

安全/高效/柔性/品质
SAFETY/PRODUCTIVITY/FLEXIBILITY/QUALITY

机加工快速装夹系统

QUICK CLAMPING SYSTEM FOR
MACHINING

| 电控永磁系统 |

Electro-permanent magnetic system





磁旧迎新 · 科技先行

MAGNETIC SCIENCE · TECHNOLOGY FIRST

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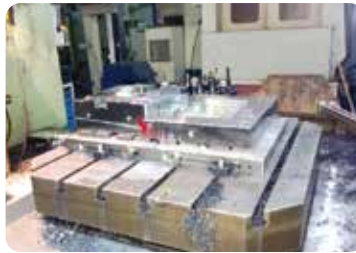
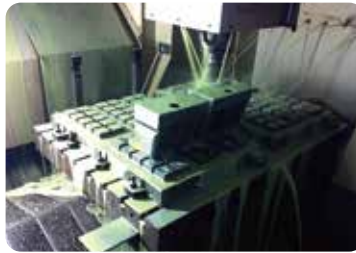
ATTENTION

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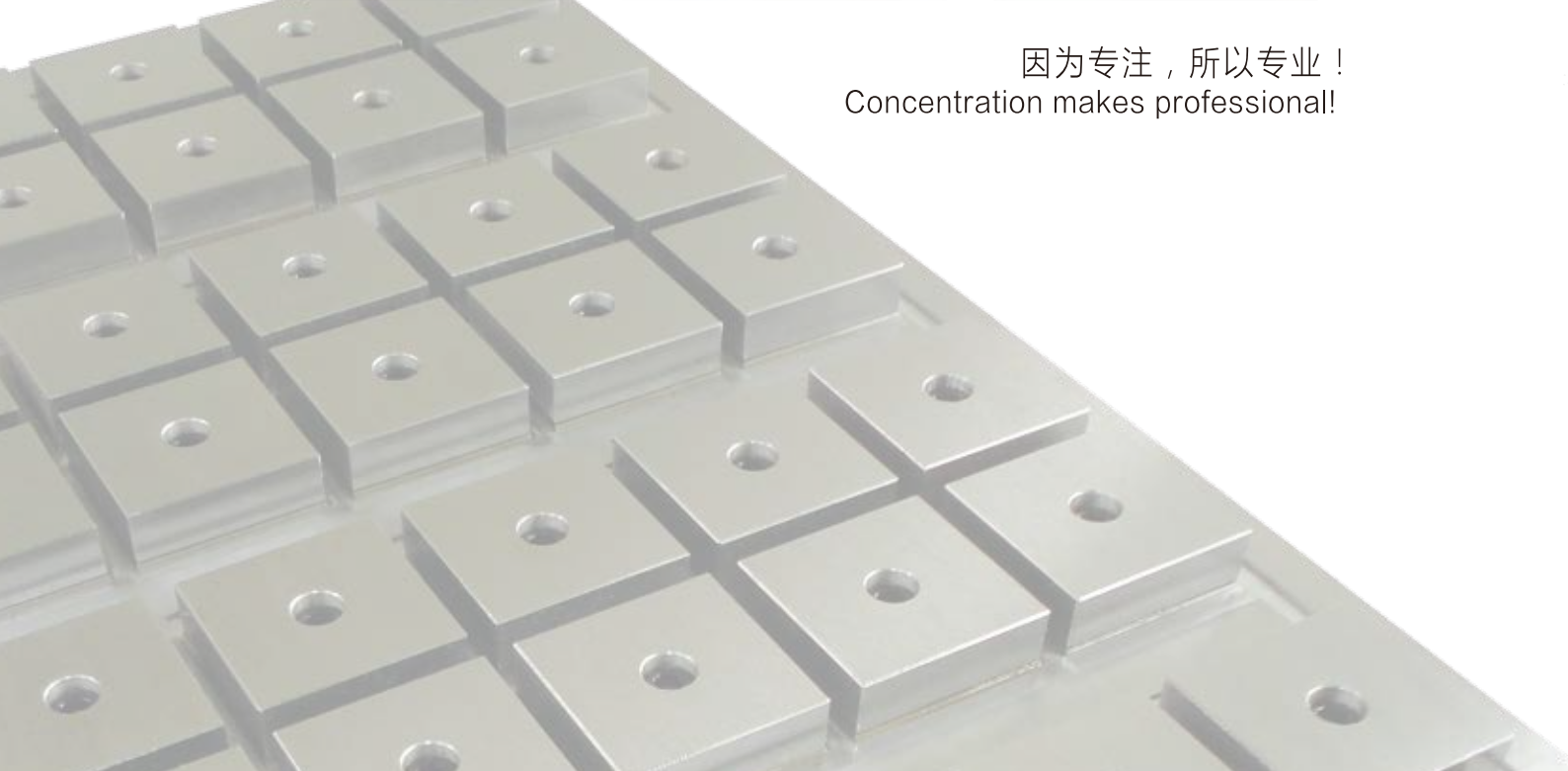
CLIENT APPLICATION BENEFIT

完美，尽在掌握

PERFECT! EVERYTHING IN YOUR CONTROL!



因为专注，所以专业！
Concentration makes professional!



一切为了您的成功!

ANYTHING FOR YOUR SUCCESS!

JINSCHEMS
精成模具

靠近科技

Mold Masters
performance delivered

DOUBLE STAR

Haier

WEGO 威高

Hisense

DMTG

Snowwhite
白雪

SMTCL
沈阳机床

YUDO®
Integrated Engineering Solution

JOHNSON
ELECTRIC

GoerTek
More Sound, with Travel

KELON
科龙

SANY

CY

华世洁环保
HSJ ENVIRONMENT PROTECTION

A

昆明机床
KUNMING MACHINE TOOL

WFO

FINGU

HKCT

XINGTAI 星泰
excellent team

GIN

SAILING
MOULD & PLASTIC

东风汽车

FOTON
福田汽车

CSR
中国南车

HI-Tech Moulds

CNR
中国北车

LOVOL
福田雷沃重工

CNC®
长城电器集团

三环成套

Great Wall
长城

Midea
美的空调

FURWA
富华

SAHAT
星宏泰

H

BULL公牛

BYD
比亚迪



COMPANY PROFILE

公司简介

青岛力磁电气股份有限公司是注塑机/冲压机快速换模系统（磁力模板）、电永磁夹具（机加工磁力装夹）及控制系统的专业制造商，是磁力装夹与起重搬运的技术应用专家，也是磁力行业技术领先的高新技术企业。

Qingdao Lici Electric Inc. is a professional manufacturer of QMC system (Magnetic Platen), Electro-permanent clamping & Control System for Injection Molding Machine and Punching Machine. We are magnetic clamping and lifting-handling technology application experts, as well as a leading high & new technology 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。

Qingdao Lici Electric Inc. 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.

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.

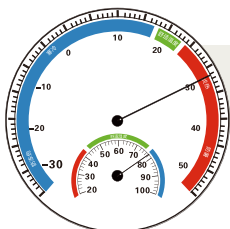


不会磁化模具的双磁极磁力线对流技术

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.



装备有恒温恒湿的装配车间

Equipped with constant temperature & humidity workshops

电永磁系列产品在装配过程中不稳定的温度、湿度会导致产品质量不稳定、电气寿命缩短，恒温恒湿的装配环境有力地保证产品的质量和产品寿命。

In the assembly process of the electro-permanent series products, the unstable temperature & humidity will lead to an unstable products and electrical lifetime will be shortened. The constant temperature and humidity environment effectively guarantee the quality & lifetime of products.



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

通过三一重工、北汽福田、比亚迪、东风汽车、吉利汽车、潍柴动力、玉柴动力、海尔集团、海信集团、美的空调、西门子、大连机床等知名企业验厂认证，并成为长期战略合作伙伴。

We have passed the factory audit of Sany, Foton, BYD, DMF, Geely automobile, Weichai power, Yuchai power, Haier group, Hisense group, Midea air conditioner, Siemens and DMTG, ect., we are now long-term strategic partners.

