统（磁力模板）、电永磁吸盘（机加工夹具）、电永磁吊具（磁力起重与搬运）的系列产品。

Our main products include QMC system (Magnetic Platen) for Injection Molding Machine, Punching Machine and Die Spotting Machine, Electro-permanent chuck (machining fixture), Electro-permanent lifting appliance (magnetic lifting & handling), ect.

产品广泛应用在塑料制品加工、家电制造、汽车制造、模具制造、轴承制造、工程机械制造、船舶制造、智能终端加工等领域。

Our products are widely applied in plastic product manufacturing, home appliance manufacturing, automobile manufacturing, molding manufacturing, bearing manufacturing, construction machinery manufacturing, vessel manufacturing and intelligent terminal processing, etc.

PRODUCT CHARACTERISTICS

产品的主要特点

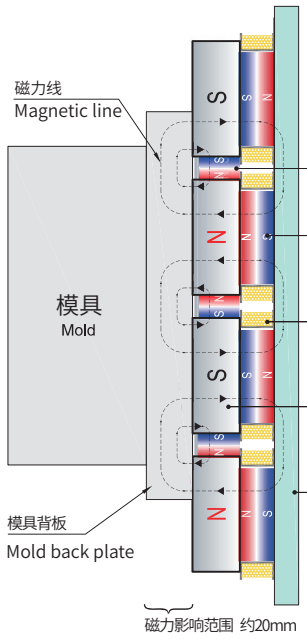
01 安全 /Safe	02 节能/Energy saving	03 高效/High efficiency	04 环保 / Environmental protection	05 创新 / Innovation
断电30年不失磁	**节电95%以上**	**提高效率80%以上**	**洁净能源无污染**	**创新不断升级，更快更好**
Keep the magnetic force without electricity for more than 30years.	Save electric energy by more than 95%.	Improve efficiency by more than 80%.	Environmental protection, no pollution.	Continuous upgrading, faster and better.

力磁电气
LICI ELECTRIC

WORKING PRINCIPLE
工作原理

因为专注所以专业 CONCENTRATION MAKES PROFESSIONAL

夹紧时（充磁状态）/ CLAMPING STATUS (MAGNETIZED)

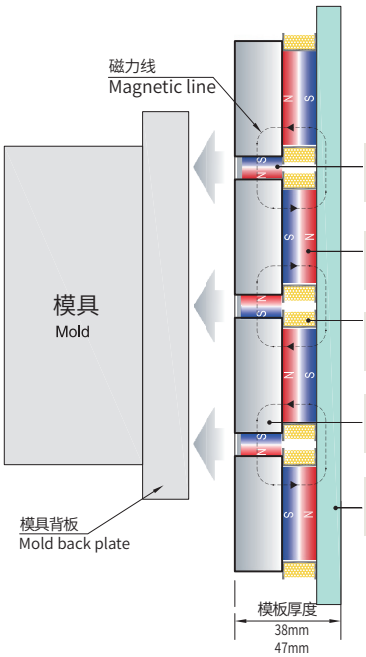


材料构成及功能
Material Composition & Function

钕铁硼 强力永久磁石	NdFeB Permanent magnet
铝镍钴 由电永磁线圈改变磁极方向	AlNiCo Electrical ring change the magnet direction
电磁线圈 改变铝镍钴的磁极方向	Electrical ring Change the magnet direction of AlNiCo
磁极 强力吸引模具	Magnetic Pole Clamp the mold with powerful force
磁力模板基板	Magnetic platen base board

Magnet flux thickness about 20mm

放松时（退磁状态）/ RELEASING STATUS (DEMAGNETIZED)



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磁极 强力吸引模具	Magnetic Pole Clamp the mold with powerful force
磁力模板基板	Magnetic platen base board

Magnet platen thickness 38/47 mm

QMCS CONFIGURATION
快速换模配置

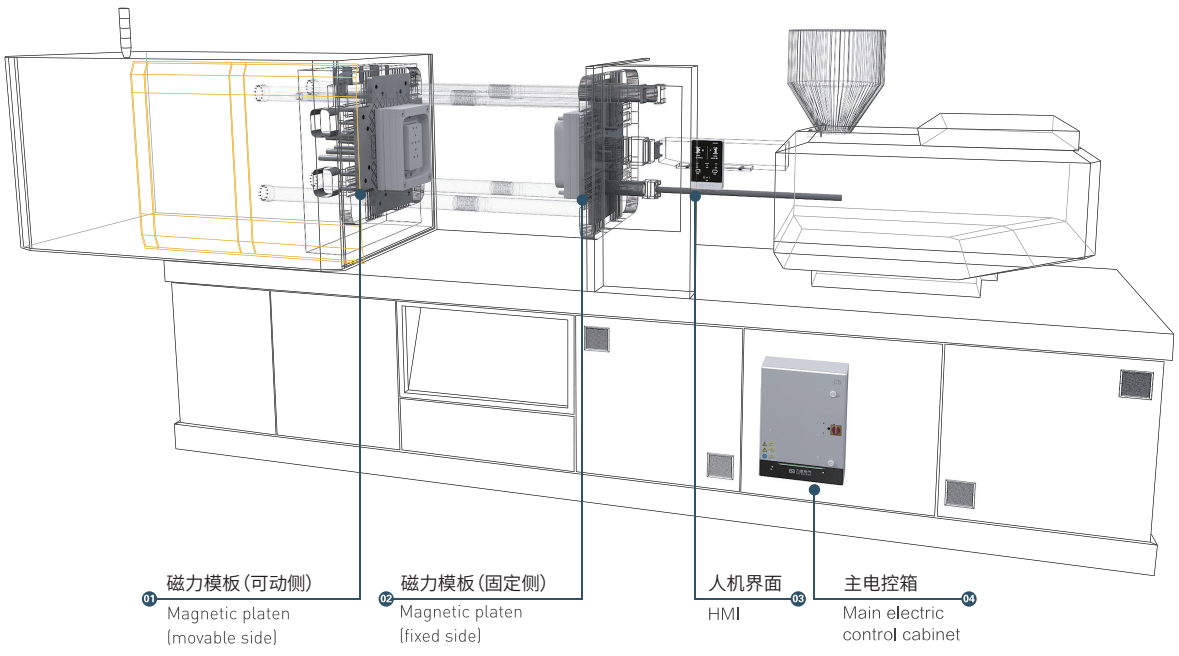
集优化设计完美的产品 PERFECT PRODUCTS WITH OPTIMIZED DESIGN

标准配置 (磁力模板系统通常包含) / STANDARD CONFIGURATION

- ☑ 两片磁力模板 (对应动模板和定模板，耐温等级120°C)
  Two magnetic platens(movable side and fixed side, standard operation temperature 120°C).
- ☑ 人机界面 (一套) (注：*QMC100为经济型人机界面，QMC300为标准型人机界面，QMC600为增强型人机界面)
  HMI (one set) (Note: QMC100 is economical HMI, QMC300 is standard HMI, QMC600 is enhanced HMI)
- ☑ 主电控箱 (一台)
  Main electric control cabinet (one set)
- ☑ 微距接近传感器 (**动、定模板各一套) (注：**小吨位注塑机为动定模板各1套，1000吨以上为每片2套)
  Proximity sensor (each set per side, for larger than 1000Tons, two sets per side).
- ☑ 温度传感器 (**动、定模板各一套)
  Temperature sensor (each set per side)
- ☑ 中心定位环 (仅定模板侧有)
  Centering ring (only on fixed platen)

