

# MIKOM

AUTOMATIC CONTROL TECHNOLOGY

Weihai MIKOM  
Automatic Control Technology Co., Ltd

V1.5

威海麦科自动控制技术有限公司



## 企业介绍 About Us



Sincerely do the user's process equipment base guaranteeing

竭  
诚  
做  
用  
户  
的  
工  
艺  
装  
备  
保  
障  
基  
地

威海麦科自动控制技术有限公司位于山东海滨城市——威海，成立于2006年。主要从事工业自动化控制产品开发、生产和销售，提供工控产品、电气的系统集成。生产、设计、制造具有高度自动化、高精机电一体化设备。公司现有厂房2.5万多平方米，拥有波峰焊、回流焊生产线等自动化生产设备，拥有加工中心、数控车床等加工设备。十多年来，公司秉承“技术为本、质量第一”的原则，基于对工业自动化系统的深刻理解，运用在计算机、嵌入式控制、精密机械等先进的技术开发能力，在高速数据采集、现场总线应用、图像识别处理、高度自动化的精密机电设备制造等方面有了长足的发展。广泛应用在贵金属丝行业。在相关行业中都有较高的声誉。

几年来，公司把为贵金属行业提供一流的工艺装备和服务定位为公司发展的重要方向；微张力自动控制系统等多项自主专利技术已被广泛应用；公司自主研发、设计、生产的贵金属制丝专用装备已经成为许多企业的重点、关键设备。

公司为贵金属行业生产的生产技术装备有：熔炼炉、微细无滑拉丝机、中型无滑拉丝机、双滚筒大拉机、贵金属微细有滑拉丝机、四线卧式退火炉、两线立式退火炉、四线复绕机、两线（四线）立式复绕机、两线铝丝复绕机、全自动超声波清洗机、收放线机、工艺辅具装备（如：各种导向轮、排线架、夹具）等。

Weihai MIKOM automatic control technology co., Ltd., located in the coastal city - weihai in shandong, was founded in 2006. Mainly engaged in industrial automation product development, production and sales, provide industrial control products, electrical system integration. Production, design, manufacture with high automation, high precision electromechanical integration equipment. Company's existing plant more than 2,5000 square meters, with wave soldering, reflow production line and other automatic production equipment and with processing center, CNC lathe and other processing equipment. More than a decade, the company adhering to the "technology for this, quality first" principle, based on a deep understanding of the industrial automation system, used in computers, embedded control, precision machinery, advanced technology development ability, in the high speed data acquisition, the application of field bus and image recognition processing, highly automated precision mechanical and electrical equipment manufacturing, etc, have made considerable development. Widely used in precious metal silk industry. Has a high reputation in the industry.

In recent years, the company provide first-class technological equipment and services for the precious metals industry positioning as the important direction for the development of the company; Micro tension automatic control system and so on a number of independent patent technology has been widely used; The company independent research and development, design, production of the precious metal wire special equipment has become the focus of many enterprises, key equipment.

Company for the production of precious metals industry production technology and equipment are: smelting furnace, minuteness non-slip wire drawing machine, middle-sized non-slip wire drawing machine, large double drum drawing machine, precious metal minuteness slip wire drawing machine, four-wire horizontal annealing furnace, two-wire vertical annealing furnace, four-wire rewriter, two-wire (four-wire) vertical rewriter, double-wire aluminum rewriter, fully automatic ultrasonic cleaning machine, take-up and pay-off machine, technology assistive equipment (such as: all kinds of guide wheel, wire rack, fixture) etc.