PRODUCT OVERVIEW

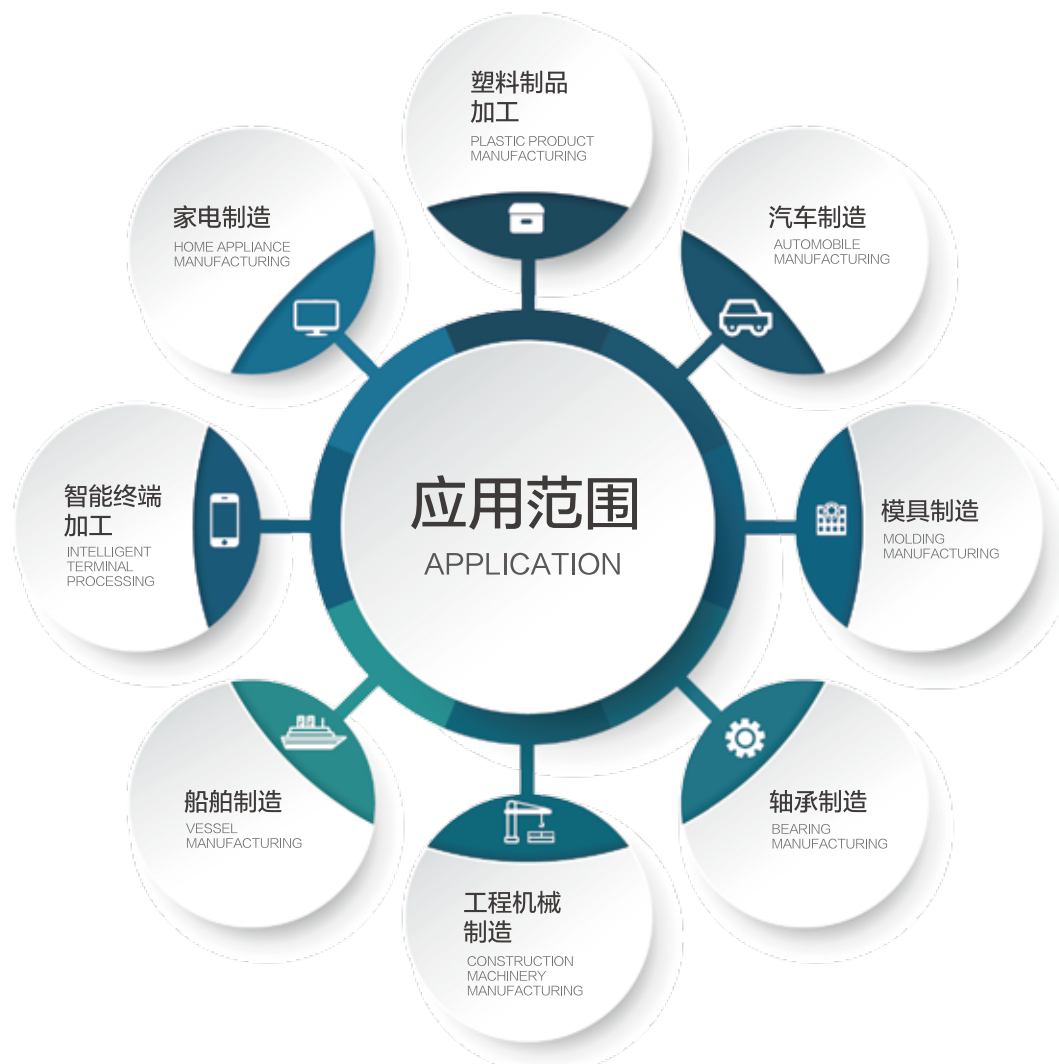
产品概述

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



断电30年不失磁

Keep the magnetic force without electricity for more than 30years.

02 节能 / Energy saving



节电95%以上

Save electric energy by more than 95%.

03 高效 / High efficiency



提高效率80%以上

Improve efficiency by more than 80%.

04 环保 / Environmental protection



洁净能源无污染

Environmental protection, no pollution.

05 创新 / Innovation



创新不断升级, 更快更好

Continuous upgrading, faster and better.

30年

95%

80%



COMPARISON OF CLAMPING METHODS

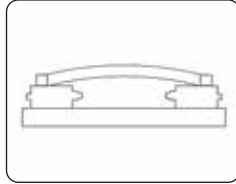
装夹方式对比

传统装夹方式/TRADITIONAL CLAMPING METHOD

01 夹紧变形/Clamping deformation

挤压式装夹方式容易造成工件因应力作用而变形和损伤工件的表面。

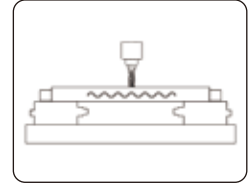
Extruding style could easily cause deformation or damage of workpiece by stress.



02 加工共振/Processing resonance

工件装夹时，底部空腔容易造成加工时共振，导致刀具损伤及加工效果不理想等。

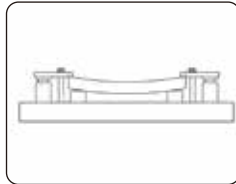
When clamping the workpiece, the bottom cavity can easily cause resonant in processing which will result in damage of tool or not good machining effect.



03 弯曲工件/Bending workpiece

弯曲工件，压紧式装夹，松开后工件会反弹。

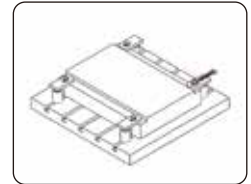
Bend the workpiece, clamp with pressing, the workpiece would rebound after loosening.



04 效率低下/Low efficiency

繁琐的装夹不仅效率低下而且劳动强度大。

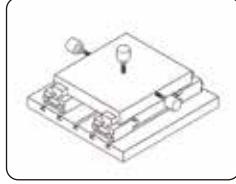
The complicated clamping method is not only inefficient but also higher working intensity.



05 夹具干涉/Jig interference

加工时压点因夹具干涉无法加工到位，需要多次装夹。即影响加工效率，又影响加工精度。

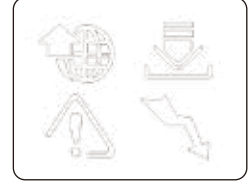
Because of the jig interference, the pressing point can't be machined, which needs to be filled by several times. It affects both processing efficiency and accuracy.



06 其他影响/Other effects

电、液、气等能源消耗大
机械劳损带来的安全隐患
自动化程度低
批量化加工待机时间长
编程需要考虑夹具等干涉。

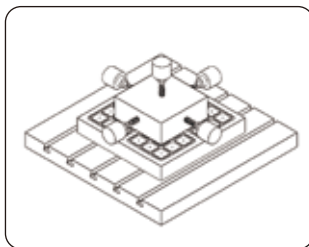
Huge consumption of electricity, liquid, gas and other energy.
Safety hazards caused by mechanical strain.
Inferior automation.
Long standby time for batch processing.
Jig interference should be considered when programming.



技术革新 升级改良

Technology improvement,
upgrading innovation.

新型装夹方式/NEW CLAMPING METHOD

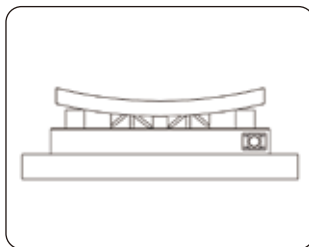


一次装夹多面加工，无夹具干涉。

Once installed, multi-surface processing, no jig interference.

瞬间励磁/退磁，其他时间不消耗电能。

Instant magnetization/demagnetization, no any electricity consumption during working status.

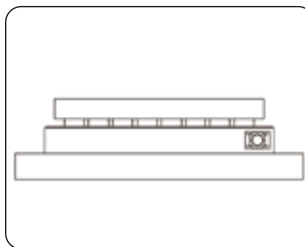


无应力、无热变形装夹，成品精度更高。

No stress, no thermal deformation, the finished products are of high accuracy.

批量加工提升生产效率，提高工作一致性。

Batch processing improve the production efficiency and consistency.

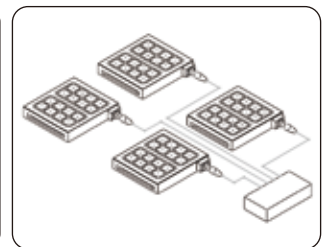


有效降低加工时的振动，延长刀具寿命30%。

Reduce the vibration of processing and prolong the lifetime of tool by 30%.

超工作台使用，增强机床使用效率。

Super working platform to enhance the efficiency.



一控多模式，操作简单，有效降低人力成本。

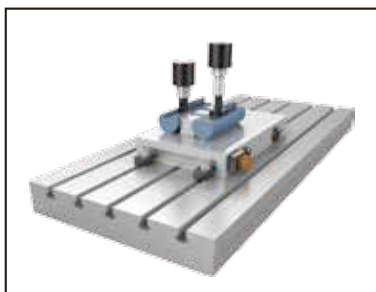
Multi-mold, simple operation, reduce labor cost efficiently.

基于模块化设计，满足柔性工作需求。

Based on modular design, meet the of requirements.