可选配置 / OPTIONAL CONFIGURATION

- ☐ 磁力模板最高耐温配置150°C
  The operation temperature can up to 150°C
- ☐ 保险链条
  Insurance Chain
- ☐ 快速加长顶杆
  Rapid extended plunger
- ☐ 预留用于侧向换模的滚轮安装孔
  Reserved for side roller
- ☐ 动模板侧托板
  Support plate on movable side



各部分安装位置示意图 Installation diagram

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DIFFERENT MOLD CHANGE METHOD MAKES PRODUCTION EFFICIENCY DIFFERENT
换模效率即是生产效率

人机界面/ Human-machine Interface

QMC300 标准版 / QMC300 Standard Configuration

型号 Type	长Length	宽Width	高 Height
QMC300	160	104	40

01 数字式全触控操作面板设计
Digital touch operation panel.

02 界面操作简捷，易学易懂，工作状态一目了然
Easy operation panel, working status can be read easily.

03 优化设计使换模操作更安全、更便捷
Optimized design makes operation much safer and more convenient.

04 内置声光报警系统
Integrated acoustic and optical alarm system.

05 射频卡授权，便于管理和规范操作
RFID authorization control for easy management and operation.

QMC300i 智能版 / QMC300i Intelligent Configuration

型号 Type	长Length	宽Width	高 Height
QMC300i	200	120	23

01 智能型触摸设计（7英寸）
Intelligent touch panel design(7").

02 内置Manual Guide操作引导系统
Integrated Manual Guide operation system.

03 多重逻辑控制确保换模及生产每一步安全可靠
Multi-link logistic ensures the mold exchange much safer.

04 可记录操作和报警信息并传送至服务器
Record operation and alarm information, send to server.

05 系统诊断功能，方便故障排除及时恢复生产
Self-diagnosis function to resolve problem easily and recover production timely.

06 密码授权，方便管理及维护
Password authorization control for easy management and operation.

07 实时监控系统状态
Real-time monitor system status .

08 支持USB/以太网
Support USB/Ethernet.

模式转换开关 / Mode Exchange Switch

型号Type
MS-201

用于严格同步区分设备工作状态：
当开关位于生产状态时，注塑机可自动工作，磁力模板所有操作都将被禁止；当开关位于换模状态时，进行模具更换操作，注塑机只能在手动状态下工作。
（仅适用于欧标Euromap70.0的手动换模设备）

Simultaneously distinguish working status:
When the switch is located in the production status, the injection molding machine can work automatically, all operations of magnetic platen will be prohibited. When the switch is located in the mold change status, could make mold exchange, the injection molding machine can only work in manual mode.
(Only applicable to Euromap70.0 manual mold exchange equipment)

授权秘钥 / Authorization Key

型号Type
AK-101

采用FRID技术加密算法，不同授权等级可解锁不同操作，以保障生产及换模操作安全可靠。

Adopt FRID encryption algorithm technology, different authorization level could unlock different operations to guarantee the production safe and reliable.

主电控系统 / Main electric control cabinet

C3 适用于≤700吨/ Suitable for below 700tons IMM

型号Type	长 Length	宽 Width	高 Height
C3	326	256	86

单位(mm)

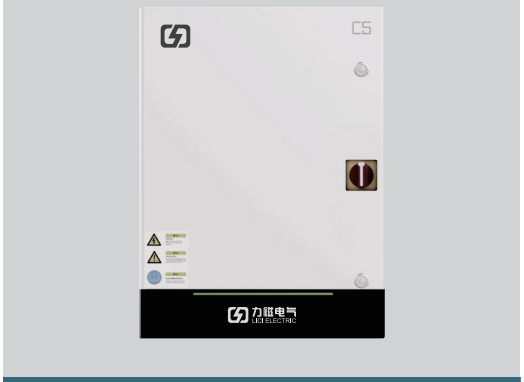
01 高度集成化设计便于更换维护
Highly integrated design to make replacement and maintenance easily.

02 接口丰富方便联机控制
Plurality of interface makes online control convenient.

03 磁力模板工作状态及温度监控功能
Monitoring working status and temperature of magnetic platen.

04 紧凑型设计，体积小，安装更灵活
Compact design, small size, flexible installation.

C5 适用于<1600吨 / Suitable for below 1600tons IMM



型号Type	长 Length	宽 Width	高 Height
C5	550	400	175

单位(mm)

01 高防护等级设计，适应工业现场环境密封要求
High protection grade, suitable for industry environment.

02 多种安装方式，可独立安装也可集成式安装
Two installation methods, separated installation and integrated installation.

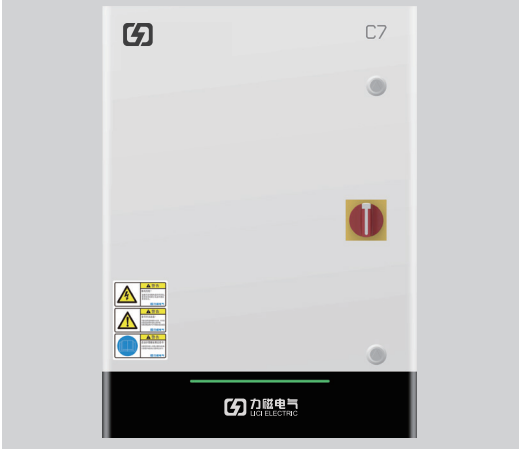
03 设计显示屏幕方便维护及故障判断
Display design makes the maintenance and problem diagnosis convenient.

04 与注塑机通讯，实时交换数据
With the communication between IMM and magnetic platen realize the data communication.

05 安全预警功能，杜绝隐患
Safe pre-warning function, eliminate hidden dangers.

06 可实现远程监控与故障诊断
Remote monitoring and fault diagnosis.

C7 适用于≥1600吨 / Suitable for over 1600tons IMM



型号Type	长 Length	宽 Width	高 Height
C7	630	460	175

单位(mm)

01 高防护等级设计，适应工业现场环境密封要求
High protection grade, suitable for industry environment.

02 多种安装方式，可独立安装也可集成式安装
Two installation methods, separated installation and integrated installation.

03 设计显示屏幕方便维护及故障判断
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With the communication between IMM and magnetic platen realize the data communication.

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Safe pre-warning function, eliminate hidden dangers.

06 可实现远程监控与故障诊断
Remote monitoring and fault diagnosis.

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磁力模板规格及各部分名称

MAGNETIC PLATEN SPECIFICATION AND SPARE PARTS

01 预留孔/Reserved holes

预留全部模具顶出孔。

Reserve all mold ejector holes.

02 基板/Base plate

由整块钢板加工而成，刚性更高，中性不带磁。

Processed by one-piece steel plate, neutral without magnet, higher stiffness.