APPLICATION CASES

应用案例



01 圆棒端铣及开槽
Round bar milling and grooving



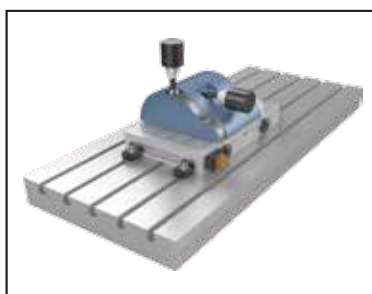
02 镗孔与轮廓加工
Boring and contour machining



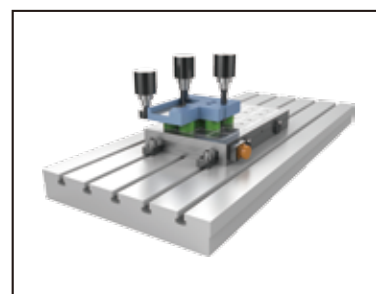
03 锻件弯板加工
Bending wrought processing



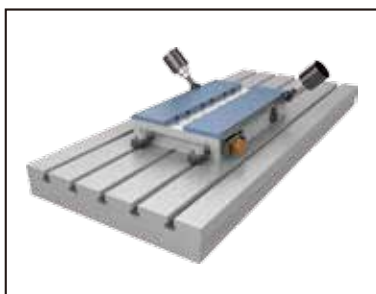
04 弯板平面加工
Bending wrought surface processing



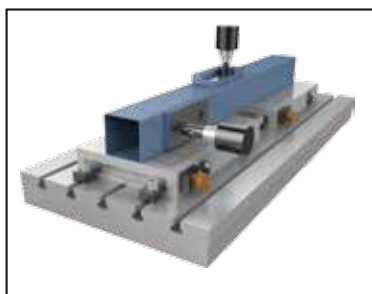
05 模具加工
Mold processing



06 钻孔及内腔加工
Drilling and inner cavity processing



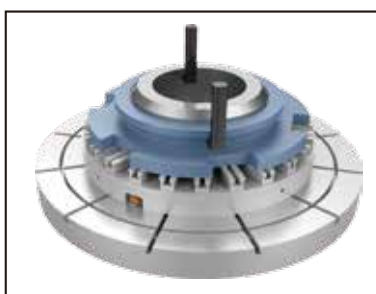
07 零件角度铣削
Parts angle milling



08 端面铣削与侧面钻孔
Top milling and side drilling



09 铁轨道岔铣削
Track rail drilling



10 内外圈及端面车削加工
Inner & outer ring and face machining



11 内外圈及端面精磨
Inner & outer ring and face grinding



12 平面高精度磨削
Flat high accuracy grinding

PRODUCT APPLICATION METHOD

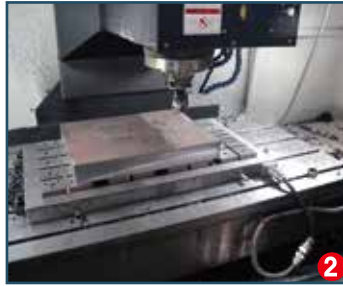
产品的应用方法

从系统连接至工件加工完毕

From system connection to workpiece processing



01 放置工件
Place the workpiece



02 连接放电电缆
Connect to the discharge cable



03 磁盘充磁成功
Magnetization success



04 断开放电电缆
Disconnect discharge cable



05 执行加工
Perform machining



06 连接放电电缆
Connect to the discharge cable



07 磁盘退磁成功
Demagnetization success



08 清理铁屑
Clean up the iron filings



09 取下工件
Remove the workpiece

ALL KINDS OF POLE EXTENSION BLOCKS

各式导磁块

固定导磁块使用说明/ INSTRUCTIONS OF FIXED POLE EXTENSION BLOCK



☑ 使用H50-25高导磁块做不规则工件五面加工

Using 25mm high pole extension block could make the irregular workpiece for 5 surfaces processing



CH系列

圆形固定导磁块
Circular fixed pole extension block

| 型号/Type | 规格/Size | 高度/Height | 订货号/ Item No. |
|---------|---------|-----------|---------------|
| CH50-25 | Φ50 | 25 | 8101001 |
| CH50-30 | | 30 | 8101002 |
| CH50-50 | | 50 | 8101003 |
| CH70-25 | Φ70 | 25 | 8101004 |
| CH70-30 | | 30 | 8101005 |
| CH70-70 | | 70 | 8101006 |



H系列

方形固定导磁块
Square fixed pole extension block

| 型号/Type | 规格/Size | 高度/Height | 订货号/ Item No. |
|---------|---------|-----------|---------------|
| H50-25 | 50 × 50 | 25 | 8102001 |
| H50-30 | | 30 | 8102002 |
| H50-50 | | 50 | 8102003 |
| H70-25 | 70 × 70 | 25 | 8102004 |
| H70-30 | | 30 | 8102005 |
| H70-70 | | 70 | 8102006 |

挡板定位导磁块使用说明/ INSTRUCTIONS OF BAFFLE POSITIONING POLE EXTENSION BLOCK



☑ 直接在导磁块上加工辅助定位侧边，实现多工件批量加工。

Place the side auxiliary positioning on the pole extension block to achieve multi-part processing.



CHF系列

圆形带台阶固定导磁块
Circular fixed pole extension block with step

| 型号/Type | 规格/Size | 高度/Height | 订货号/ Item No. |
|----------|---------|-----------|---------------|
| CHF50-25 | Φ50 | 25 | 8103001 |
| CHF50-30 | | 30 | 8103002 |
| CHF50-50 | | 50 | 8103003 |
| CHF70-25 | Φ70 | 25 | 8103004 |
| CHF70-30 | | 30 | 8103005 |
| CHF70-70 | | 70 | 8103006 |



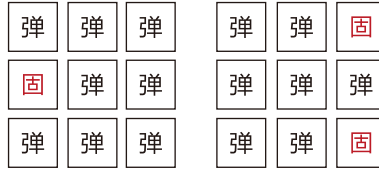
HF系列

方形带台阶固定导磁块
Square fixed pole extension block with step

| 型号/Type | 规格/Size | 高度/Height | 订货号/ Item No. |
|---------|---------|-----------|---------------|
| HF50-25 | 50 × 50 | 25 | 8104001 |
| HF50-30 | | 30 | 8104002 |
| HF50-50 | | 50 | 8104003 |
| HF70-25 | 70 × 70 | 25 | 8104004 |
| HF70-30 | | 30 | 8104005 |
| HF70-70 | | 70 | 8104006 |

弹性导磁块使用说明/INSTRUCTIONS FOR ELASTIC POLE EXTENSION BLOCK

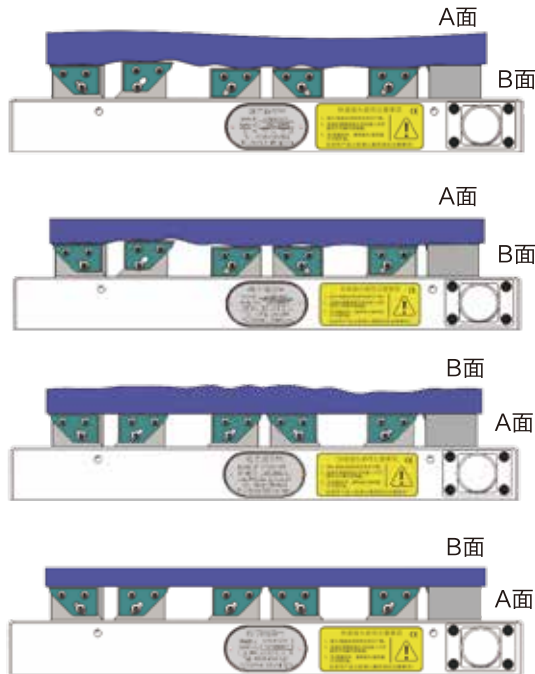
■ 原理/Principle



- ☑ 固: H系列 (H50/H70)
- ☑ 弹: ES系列 (ES50/ES70)

- ☑ 全套导磁块由三块固定块和若干弹性块组成。
The complete pole extension block consists three fixed blocks and several elastic blocks.
- ☑ 在磁力区域的最大范围处用3个固定块支撑，确定出一基准平面。
The maximum magnetic field is supported by three fixed blocks to make the baseline in the same level.
- ☑ 其余部位通过弹性块上下浮动来适应工件平整度，提供更大的磁力。
The rest area could be adjusted to adapt to the level of workpiece by sliding up and down the elastic blocks to provide larger magnetic force.

■ 工作图解/Working diagram



① 放置工件，固定块确定基准面，弹性块自动适应工件起伏。
Place the workpiece, fix the block to ensure baseline, the elastic block would adapt to the workpiece accordingly.

② 加工A面。
Processing A surface.

③ 已加工的A面作为基准面，加工B面。
The processed A surface would be the datum, then process B surface.

④ 已加工的A面作为基准面，加工B面。
The processed A surface would be the datum, then process B surface.

④ 加工完成。
Processing finished.

■ 优势/Advantages

- ☑ 可加工阶梯件，适应性强；
Could process step workpiece and well-adapted.
- ☑ 自适应工件起伏，接触面积大，吸持力强。
Self-adapt to the ups and downs of the workpiece, the larger the contact area, the more the clamping force.
- ☑ 可吸持毛坯面，减少装夹次数；
Could clamp rough surface of workpiece to reduce the clamping frequency.



CHS系列

弹性圆形导磁块
Elastic circular pole extension block

| 型号/Type | 规格/Size | 高度/Height | 订货号/ Item No. |
|----------|---------|-----------|---------------|
| CHS50-32 | Φ50 | 29-34 | 8105001 |
| CHS70-45 | Φ70 | 42-48 | 8105002 |



ES系列

弹性方形导磁块
Elastic square pole extension block

| 型号/Type | 规格/Size | 高度/Height | 订货号/ Item No. |
|---------|---------|-----------|---------------|
| ES50-32 | 50 × 50 | 29-32 | 8106001 |
| ES50-50 | | 47-52 | 8106002 |
| ES70-50 | 70 × 70 | 48-52 | 8106003 |
| ES70-70 | | 66-72 | 8106004 |

导磁板使用说明/ INSTRUCTIONS OF POLE EXTENSION PLATE

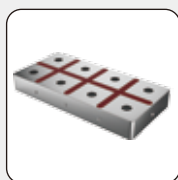


☒ 其他规格接受订制及样式。

Other specifications or patterns could be customized.

☒ 使用HV系列导磁板做圆棒料加工。

Use HV series pole extension block for round bar processing.



HMB系列

固定导磁板
Fixed pole extension plate

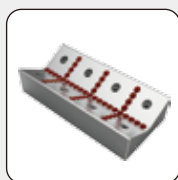
| 型号/Type | 规格/Size | 高度/Height | 订货号/ Item No. |
|----------|---------|-----------|---------------|
| HMB50-25 | 50 × 50 | 25 | 8107001 |
| HMB50-30 | | 30 | 8107002 |
| HMB50-50 | | 50 | 8107003 |
| HMB70-25 | 70 × 70 | 25 | 8107004 |
| HMB70-30 | | 30 | 8107005 |
| HMB70-70 | | 70 | 8107006 |



HMF系列

带台阶固定导磁板
Fixed pole extension plate with steps

| 型号/Type | 规格/Size | 高度/Height | 订货号/ Item No. |
|----------|---------|-----------|---------------|
| HMF50-25 | 50 × 50 | 25 | 8108001 |
| HMF50-30 | | 30 | 8108002 |
| HMF50-50 | | 50 | 8108003 |
| HMF70-25 | 70 × 70 | 25 | 8108004 |
| HMF70-30 | | 30 | 8108005 |
| HMF70-70 | | 70 | 8108006 |



HV系列

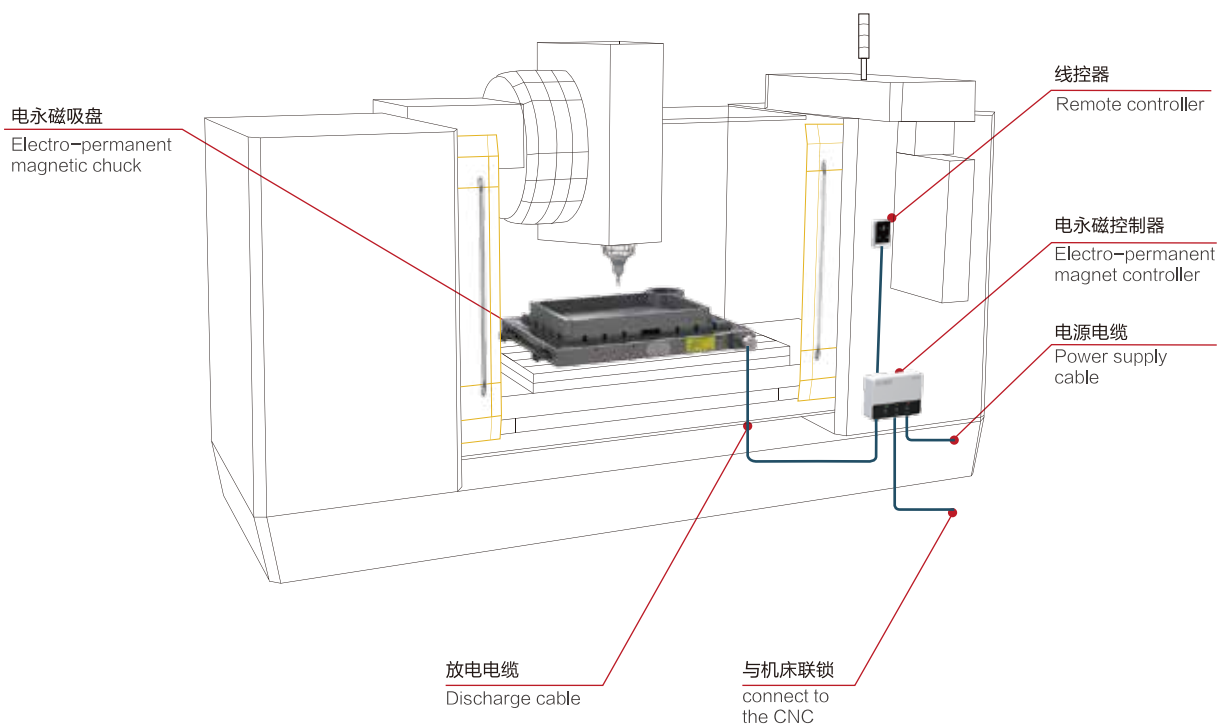
V型导磁板
V type pole extension plate

| 型号/Type | 规格/Size | 高度/Height | 订货号/ Item No. |
|----------|---------|-----------|---------------|
| HV50-90 | 50 × 50 | 90 | 8109001 |
| HV50-120 | | 120 | 8109002 |
| HV70-90 | 70 × 70 | 90 | 8109003 |
| HV70-120 | | 120 | 8109004 |

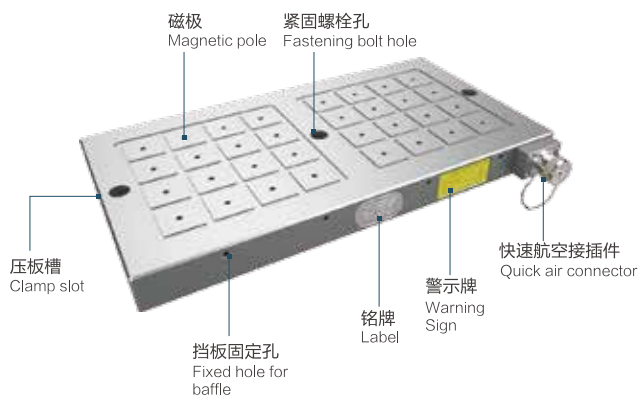
SYSTEM COMPOSITION DISPLAY

系统组成展示

各部分安装位置示意图/INSTALLATION DIAGRAM



标注磁盘各部分名称/ NAME OF MAGNETIC CHUCK COMPONENT



| 型号Type | 长Length | 宽Width | 高Height |
|------------|---------|--------|---------|
| SPS50-3362 | 620 | 330 | 51 |

单位(mm)

电永磁吸盘产品特性 The features of electro-permanent magnetic chuck

01 先进的电永磁技术，强大且恒定的吸持力，确保机械加工的安全进行；

Advanced electro-permanent magnetic technology with powerful & constant clamping force to ensure the safety of machining process.

02 节省工艺装备，缩短生产周期，提高生产效率；

Simplify the processing equipment, shorten production cycle, improve production efficiency.

03 产品独具高刚性和高精度，为高端制造业保驾护航；

The products are of high rigidity and high precision, which will provide enough protection for the top manufacturing industry.

04 基于模块化设计，灵活适应各类零部件加工需求。

Based on modular design, it is flexible enough to meet the requirements of various parts.

EPM5控制器外形示意图/ CONTROLLER CONFIGURATION DIAGRAM OF EPM5



订货号/ Item No.: 8301001 电压/Voltage: AC220
 订货号/ Item No.: 8301002 电压/Voltage: AC380

| 型号Type | 长Length | 宽Width | 高Height |
|--------|---------|--------|---------|
| EPM5 | 210 | 150 | 60 |

单位/unit(mm)

EPM5(单通道)产品特性 Product feature of EPM5(Single channel)

- 01 设置简单，所有功能参数通过键盘轻松设定；**
Simple setup, all function parameters are easily set by keyboard
- 02 退磁时间、充磁强度连续可调、对各种软、硬磁材料退磁均能获得满意的效果；**
The time of demagnetization, intensity of magnetization could be adjusted continuously. The results of demagnetization of all kinds of soft or hard magnetic materials are very satisfied.
- 03 集成化设计，产品性能稳定可靠；**
Integrated design, reliable products performance.
- 04 体积小、安装调试方便。**
Small volume, easy installation & debugging.