03 集线盒/Wiring box

设计合理，便于维护,内置信号采集板。

Reasonable design, easy to maintain.
Built-in signal acquisition board

04 微距接近传感器/Proximity sensor

用于检测有无模具及背板和磁力模板之间的气隙。主动预警，位置超过0.2mm立即停机报警，确保人员、设备和模具的绝对安全。

Used for measuring the gap between the electro-permanent platen and the mold back plate, alarm immediately when the gap larger than 0.2mm, ensure the security of operator, equipment and mold.

05 磁通量传感器/Flux sensor

检测磁饱和强度。

Check the magnet saturation and intensity.

06 金属密封/Steel sealing

密封更好，寿命更长。

Steel plate, better sealing, longer service lifetime.

07 聚磁环/Magnet collection ring

优化磁路设计，使磁力性能更佳。

Optimized magnetic circuit design makes better magnetic performance.

08 中心定位环/Centering ring

用于快速定位模具，硬化处理，经久耐用，可拆换设计。

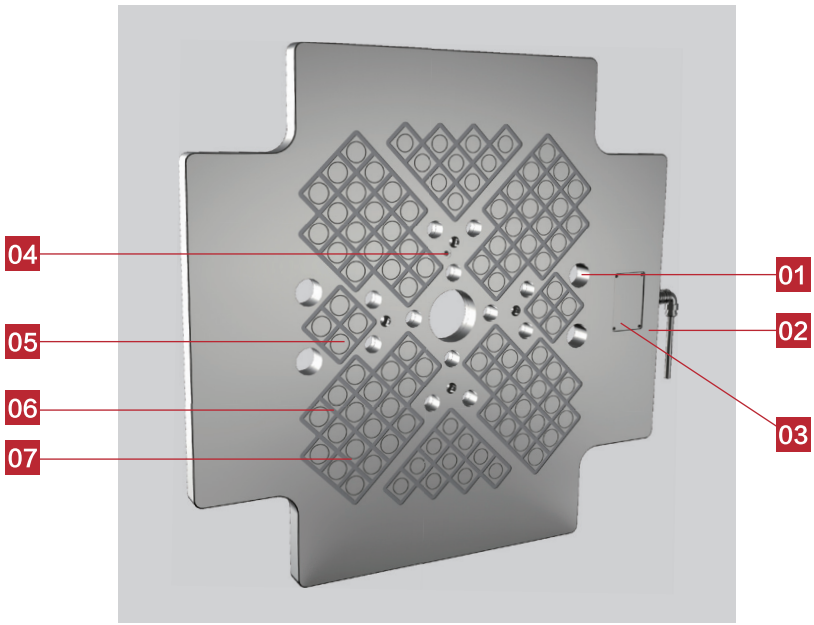
Used for positioning mold rapidly, hardening treatment, durable, removable design.

09 扩展板/Extension plate

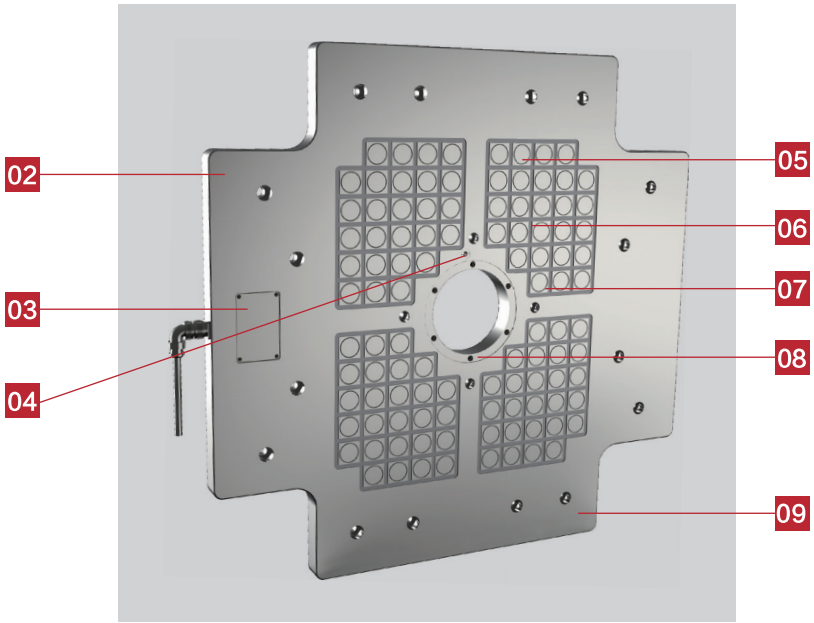
可预留滚轮加工孔，用于侧向换模。

Could reserve holes for roller, used for side loading.

磁力模板（可动侧）/ Movable magnetic platen



磁力模板（固定侧）/ Fixed magnetic platen



磁力模板规格表
Magnetic platen specification

型号 Type	适用注塑机 (kN) Available	标准墙板尺寸 (H*V) mm Platen Size	控制器配置 Controller	厚度(单片/mm) IMM thickness (single side)
EPI-60S/E	500-700	470*470	C3	38/47
EPI-90S/E	800-1000	520*520		
EPI-120S/E	1100-1300	615*615		
EPI-160S/E	1400-1700	680*680		
EPI-200S/E	1800-2100	770*770		
EPI-250S/E	2200-2600	840*840		
EPI-280S/E	2700-3000	930*930		
EPI-320S/E	3100-3500	990*990	C3	47/52
EPI-380S/E	3600-4000	1040*1040		
EPI-470S/E	4500-4800	1210*1180		
EPI-530S/E	5000-5500	1240*1250		
EPI-600S/E	6000-6500	1300*1320		
EPI-700S/E	7000-7500	1400*1380		
EPI-800S/E	7800-8000	1460*1480	C5	
EPI-900S/E	8500-9000	1580*1600		
EPI-1000S/E	10000-11000	1680*1820		
EPI-1200S/E	12000-12500	1650*1700		
EPI-1300S/E	13000-13500	1910*1890		
EPI-1400S/E	14000-15000	2090*2080		
EPI-1600S/E	16000-17000	2230*2200		
EPI-1850S/E	18000-19000	2410*2280	C7	
EPI-2100S/E	20000-22000	2440*2480		
EPI-2400S/E	23000-25000	2700*2550		
EPI-2800S/E	26000-30000	2730*2680		
EPI-3300S/E	33000-35000	3100*3000		
EPI-4000S/E	38000-40000	3400*3200		

供电电源 / Power supply
AC380V±10%　50Hz±1%

其他电压及频率可定制
Other voltage can be customerized

特殊规格产品可以定制
Special Specification can be customerized

磁力模板描述
Magnetic Platen Description

01 电控永磁技术设计，断电永久保磁

Electro-permanent magnet technology design keeps magnet permanent.

02 整块钢板加工而成，刚性好

Processed by one-piece steel plate, higher stiffness.

03 采用“双极性磁力线对流技术”设计，磁力线集中无散射，磁力模板基板为中性不带磁，不会磁化模具

The templates apply bipolar magnetic line convection technology design, which makes magnetic force centered without scattering. The base plate is neutral and free of magnetized, which will not magnetize the mold.

04 全密封多层防水耐油设计，确保使用寿命

Multi-layer sealing for waterproof and oil-proof design to ensure product's lifetime.

05 内置多种传感器，实时监控工作状态

Numerous integrated sensors to monitor real-time working status.

快速换模系统集成化方案
QMCS Integrated Soulution

01 磁力模板：覆盖式安装or嵌入式安装

Magnetic platen:Cover installation or integrated installation.

02 通讯接口：EuroMap70.0 or 70.1接口

Interface:Euromap 70.0 or 70.1.

03 电控系统：外置操作系统or集成于注塑机控制系统内部

Control system: External operation system or integrated into IMM internal control system.

力磁电气
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SMED OVERVIEW
快速换模概览

IMPROVE YOUR COMPETITIVE ADVANTAGE
提升您的竞争优势

电永磁快速换模磁力模板 / ELECTRO-PERMANENT MAGNETIC PLATEN FOR QUICK MOLD CHANGE

磁力模板系统用于在标准的注塑机和金属冲压机上快速固定模具。夹紧力均匀地分布在整个接触表面，既避免了变形又消除了内部张力的影响，及延长了模具的使用寿命，又提高了产品的一致性。

01 有效夹紧力

每个磁极都产生了一个持续的、可预见的、集中的有效夹紧力，在很小的面积上提供很大的夹紧力保证了产品性能的无与伦比。

02 适应性与便利性

交货时间显著缩短，使SMED生产方式成为现实。任何尺寸的模具，甚至比注塑机墙板尺寸还要大都可以轻松装夹。磁力模板系统由于内部没有任何机械运动部件从而免维护。

03 安全性

继承众多传感器预警装置用来检测监控电流、磁通量及模具的位置间隙，以确保最大范围的安全性。多重逻辑控制，确保从换模到生产每一步都安全可靠。

The Electro-permanent magnetic platen is used on standard injection molding machine and punching machine to clamp the mold or die. The clamping force is distributed evenly so that the lifetime of mold is extended and products are more consistent.

01.Effective clamping force

Each pole can produce a constant, predictable and centralized clamping force on a very small area, which makes the electro-permanent magnetic platen very competitive.

02.Flexible and convenient

QMCS can be delivered within a super short time. It can apply to different sized molds, even for the ones are bigger than the IMM platen. There is no wearing parts inside the platen which allows the system free of maintenance.

03.Safe

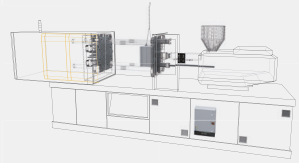
To ensure the security of the system, numerous sensors are integrated into the electro-permanent magnetic platen to supervise the control current, magnetic flux and the position of the mold. Besides, the security of every single step from mold change to manufacture is ensured by applying a multiple logistic control system.

快速的模具更换过程 / PROCESS OF CHANGING MOLD

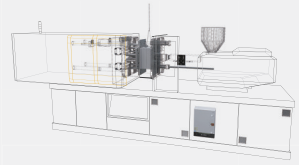
锁模操作 / Clamp mold operation

01
将模具放入注塑机，
并插入定位环中
Load mold by crane and centering mold on platen.

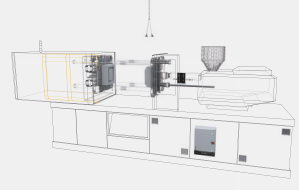
02
注塑机合模
IMM closed.



03
对磁力模板定侧和
动侧分别励磁操作
Magnetize the fixed platen and the movable platen.

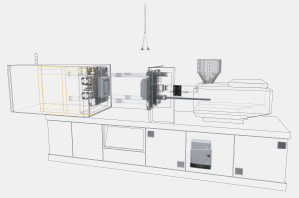


04
移开吊具托架，模具解锁，
注塑机即可正常工作
Remove crane and release lock device for production.

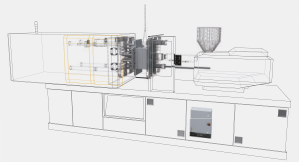


卸模操作 / Release mold operation

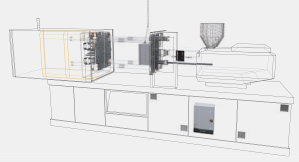
01
模具合拢，
锁闭模具并施加吊钩
Mold closed, hooked the crane.



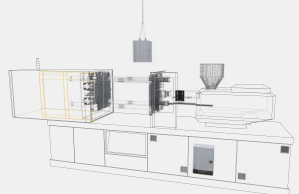
02
对磁力模板动侧和
定侧分别执行消磁操作
Demagnetize fixed platen and movable platen.



03
动模板后退，
即可取出模具
Retreat the movable platen, take the mold out.



04
模具卸下完毕，
注塑机待机
Mold unloading finished, keep the machine stand by.



CLIENT APPLICATION BENEFIT
客户应用效益

投资使用QMC系统可以帮助您：
USE A QMC SYSTEM WILL HELP YOU：

01 提升您的企业形象
Improve your company image.

02 增强您的竞争优势
Improve your competition.

03 减少停机时间，提高机器生产力
Reduce halting time, improve productivity.

04 节约劳动成本，优化制造成本
Save labor cost, optimize manufacturing cost.

05 降低库存，增加灵活性，响应更快
Decrease inventory, more flexible, fast reaction.

06 提高安全系数
Improve safety factor.

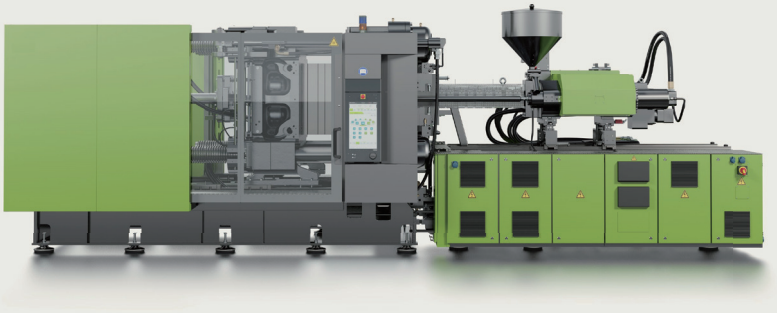
案例
Example

以一台生产汽车保险杠的3300吨注塑机为例:
传统的换模方式大约需要5个人4.0小时才能完成，使用定制化的快速换模磁力模板以后只需要1个人用时20分钟即可完成模具更换。

Take a 3300 tons IMM for example:
Traditional mold changing method needs 5 persons and 4 hours to finish the procedure, while using our quick mold change system, 1 person and 20 minutes is enough.

智能化您的生产系统
Make your production system Intelligent!

智能化您的制造过程
Make your manufacturing process Intelligent!



再扩大您的优势 / IMPROVE YOUR ADVANTAGE

最大限度地利用机器的容模空间

Use the machine’s space of the mold ultimately.

电永磁快速换模磁力模板系统因为没有压板和其他气动、液压部件，所以节省出更多的空间，大大提高了注塑机的容模尺寸，同时也使得注塑机的外围设备更便于维护和操作。

No need mechanical clamper and other pneumatic or hydraulic parts, will save more spaces, which enlarges the molarity of mold and easy to maintain and operate.