EPM5i控制器外形示意图/ CONTROLLER CONFIGURATION DIAGRAM OF EPM5i



订货号/ Item No.: 8302001 电压/Voltage: AC220
 订货号/ Item No.: 8302002 电压/Voltage: AC380

| 型号Type | 长Length | 宽Width | 高Height |
|--------|---------|--------|---------|
| EPM5i | 210 | 150 | 60 |

单位/unit(mm)

EPM5i(双通道)产品特性 Product feature of EPM5i (Dual channel)

- 01 控制系统自动检测并判断输入电压，自动切换输出电路；**
The control system will automatically detect and estimate the input voltage and switch the output circuit automatically.
- 02 集弱磁和充退磁防抖动功能，更加适用客户现场工况；**
Be of function of weak magnet and magnetization/demagnetization anti-jamming to be suitable for the customer site conditions.
- 03 产品通过EMC最高等级测试，抗干扰能力强，安全可靠；**
The products have been passed the highest level of EMC test, good anti-jamming capability, safe and reliable.
- 04 双通道输出设计能实现更多磁盘控制。**
Dual channel output design could achieve multi-magnetic chuck controlling.

EPM7控制器外形示意图/ CONTROLLER CONFIGURATION DIAGRAM OF EPM7



订货号/ Item No.: 8303001 电压/Voltage: AC220
 订货号/ Item No.: 8303002 电压/Voltage: AC380

| 型号Type | 长Length | 宽Width | 高Height |
|--------|---------|--------|---------|
| EPM7 | 326 | 256 | 86 |

单位/unit(mm)

EPM7(四通道)产品特性 Product feature of EPM7 (Four channels)

- 01 智能化控制，操作简单，所有功能通过键盘轻松设定；**
Intelligent control, easy to operate, all functions could be easily set by keyboard.
- 02 集成化设计，产品性能稳定可靠；**
Integrated design, reliable product performance.
- 03 控制器在待机或充退磁成功后电源与主回路隔断，无输出；**
The controller has no output in standby status or after the success of magnetization.
- 04 欠电流指示，过电流保护功能；**
Undercurrent indication, overcurrent protection function.
- 05 具有弱、强充磁功能；**
Have the week/ strong magnetization function.
- 06 可选择使用波段开关或外部编码器设置磁力强弱。**
Wave range switch or external encoder is optional to set the magnetic force.

电源电缆/ Power supply cable



| 型号/Type | 长度/Length | 订货号/ Item No. |
|---------|-----------|---------------|
| CAB1 | 5m | 8401001 |
| | 10m | 8401002 |
| | 15m | 8401003 |

01 优质铜线电缆制成，导电导热性能良好；
Good quality copper wire, good thermal conductivity.

02 尼龙波纹护套保护，韧性好，防水耐油。
Nylon corrugated sheath protection, good toughness, waterproof and oil resistant.

通讯电缆/ Communication cable



| 型号/Type | 长度/Length | 订货号/ Item No. |
|---------|-----------|---------------|
| CAB3 | 5m | 8403001 |
| | 10m | 8403002 |
| | 15m | 8403003 |

01 优质屏蔽通讯电缆制成，抗干扰能力强；
High quality shielding communication cable, strong anti-jamming capability.

02 单根线号标识清晰，方便快速接线；
Single line number is clearly defined and convenient for quick wiring.

03 机床与控制器实时通讯，实现安全智能化操作。
Real-time communication of machine & controller to achieve safe and intelligent operation.

放电电缆/ Discharge cable



| 型号/Type | 长度/Length | 订货号/ Item No. |
|---------|-----------|---------------|
| CAB2 | 5m | 8402001 |
| | 10m | 8402002 |
| | 15m | 8402003 |

01 耐油透明PVC材质外部护套，耐酸碱，美观大方；
Oil resistant transparent PVC material exterior sheath, anti-acid & alkali, beautiful & gorgeous.

02 镀锌抗氧化钢丝编制内护套，增加电缆线强度，屏蔽外界电磁干扰；
Galvanized anti-oxidized steel wire with inner sheath, increase the strength of cable wire, shielding electromagnetic interference from outside.

03 快速航空防水插头，方便与控制器及磁盘快速连接。
Quick water-proof plug for easy connection of controller and magnetic chuck.

线控器/ Wire controller



| 型号/Type | 高 Length | 宽 Width | 厚 Height |
|-----------|----------|---------------|----------|
| RC400 | 160mm | 104mm | 40mm |
| 线长/Length | 5m | 订货号/ Item No. | 8501001 |
| 线长/Length | 10m | 订货号/ Item No. | 8501002 |
| 线长/Length | 15m | 订货号/ Item No. | 8501003 |

01 数字式全触控操作面板设计的远程操作线控器；
Digital all-touch operation panel for remote operation line controller.

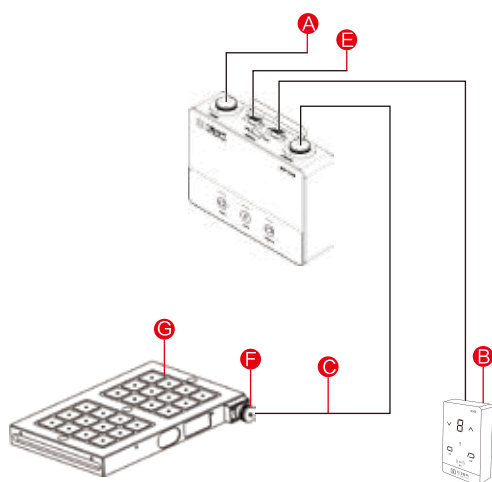
02 界面友好、简单、工作状态一目了然；
Friendly interface, simple and easy to work

03 内置声光报警系统；
Built-in acoustic light alarm system

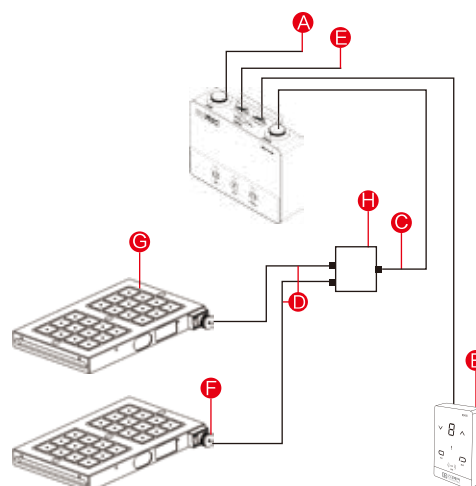
04 授权操作，便于管理和规范操作。
Authorization operation for easy management and operation.

THE DISPLAY OF CONTROLLER MATCH WITH MAGNETIC CHUCK

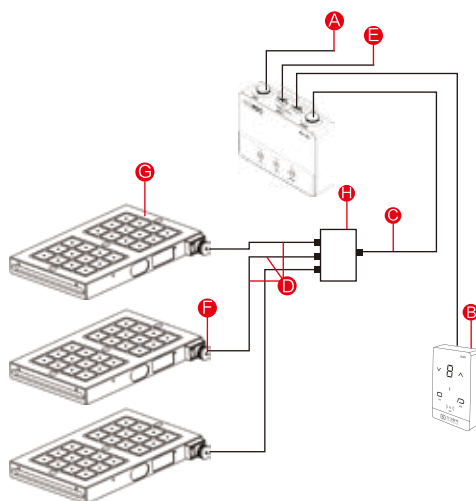
控制器与磁盘匹配展示



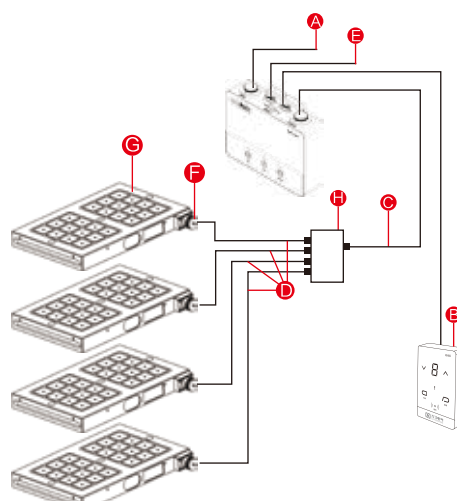
控制一台磁盘 Control one set magnetic chuck



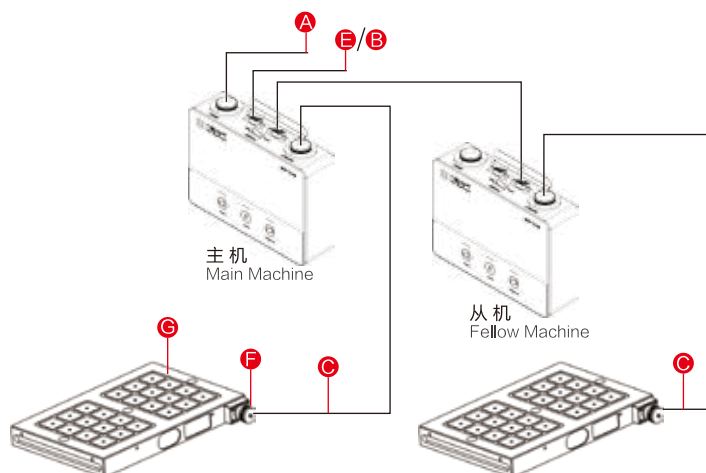
控制二台磁盘 Control two sets magnetic chuck



控制三台磁盘 Control three sets magnetic chuck



控制四台磁盘 Control four sets magnetic chuck



级联控制 Cascade connection

- A. 电源
Power
- B. 线控器
Remote controller
- C. 放电电缆（主）
Discharge cable (Main)
- D. 放电电缆（支）
Discharge cable (branch)
- E. PLC互锁
PLC interlock
- F. 快速航空接插件
Quick air connector
- G. 磁盘
Magnetic chuck
- H. 集线盒
Wiring box