优势所在 / ADVANTAGES

便于操作

由于没有使用压板等使得模具外围设备（电路、油路、气路等）都便于维护和操作。

Easy to operate

Easy to maintain due to free of mechanical clamper with additional oil or compressed air.

降低成本

制造过程中能使库存保持在较低水平，也使仓库、运输成本和效率最优化。

Lower the cost

Keep the inventory in a very low level, make the warehouse, transportation and efficiency optimal.

减少废料

模具的快速更换提高了生产力，同时维持了机器温度而减少注塑废料的产生量。

Less material waste

QMC system improves the productivity, keeps the machine’s temperature, lower the waster of injection material.

持续受益

不需要对机器做任何修改，一次性投入即可长效收益，不需要额外投入。

Continuous profit

No modification to the machine, one-time investment, continuous profit.

节能环保

系统不使用油、气等外部能源，使得工作环境无任何污染源。

Energy saving and environmental protection

No need of oil or air, make the electro-permanent magnetic platen to be environmental protection and energy saving.

CONTRAST OF CLAMPING METHODS
装夹方式对比

01
手动紧固方式
Manual fastening method

将模具移入注塑机
Move the mold into IMM

模具插入固定侧定位
Fix the mold into the locating ring on the fixed side

合模升压 Clamping & boosting

操作侧
Operation side

4个步骤

打开安全门安装压板
Open the safety gate and install the pressing plate
↓
锁紧螺栓
Lock the bolt
↓
关闭安全门
Close the safety gate
↓
操作工移步至非操作侧
The operator should move to non-operation side

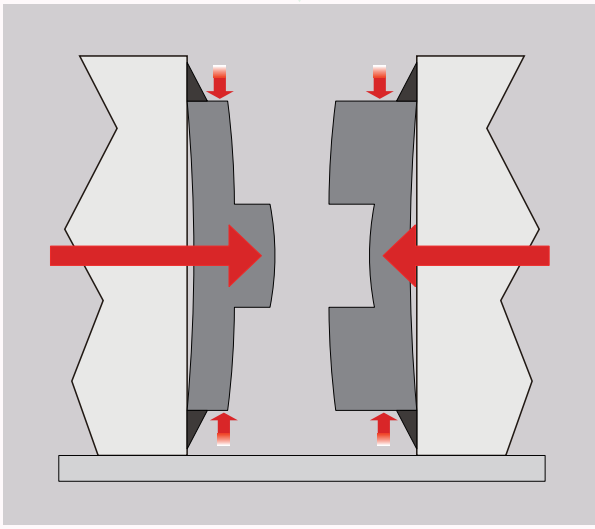
非操作侧
Non-operation side

3个步骤

打开安全门安装压板
Open the safety gate and install the pressing plate
↓
锁紧螺栓
Lock the bolt
↓
关闭安全门
Close the safety gate

操作工再移步至操作侧
The operator should move to the operation side

模具安装完毕 Mold installation finished



02
自动紧固方式
Automatic clamping method

将模具移入注塑机
Move the mold into IMM

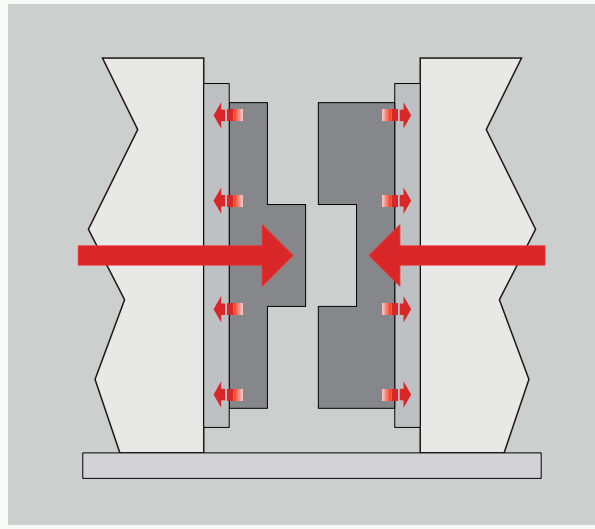
模具插入固定侧定位
Fix the mold into the locating ring on the fixed side

合模升压 Clamping & boosting

点击固定侧磁力模板充磁
Click the magnetic platen on fixed side to magnetize

点击可动侧磁力模板充磁
Click the magnetic platen on movable side to magnetize

模具安装完毕 Mold installation finished



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OVERTURN THE TRADITIONAL MOLD CHANGE METHOD

颠覆传统换模方式

磁力模板与液压换模比较
Comparison Between Electro-permanent magnetic Platen System & Hydraulic Mold Change Method

序号 NO.	比较内容 Contents	磁力模板换模 QMC by Electro-permanent Magnetic Platen	液压换模 Hydraulic Mold Change
1	安全性 Safety	☑ 智能型 ☐ 非智能性 智能型控制系统，在模具工作不正常时提前停机报警，工作过程不用电，不受停电影响。 ☑ Intelligent ☐ Non-intelligent Intelligent control system which alarms before abnormal operation of the mold, no electricity consumption during operation, no influence even power off.	☐ 智能型 ☑ 非智能性 非智能型，模具工作不正常时只有出现故障时才能发现，后果严重。停电后，液压压力下降容易造成事故。 ☐ Intelligent ☑ Non-intelligent Non-intelligent, can only be noticed when the abnormal has occurred, may cause serious consequences.When power is down, hydraulic presser will decrease and cause accident.
2	可靠性 Reliability	☑ 好 ☐ 不好 无任何运动部件且工作中不用电，因此无任何易损部件，无需维护。工作过程中有实时反馈信号，检测工具状态是否正常，可保证工作的可靠性。 ☑ Good! ☐ Not good! No movable parts and consumes no electricity while working,thus no damageable parts, free maintenance.Real time feedback signal during working process,test for normal status, guarantee the reliability.	☐ 好 ☑ 不好 液压系统经常需要维修和更换液压部分，油路易堵塞或漏油，液压压板易磨损，夹紧自锁后，压板有时打不开而影响卸模具。工作状态无任何反馈信号，无法保证工作的可靠性。 ☐ Good! ☑ Not good! Hydraulic system often requires to repair and replace the hydraulic components, hydraulic circuit is easy to be blocked or leak oil, hydrauilc pressure plate is easy to wear and tear, clamp lock, linking piece sometimes can' t open and affect the mold unloading. Working status has no any feedback signal to guarantee the reliability.
3	夹紧点位 Clamping point	☑ 多 ☐ 少 模具背板与磁力吸盘的所有接触点都是夹紧的，特别是在模具背板的中心部位有很大的夹紧力，保证工作过程中模具的夹紧刚性。 ☑ More ☐ Less More clamping point. All contact points of mold back and magnetic chuck is clamping point, especially in the center of the mold back there is a lot of clamping force, to ensure the working process of mold clamping rigidity.	☐ 多 ☑ 少 一般只夹4-6点，夹压力只作用在模具背板周边的夹压点上，而模具背板最需要工作夹紧力的中心部位却无夹紧力，工作过程中模具易变形。 ☐ More ☑ Less Less clamping point. Normally 4 to 6 points, the pressure just lay on mold back nearby clamping point, while there is no clamping force on the center of mold back which the clamping force most needed, which will easily result in mold deformation.
4	夹压效果 Clamping effect	☑ 均匀 ☐ 不均匀 所有接触点的夹紧力都是完全一致的，可以避免模具安装上的变形。 ☑ Even ☐ Uneve Even & well-proportioned. The clamping force on all the contact points is completely consistent, which can avoid mold deformation on the installation.	☐ 均匀 ☑ 不均匀 由于夹点及压板的磨损，各压点的夹紧力不完全一致，造成模具安装上的变形。 ☐ Even ☑ Uneve Uneven & un-uniform. Because of the abrasion of clamping point and pressing plate, the clamping force is not completely consistent, which will result in deformation of mold installation.

ACHIEVE REVOLUTIONARY EFFICIENCY IMPROVEMENT

实现革命性效率提升

磁力模板与液压换模比较
Comparison Between Electro-permanent magnetic Platen System & Hydraulic Mold Change Method

序号 NO.	比较内容 Contents	磁力模板换模 QMC by Electro-permanent Magnetic Platen	液压换模 Hydraulic Mold Change
5	产品品质 Quality	☑ 好 ☐ 不好 由于可以避免夹压变形且模具背板中心部位有均匀的夹紧力，因此打出的产品一致性好。 ☑ Good! ☐ Not good! Due to avoiding deformation and the even clamping force on center of mold back, the products are of good consistency.	☐ 好 ☑ 不好 由于夹压的变形和模具背叛中心部位无夹紧力，因此打出的产品一致性不好。 ☐ Good! ☑ Not good! Due to deformation of clamping pressure and no clamping force in the center of mold back, the consistency of products is not good.
6	模具的适用性 Applicability of the mold	☑ 好 ☐ 不好 不需要固定尺寸的模板背板，甚至可以装夹比机器模板大的模具，适应性极强。模具外围无任何干涉空间，不影响任何模具管路的安装。 ☑ Good! ☐ Not good! Good applicability. Don’t need a fixed size of the mold back, can even clamping a mold larger than machine templates, strong adaptability. No any interference on surroundings will not affect any mold pipeline installation.	☐ 好 ☑ 不好 由于夹紧点是固定的，因此模具背板均要做成同样规格的，费用高且适应性差。液压压板位置影响模具外管路的安装。 ☐ Good! ☑ Not good! Bad applicability. As the clamping point is fixed, the mold back must be in same specifications, high cost and poor applicability. The position of hydraulic pressing plate will affect the install of the outside pipeline.
7	对模具寿命的影响 Impact on the mold lifetime	☑ 无影响 ☐ 有影响 由于夹压和长时间工作过程中不会造成模具变形，所以延长了模具的使用寿命。 ☑ No influence ☐ Has influence Because the clamping pressure and long working time will not cause deformation of mold in process, the service lifetime of mold is prolonged.	☐ 无影响 ☑ 有影响 由于夹压和长时间工作过程中会造成模具变形，模具的使用寿命将缩短。 ☐ No influence ☑ Has influence Because the clamping pressure and long working time cause deformation of mold in process, the service lifetime of mold is shortened.
8	环境清洁性 Environment cleanness	☑ 好 ☐ 不好 无任何泄露，无需人工清洁。 ☑ Good! ☐ Not good! No any leakage, no need manual cleaning.	☐ 好 ☑ 不好 经常漏油，需要人工清洁。 ☐ Good! ☑ Not good! Often oil leakage, need manual cleaning.
9	节能环保性 Energy saving & Environmental protection	☑ 好 ☐ 不好 工作过程中不消耗任何能源。无泄漏，无噪音，无能耗。 ☑ Good! ☐ Not good! There is no any energy consumption, during working process. No leakage, no noise, no energy consumption	☐ 好 ☑ 不好 液压油泵需长期工作，耗能大。漏油，油泵噪音大。 ☐ Good! ☑ Not good! The hydraulic oil pump must work for a long time, too much energy consumption. Leak oil, the oil pump is very noisy.
10	经济性 Economic	☑ 好 ☐ 不好 无需定期维护，无需额外投入。 ☑ Good! ☐ Not good! Free regular maintenance, no additional cost.	☐ 好 ☑ 不好 需定期维护，更换密封器件。 ☐ Good! ☑ Not good! Needs regular maintenance, replace sealing components.

力磁电气
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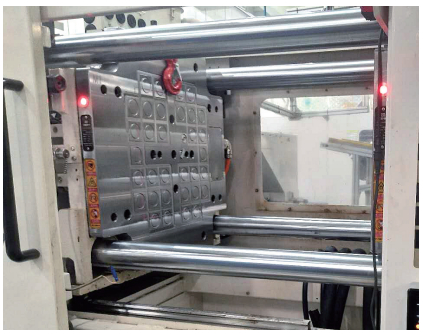
APPLICATION CASES
部分应用展示

Our persistence would be your greatest benefit.
我们的坚持将是您最大的收益

我们可以提供从50吨到4000吨的注塑机快速换模项目
We can supply QMC system from 50T to 4000T



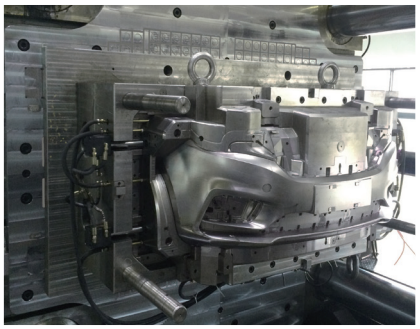
01 100吨注塑机
100T IMM

02 650吨注塑机
650T IMM

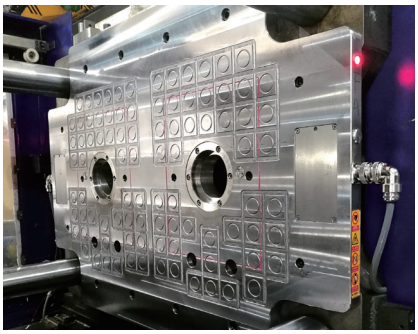
03 800吨注塑机
800T IMM

04 1000吨注塑机
1000T IMM

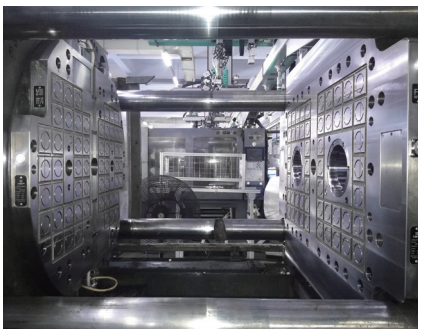
05 2300吨注塑机
2300T IMM



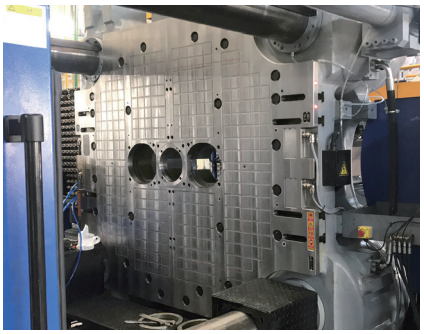
06 3300吨注塑机
3300T IMM



07 250吨双色注塑机
250T two-color IMM



08 400吨双色注塑机
400T two-color IMM



09 1920吨三色注塑机
1920T three-color IMM

FREQUENTLY ASKED QUESTIONS
常见问题释疑

01 停电会掉模吗?