APPLICATION DISPLAY

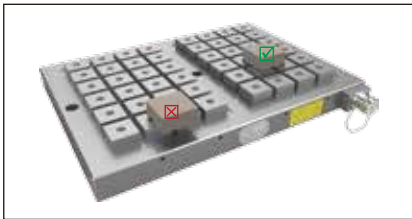
应用示教

工件正确装夹的示例 / DISPLAY OF CORRECT CLAMPING METHOD FOR WORKPIECE

1、被加工工件的接触和位置 / The contact and position of the workpiece.

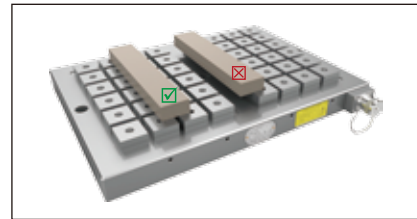
- ☒ 工件放置位置 Position of work piece
- ☒ 工件与磁盘的接触面 The interface of workpiece and magnetic chuck.
- ☒ 磁盘和工件之间的间隙 The airgap between magnetic chuck and workpiece.

2、以下是一些案例 / Here are some examples :



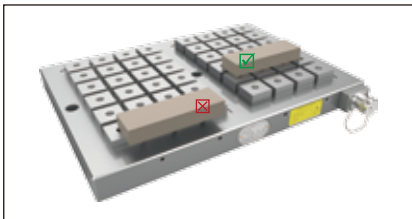
☒ 工件只放在2个极上，磁力相对较小
The workpiece is only placed on two poles, the magnetic force is relatively small.

☒ 工件跨过相邻的4个极，磁力效果好
The workpiece crossed four adjacent poles, the magnetic force is better.



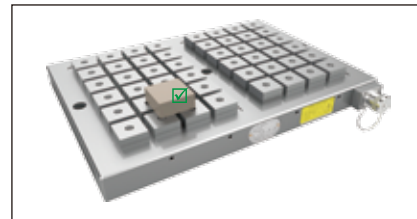
☒ 工件只放在二个极上，磁力减少
The workpiece is only placed on two poles, the magnetic force decreases.

☒ 工件放在4个相邻极上，这是我们推荐的位置
The workpiece is placed on four adjacent poles, which is we recommend.



☒ 工件放在一排磁极上，吸力相对较小
The workpiece is placed in a row of poles, the clamping force is relatively small.

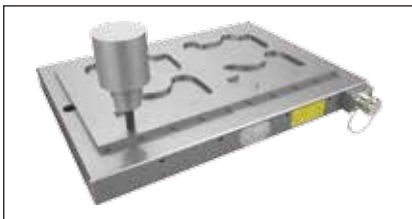
☒ 工件横跨相邻的两排磁极上，吸力较大
The workpiece stretch across two rows of magnetic poles, the clamping force is bigger.



☒ 最好的位置是工件跨越至少4个极，这样磁力以及磁间力都可以用到

The best positon would be the workpiece straddle at least 4 poles, which the magnetic force could be used uttermost.

异形工件的装夹方法 / THE CLAMPING METHOD OF IRREGULAR WORKPIECE



01 适用于量多不规则及小型工件的装夹，可同时加工多个工件

Suitable for multi-irregular and small workpiece, could process multiple workpiece simultaneously.

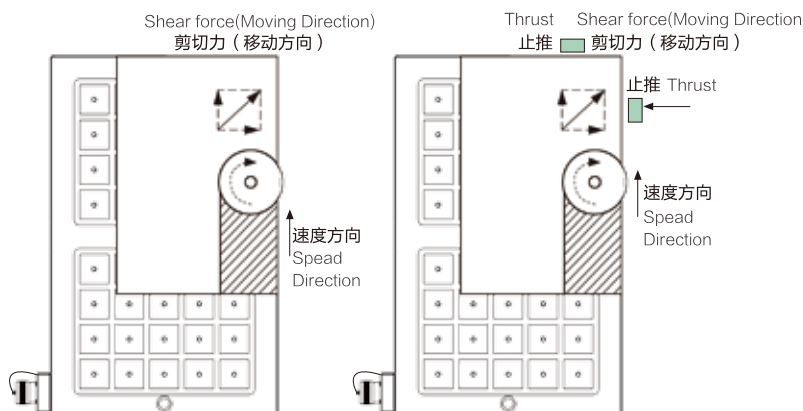
02 一台SPS磁盘可使用多个导磁面板，做为替换加工多种不同形状之工件

An SPS magnetic chuck could be used with multiple magnetic panels as a replacement for various shapes of different workpiece.

03 使用方法：将导磁面板固定于磁盘上，在其上直接加工成形(深度约1-2mm),工件嵌入夹持后即可加工。

Method of use: fix the magnetic panel to the magnetic chuck, could process into shape on it (depth about 1-2mm), process after the workpiece is clamped.

挡板/BAFFLE



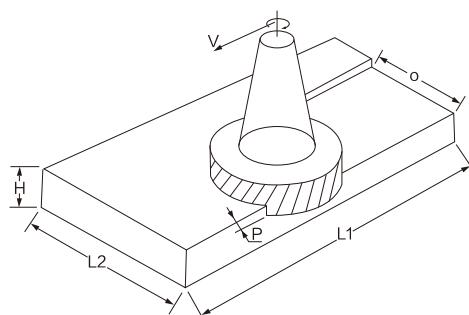
- ☑ 切削力的方向平行于吸附面时，所需的吸附力为切削力的3-10倍。（摩擦系数0.1-0.3）

When the cutting force direction is parallel to the clamping surface, the clamping force is about 3-10 times of cutting force. (friction coefficient is 0.1-0.3)

- ☑ 所需的保持力不足时，可在切削力方向设置工件挡块，以大幅度降低所需的吸附力。

When the required retention is insufficient, a block workpiece could be set in the cutting force direction to slash the clamping force required.

夹紧力的理论计算/THE THEORETICAL CALCULATION OF THE CLAMPING FORCE



- ☐ 好的表面：0.1mm
Good surface: 0.1mm
- ☐ 粗糙表面：小于1mm
Rough surface: <1mm

备注：以上列表中的数据为举例，上述数值只是从实验室数据中按照几何方法进行推算而得出：L1/L2小于2--H/L2小于1，并且将工件仔细放在磁盘上。如果厚度降低，则会将按比例减少去屑效率。

Note: take the above data as examples, The above data is calculated according to the geometric method from the laboratory. L1/L2 less than 2, H/L2 less than 1. Place the workpiece carefully on the magnetic platen. If the thickness is reduced, the removal efficiency would be reduced by proportion.

计算举例：

将下列尺寸的UNI Fe 360钢板铣平

L1=400mm L2=200mm H=30mm

工件粗糙度小于0.1mm（好）

将工件自由放在磁盘上，不需要任何靠山

选择和机床有关的加工条件

前进速度750mm/min.(V)

工件宽度100mm(G)

选择NP70磁盘（高度80mm）

可切削的最大深度

实验室给我们数据为4.9mm

支撑区域 (A) =L1 × L2平方毫米

单位时间中切去的铁屑体积：tmax=G × P × V(1)

我们得出P=tmax/G × V

如果tmax=A × Δ

我们得出

P=A × Δ/G × V=(200 × 400 × 4.9)/100 × 750=5.22MM

Calculation example:

Milling of UNI Fe 360 plate of the following dimensions

L1=400mm, L2=200mm H=30mm

Workpiece roughness is less than 0.1mm (good)

Keep the workpiece on the magnetic chuck, without any support

Select the machining conditions relating to machine tool

Forward speed 750mm/min. (V)

Workpiece width 100mm (G)

Select NP70 magnetic platen (height 80mm)

Maximum depth could be machinable

The lab data is 4.9mm.