磁力模板为电控永磁技术原理设计,其最大的优点就是断电永久不失磁性。电能只在磁力模板励磁与消磁的瞬间转换磁路时使用(仅1-3秒钟),其他时间仅系统运转使用电。

01. Will power off lead to mold creep down?

No. The design principle of magnetic platen is electro-permanent control technology, its greatest advantage is to keep the magnet permanently even there is emergency power off. Electric energy is only used for magnetizing or demagnetizing process which is just 1-3seconds.

02 磁力能保持多久?

众所周知,磁铁磁性能的衰减是一个非常漫长的过程,所以磁力模板的使用年限能超过三十年,甚至更长。

02. How long could the magnetic force keep?

The magnet force could keep more than 30years.

03 大型的模具能吸住吗?

磁力模板内部使用了高磁能积的稀土永磁材料——钕铁硼,作为稀土永磁材料发展的最新结果,由于其优异的磁性能而被称为"磁王"。钕铁硼磁性材料是钕、氧化铁等的合金,又称磁钢。钕铁硼具有极高的磁能和矫顽力。磁力模板的设计是单片模板可以承受整套模具的重量。即使是重量为30- 45吨的大型汽车保险杠模具,也能轻松装夹在磁力模板上使用。

03. Could the large-sized mold be clamped?

The material used in magnetic platen is NdFeB, which is called " King of magnet " due to its excellent performance. Every single magnetic platen is designed to hold the whole weight of the mold. Even a big bumper mold which is about 30-45tons could be clamped easily.

04 注塑机因为有热流道导致模具背板温度过高,会不会造成磁力衰退?注塑温度太高会不会造成吸力衰减?

组成磁力模板的磁性材料均经过严格的耐温筛选检测,出厂的产品标准耐温等级为120°C。特殊定制可以达到150度或200度。

04. For the IMM with hot runner, will the high temperature of mold back plate cause magnet recession? Will high-temperature decrease the magnetic force?

The standard operation temperature is 120 ℃, and it can up to 150 ℃ or 200 ℃ if customized.

05 需要改造模具吗?加装了隔热板的模具能使用吗?

安装电永磁快速换模磁力模板后,大部分模具可以直接使用,但对于异形的非对称模具需要咨询厂家,进行评估后方可使用。另外,加装了隔热板的模具不可以直接使用磁力模板系统。一般制作模具隔热板的材料为热传导性差的非铁磁性材料,所以是不能直接使用的,如果将隔热板安装在磁力模板和注塑机墙板之间的位置是完全可以的。

05. Does the mold need modification? Could the mold be workable with an insulation board?

For electro-permanent platen of QMC system, most of the mold could be used directly. For the non-symmetric molds, please enquire for estimation. Besides, for the mold with insulation board can not install the magnetic platen. However, if the insulation plate is placed between IMM back plate and magnetic platen, it is workable.
Non-ferric material is not workable.

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06 工厂电源不稳定能使用吗？

磁力模板仅在励磁与消磁的瞬间使用电能，其他时间不消耗电；控制器系统在设计时，为智能型恒流控制输出，即使在外部电源不稳定时也可以正常使用。

06. If the power supply in factory is not stable, can the magnetic platen be used?

Electric energy is only used for magnetizing or demagnetizing process, no electricity consumption in working status. The control system is intelligent constant current output, even when the external power supply is not stable still can be used.

07 实时监控和停机系统可靠吗？

电永磁快速换模系统采用的欧规EuroMap70.0或70.1接口，其逻辑关系严密可靠，被广泛应用在快速换模设备上。

07. Is the real time monitoring and E-stop system reliable?

Yes. The Electro-permanent QMC system adopts Euromap 70.0 or 70.1, which logical relationship is very strict and have been widely used on injection molding machine.

08 后期维护和使用成本高吗？

因为系统仅在励磁和退磁的瞬间使用电能，所以各器件的老化速度非常慢，而且产品内部无运动部件，所以磁力模板不需要频繁而繁琐的维护和检修，使用成本几乎为零。

08. Is the usage and maintenance cost high?

Electricity only needed for magnetizing and demagnetizing process, which is just 1-3seconds. The device aging is very slow. There is no wearing parts inside the product, so the magnetic platen does not need frequent or complicated maintenance & repair, which makes the cost negligible.

09 成本能节省多少？

以3300吨注塑机成型机为例：
人工节省：传统机械式锁紧磨具，需要4- 5个人，耗时3.5- 4小时；
QMC系统仅需1个人，耗时约0.5小时即可。
人力节省：3人×3小时×PM（人力小时成本）
机器节省：3小时×M（注塑机小时成本）

09. How much cost can the electro-permanent magnetic platen save?

Take 3300Tons of IMM for instance:
Labor will save:
Traditional clamping method: 4-5workers and 3.5-4hours
QMC system: 1worker and 0.5hours
Man power will save: 3(workers) x 3(hours) x PM (labor cost per hour)
Machine power will save: 3(hours) x M (machine cost per hour)

10 磁力对人体有危害吗？

磁力模板励磁后，工作面会有磁场存在，其为永磁场而非电磁场，对正常人体危害微乎其微。磁力线的辐射空间也是有限范围内的几十毫米内。若体内植入医疗器械的人员，须咨询医生。另外，磁力模板对于铁磁性材料均会产生吸力，如榔头、扳手、手表等，并且严禁信用卡、身份证等靠近，以免造成消磁失效。

10. Is the magnet force harmful?

No. After magnetized, the magnet field is a permanent magnet field, it won't hazard to our body. The radiation of the magnetic force lines are limited, just within the scope of a few millimeters. However, for the personnel who implant medical devices in the body, should consult the physician. In addition, the magnetic platen has suction for ferro magnetic material, such as hammer, wrench, watches, etc. The credit card and ID card are forbidden to close up, in case to cause demagnetization.

PRE-SALES INFORMATION SHEET

磁力模板售前客户调查表

请认真填写以下列表，"*"为必填项，谢谢！

Please fill the form carefully, and the columns marked with "*" are necessary ! Thank you!