The supporting area (A) =L1 × L2 mm²

The volume of scrap iron that is cut in the unit time: t Max= G × P × V(1)

We get P=tmax/G × V

If tmax=A × Δ

So, we get

P=A × Δ/G × V=(200 × 400 × 4.9)/100 × 750=5.22MM

结论：工件不会移动。除非吃刀深度超过5.22mm，更高的吃刀深度会引起工件在磁盘上滑动。

Conclusion: the workpiece does not move. Unless the depth of tool is more than 5.22mm, the workpiece will slide on the magnetic chuck if the depth of the tool is deeper.

SPS SERIES SPECIFICATION LIST

SPS系列规格表

SPS50系列产品/ SPS50 SERIES PRODUCTS

◆方形磁极50x50mm，单个磁极吸力350kg

Square magnet 50x50mm, clamping force of single magnetic pole is 350kgs.

| 型号/Type | 宽(W)/Width | 长(L)/Length | 高(H)/Height | 重量(Kg)/Net Weight | 磁极数/Poles | 订货号/ Item No. |
|------------|------------|-------------|-------------|-------------------|-----------|---------------|
| SPS50-3333 | 330 | 330 | 51 | 37 | 16 | 8201001 |
| SPS50-3339 | | 390 | | 43 | 20 | 8201002 |
| SPS50-3350 | | 500 | | 56 | 24 | 8201003 |
| SPS50-3362 | | 620 | | 70 | 32 | 8201004 |
| SPS50-3939 | 390 | 390 | | 51 | 25 | 8201005 |
| SPS50-3950 | | 500 | | 66 | 30 | 8201006 |
| SPS50-3962 | | 620 | | 82 | 40 | 8201007 |
| SPS50-4550 | 450 | 500 | | 76.5 | 36 | 8201008 |
| SPS50-4562 | | 620 | | 94 | 48 | 8201009 |



SPS50-3333
330x330x51
16Poles、37kg



SPS50-3339
330x390x51
20Poles、43kg



SPS50-3350
330x500x51
24Poles、56kg



SPS50-3362
330x620x51
32Poles、70kg



SPS50-3939
390x390x51
25Poles、51kg



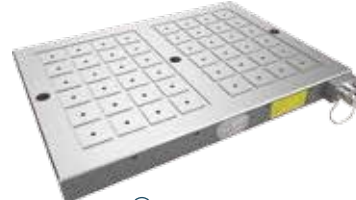
SPS50-3950
390x500x51
30Poles、66kg



SPS50-3962
390x620x51
40Poles、82kg



SPS50-4550
450x500x51
36Poles、76.5kg



SPS50-4562
450x620x51
48Poles、94kg

SPS70系列产品/SPS70 SERIES PRODUCTS

◆方形磁极70x70mm，单个磁极吸力750kg

Square magnet 70x70mm, clamping force of single magnetic pole is 750kgs.

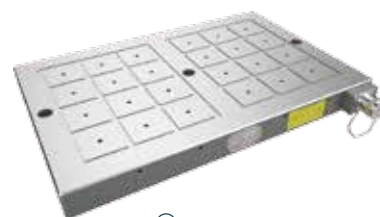
| 型号/Type | 宽(W)/Width | 长(L)/Length | 高(H)/Height | 重量(Kg)/Net Weight | 磁极数/Poles | 订货号/Item No. |
|------------|------------|-------------|-------------|-------------------|-----------|--------------|
| SPS70-4141 | 410 | 410 | 51 | 57 | 16 | 8202001 |
| SPS70-4149 | | 490 | | 68 | 20 | 8202002 |
| SPS70-4162 | | 620 | | 86 | 24 | 8202003 |
| SPS70-4178 | | 780 | | 109 | 32 | 8202004 |
| SPS70-4949 | 490 | 490 | | 82 | 25 | 8202005 |
| SPS70-4962 | | 620 | | 104 | 30 | 8202006 |
| SPS70-4978 | | 780 | | 130 | 40 | 8202007 |
| SPS70-5762 | 570 | 620 | | 120 | 36 | 8202008 |
| SPS70-5778 | | 780 | | 151 | 48 | 8202009 |



SPS70-4141
410x410x51
16Poles、57kg



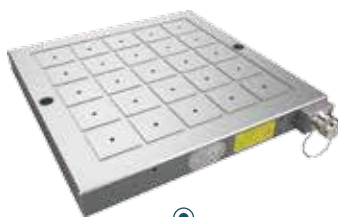
SPS70-4149
410x490x51
20Poles、68kg



SPS70-4162
410x620x51
24Poles、86kg



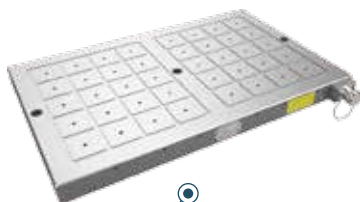
SPS70-4178
410x780x51
32Poles、109kg



SPS70-4949
490x490x51
25Poles、82kg



SPS70-4962
490x620x51
30Poles、104kg



SPS70-4978
490x780x51
40Poles、130kg



SPS70-5762
570x620x51
36Poles、120kg



SPS70-5778
570x780x51
48Poles、151kg

ATTENTION

使用注意事项

注意事项

夹紧力随着磁通密度、工件材质、工作尺寸、可耐受温度、时间、导磁块高度、表面粗糙度、工件厚度、工件气隙和接触面积而变化；

请参考以下条件，确定是否适用！

*若有不明之处，请拨打客服电话+86-4006-456-889。

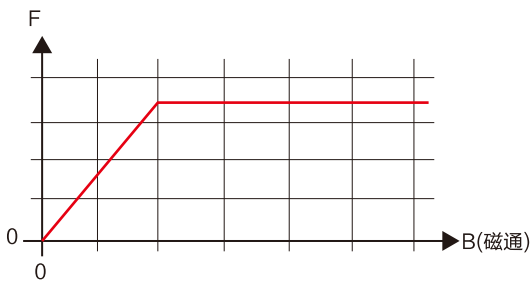
With the change of magnetic flux density, workpiece material, working size, tolerance of temperature, time, permeability, block height, surface roughness, thickness of the workpiece, workpiece air gap and contact area, the clamping force would change accordingly.

Please refer to the following conditions to confirm if suitable.

*If there is any questions, please contact the customer service+86-4006-456-889.

夹紧力与磁通密度的关系

The relationship between clamping force and flux density.

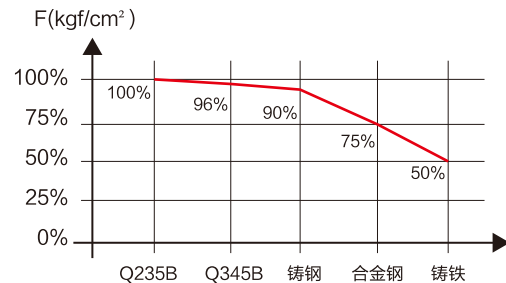


① 单位体积内，磁通越大，力越大，达到材料磁通饱和量之后，力不再增加。

① In unit volume, the large the flux, the greater the force. The force will not increase when the material flux is saturated.

夹紧力与工件材质的关系

The relationship between clamping force and the material of workpiece.

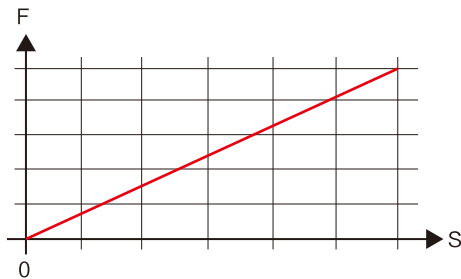


① 电永磁吸盘可吸附一切铁素体材料，但不同的铁素体内各元素含量的不同，其单位面积内产生的吸附力也不同。

① The electro-permanent magnetic chuck could adsorb all ferrite materials, but different elements in different ferritic elements have different clamping forces.

夹紧力与工件尺寸的关系

The relationship between clamping force and workpiece size.

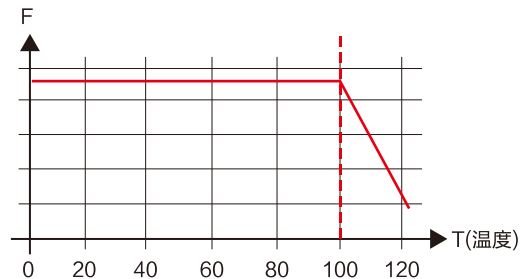


① 工件与磁盘有效接触面积越大，磁力产生的吸附力越大。

① The more the effective contact area of workpiece and the magnetic chuck, the more clamping force would be.