客户基本信息 Customer Information					
* 公司名称 Company name			地址 Address		
电话 Tel			* 联系人 Contact		
邮箱 E－mail			* 手机 Mobile		
* 生产类型 Production Type	□塑料制品生产 Plastic products	□模具生产及试模 Mold production or die trial		□其他 Others	

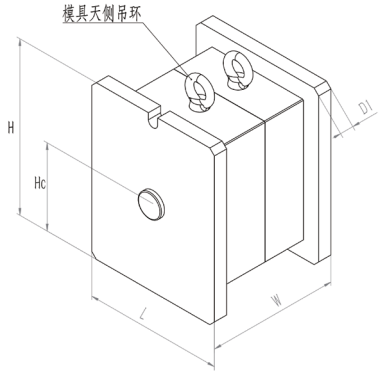
注塑机信息 Injection Molding Machine Information			
* 单色/多色注塑机 Mono/Multi-color of IMM	□单色 Mono color □多色 Multi- color	* 注塑机生产厂家/型号 Machine manufacturer/ model	
* 立式/卧式注塑机 Vertical or Horizontal machine	□立式 Vertical □卧式 Horizontal	新机/旧机 New/Retrofit	□新机 New □旧机 Retrofit
* 电动机/油压机 Electric/Hydraulic	□电动机 Electric □油压机 Hydraulic	锁模力 Clamping force [kN]	
开模力 Opening force [kN]		* 顶杆数量 Lift-rod Quantity	
炮筒射嘴顶出力 Nozzle force [kN]		常用顶杆顶出力 Ejector force [kN]	
* 模具横向放置/竖向放置 Vertical or Horizontal mold loading	□横向 Horizontal □竖向 Vertical □综合 Both	* 模具与机器中间有无隔热板 (有/无) Insulating plate installed between mold and machine (Y/N)	□有 Yes □无 No

* 是否有换模台车规划 Need mold change table or not	□有 Yes □无 No	* 附注塑机动定墙板图纸 Please attach wallboard drawings		* 请在动墙板图纸上标出预留的顶出孔位 Please mark the reserved knock-out holes on the M-wallboard drawings	

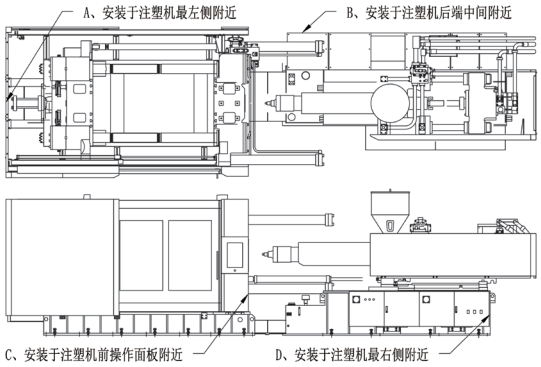
模具信息 Mold Information （仅提供适用于本吨位注塑机的模具数据） （Only suitable for the mentioned IMM mold information is needed .）			
* 两板模具/三板模具 2-Plates or 3-Plates tooling	□两板模 2- plates □三板模 3- plates	* 水平/竖直模具 Vertical/Horizontal mold (V/H)	□水平 Horizontal □竖直 Vertical
* 定模定位环直径 [mm] F-mold centring ring diameter		* 模具背板材质 Mold back-plate materials	
动模定位环直径 [mm]（若有） M- mold centring ring diameter (if any)		模具背板温度范围 Temperature range of the mold	□{60- 80°C} □{80-100°C} □{100-120°C} □{120-150°C}
* 有无偏心模具 Availability of eccentric mould	□有 Yes □无 No	* 模具是否有脱螺纹机构 If the mold has thread taking-off structure	□有 Yes □无 No

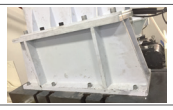
* **有无倒装模具** **Have inverse-installing mold**	☐有 Yes ☐无 No	倒装模具动、定模重量比例 The weight ratio of inverse-installing mold	动 ：定 =_____ Movable side : Fixed side
* **模具定位环高度** **Centering ring height**		特殊模具考虑 Special mold considerations	

* **参数** Parameters	H(mm)背板高度 Plate Hight	L(mm)背板长度 Mold Plate Length	Hc(mm)背板中心高度 Height of mold plate certer	W(mm)模具厚度 Mold thicknes	D1(mm)背板厚度 Mold plate thickness	重量 Weight(kg)
最大模具背板尺寸 Maximum mold						
最小模具背板尺寸 Minimum mold						



控制系统安装位置选择



* **模具吊环螺纹规格** **Mould lifting ring screw specification**		* **模具吊环螺丝数量** **Number of mould lifting ring screws**	☐ 1个 ☐ 2个
* **注塑机墙板上方有无机械手及其他自动装置** **There is no manipulator and other automatic device above the wall plate of injection molding machine**	☐有 Yes ☐无 No	* **控制系统安装位置选择（参考图示 A-D 位置）** **Installation position of control system (pls refer to A-D)** **(C3外形 C3 Dimension：326×256×86)** **(C5外形 C5 Dimension：550×400×175)** **(C7外形 C7 Dimension：630×460×175)**	☐A ☐B ☐C ☐D
若有，请提供照片 If yes, please provide photos		控制系统选择 Control system option	☐QMC100 ☐QMC300 ☐QMC600

* **系统供电电源** **Supply voltage**	电源电压/Voltage 电源频率/Frequency	☐AC220V ☐AC380V ☐其他 AC_____V ☐50Hz ☐60Hz ☐其他 _____Hz			
* **注塑机有无欧标接口** **Machine interface**	☐有 Yes ☐无 No	**若有/If yes：**	☐Euromap70.0接口 Euromap 70.0	☐Euromap70.1接口 Euromap 70.1	
线缆长度 Cable length（由力磁售前人员填写）	定模板共___条，长度分别为_____米 F- plate___pcs, length is:___meter. 动模板共___条，长度分别为_____米 M- plate___pcs, legnth is:___meter.				

磁力模板选配件 **Optional Accessories**

是否需要更多位移传感器（试模产品选配） If extra proximity sensor needed(for mold trial products)	☐额外增加1支（1000吨以下吨位） One piece extra(for below 1000T) ☐额外增加2支（1000吨以上吨位）Two pieces extra (for over 1000tons)		
是否需要额外保险链条?If safe link chain needed?	☐有 Yes ☐无 No	长度 length	☐0.5m ☐1m ☐1.5m ☐2m

其他 **Notes**

填表人签名 Signature　　填表日期 Date

以下部分由力磁电气联络人填写　Following section will be filled by Lici contact person

力磁电气联络人资料 **LICI Contact Information**

姓名 Name		职位 Position	
手机 Mobile		邮箱 E- mail	
地址 Address		邮编 Postcode	

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EPI for injection molding machine

EPP冲压机磁力模板
EPP for Punching machine

SPS50/70全钢面板电永磁吸盘
SPS50/70 electro-permanent magnetic platen with a full steel plate

SPB电永磁吸盘
SPB magnetic chuck

EP50/70铣用电永磁吸盘
EP50/70 for milling machine

EPB电永磁吸盘
EPB magnetic chuck

EPG磨用电永磁吸盘
EPG for grinding machine

EPR立车用电永磁吸盘
EPR for Vertical lathe

EPS立磨用电永磁吸盘
EPS for Vertical grinding

EPL电永磁钢板吊具
EPL for steel plate lifting

EPC冲锻压线喂料磁盘
EPC for forging machine

EPQ物料搬运
EPQ for materials handling

EPD手机壳体加工电永磁吸盘
EPD electro-permanent magnetic platen for processing cell phone shell

EPX玻璃加工电永磁吸盘
Electro-permanent magnetic platen for processing glass

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