夹紧力与可耐受温度的关系

The relationship between clamping force and tolerable temperature.

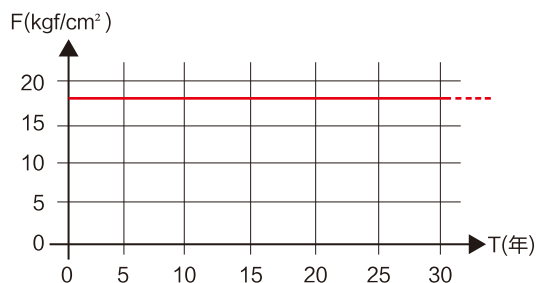


① 在磁盘耐受极限温度以下,温度对磁盘无影响,超过极限温度,会对磁盘磁力造成不可逆转的破坏。

① The magnetic chuck is fine when the temperature is within the temperature limit; once exceeding the temperature limit, will damage the magnetic chuck irreversibly.

夹紧力与时间的关系

The relationship between clamping force and time.

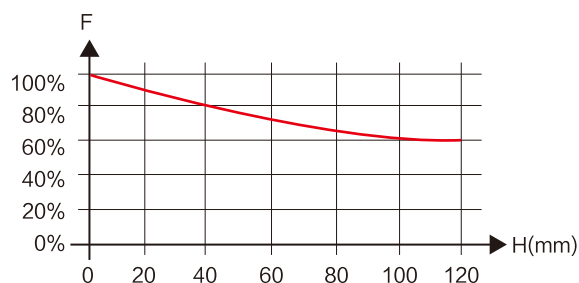


① 瞬间励磁，夹紧力永久恒定

① Instant excitation, permanent clamping force.

夹紧力与导磁块高度的关系

The relationship between clamping force and the height of magnetic block.

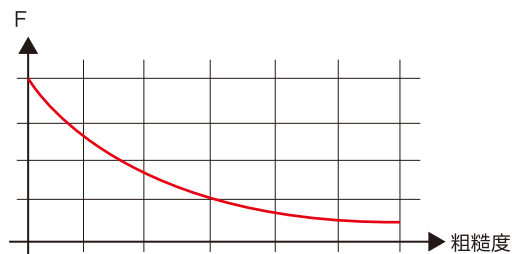


① 导磁块越高，吸附力越小

① The higher the magnetic block, the less the clamping force.

夹紧力与表面粗糙度的关系

The relationship between clamping force and surface roughness.

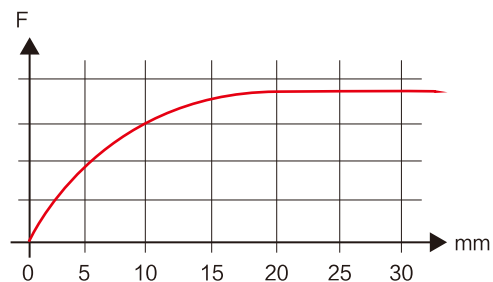


① 粗糙度越大，夹紧力越小

① The larger the roughness, the smaller the clamping force.

夹紧力与工件厚度的关系

The relationship between clamping force and thickness of workpiece.

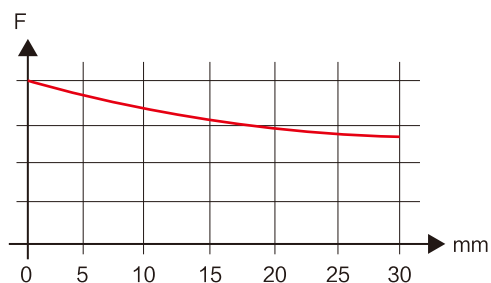


① 在20mm以内，工件厚度越大，吸附力越大。

① Within 20mm, the greater the thickness of workpiece, the greater the clamping force.

夹紧力与工作气隙的关系

The relationship between clamping force and work air gap.

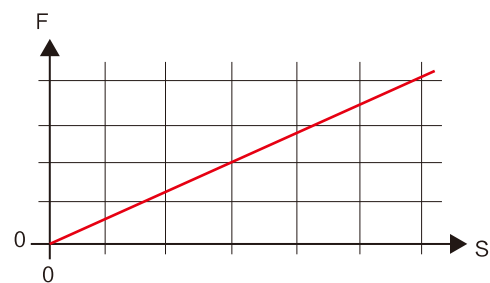


① 气隙越大，磁盘对工作的力量越来越小。

① The larger the gap, the less power of the magnetic chuck

夹紧力与接触面积的关系

The relationship between clamping force and contact area



① 工件与磁盘有效接触面积越大，吸附力越大。

① The more the area of effective contact with magnetic chuck, the greater the clamping force.

CLIENT APPLICATION BENEFIT

客户应用效益

投资使用QWCS系统可以帮助您：
USE A QWCS 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.
-

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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

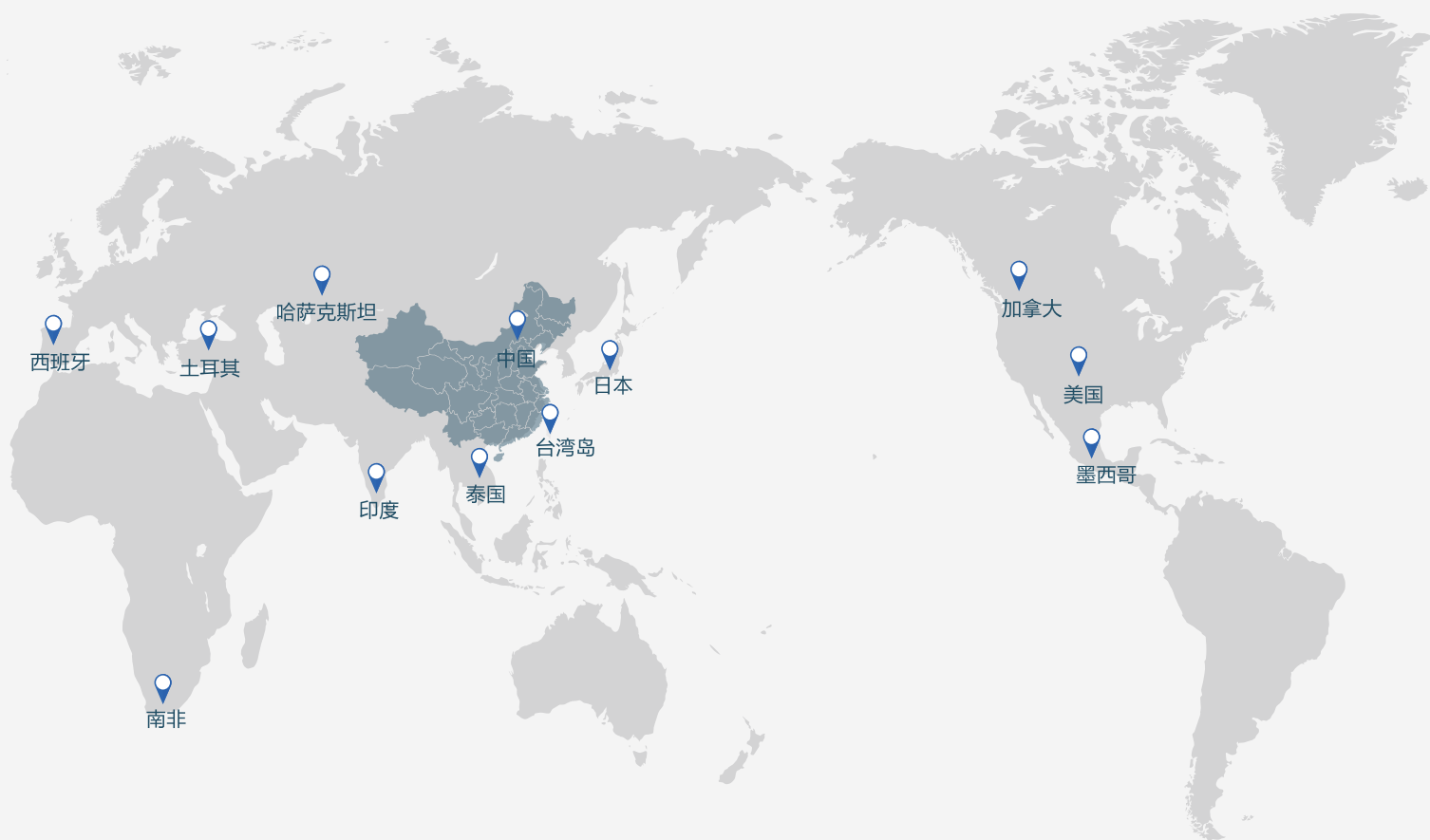
Electro-permanent magnetic
platen for processing glass

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