## 微细无滑拉丝机 Minuteness Non-slip Wire Drawing Machine

### MK-WD10/WD20



#### 1、特点

- (1) 一个眼模、一个驱动轮、一个张力杆组成一个单元，控制系统直接控制十组独立的驱动轮，实现无滑动拉丝，5个单元为一组可以级联。
- (2) 眼模前后装有导向轮，可以保证线材直入 / 直出眼模，提高线材的表面质量。
- (3) 各个独立的驱动轮严格与拉丝速度同步，线材和驱动轮之间不产生滑动及摩擦，实现无滑动拉丝，可抑制线材表面划伤或断线，并且可高速运转。
- (4) 每个驱动轮不受上个眼模拉丝张力影响，即使拉丝张力设置的非常小，也可给眼模提供稳定张力。
- (5) 张力杆由精密直流电机控制，可进行高精度数字设置。
- (6) 可进行反张力拉丝，降低拉丝压力及线材对眼模的模压力，从而可以减少眼模损耗及提高成品品质及成品率。
- (7) 各个驱动轮分别单独控制，因此能够及时追踪眼模损耗引起的减面率变化，而驱动轮的速度根据眼模状况自动调节，眼模只要满足一定精度就可以使用，对眼模的内径精度要求不严格，可以大幅度减轻选模作业。
- (8) 本产品根据眼模状况自动调整驱动轮转速，对任意搭配的减面率眼模，控制系统可以自动调整驱动轮转速对应。另外超低张力控制可以降低反张力进行大减面率配模，减少眼模个数。因此本产品可以对应不同线材进行多品种拉丝。
- (9) 根据各个驱动轮的速度比计算出眼模的实际减面率，通过观察减面率变化可以对每个眼模进行分别管理，不用通过测量成品直径或计算拉丝长度便可判断出各个眼模的使用情况，及时更换不良眼模，提高质量及生产率。

#### 1、Characteristic

- (1) One unit consists of one drawing die, one driving wheel and one tension rod, the control system directly control 10 groups of independent drive wheel, realize non-slip wire drawing, every five units are a group can be cascaded.
- (2) Before and after the drawing die is equipped with guide wheel, can guarantee the wire straight into/straight out of the drawing die, improve the surface quality of the metal wire.
- (3) Each independent driving wheel is strictly synchronized with the drawing speed, there is no sliding friction between wire and drive wheel, realize non-slip drawing, can restrain the scratch or break of wire surface and can run at high speed.
- (4) Each drive wheel is not affected by drawing tension of the upper drawing die, even the drawing tension setting is very small, also can give drawing die stable tension.
- (5) The tension rod is controlled by a precision DC motor and can be set with high-precision digital settings.
- (6) Counter tension wire drawing is available, can reduce the drawing pressure and reduce the die pressure of the wire to the drawing die, which can reduce the loss of the drawing die and improve the quality of the finished product and the yield.
- (7) Each drive wheel is separately controlled, and therefore can timely tracking the change of the reduction rate caused by the loss of the drawing die, the speed of drive wheel is adjusted automatically according to the condition of drawing die, the drawing die can be used as long as it meets certain accuracy, the requirement for inner diameter precision of the drawing die is not strict, which can greatly reduce

the selection of mold selection.

- (8) The control system can automatically adjust the speed of driving wheel according to the arbitrary collocation reduction rate drawing die. In addition, the ultra-low tension control can reduce the back tension to carry out the large reduction rate configure mold, reduce the number of drawing die. Therefore, this product can be used for different kinds of wire drawing.
- (9) According to the drive wheel speed ratio to calculate the actual reduction ratio of the drawing die, by observing reduction ratio changes can make each drawing die be managed separately, not by measuring the finished diameter or calculate the drawing length can determine the usage of each drawing die, timely change bad drawing die, improve quality and productivity.



采用 **MIKOM** 品牌 PLC 和伺服驱动控制  
Adopt **MIKOM** PLC and servo drive control

## 2、主要性能参数 Main performance parameters

最大速度	Max wire speed	1000m/min
眼模数	Drawing die No.	10, 可5个眼模为一组级联 (5 drawing dies are a group can cascade)
MK-WD10 微拉入口线径	Micro-drawing entrance wire diameter	Φ 60um 以下 (Below Φ 60um)
MK-WD10 微拉成品线径	Micro-drawing finished product wire diameter	Φ 12um 以上 (Above Φ 12um)
MK-WD20 细拉入口线径	Mini-drawing entrance wire diameter	Φ 120um 以下 (Below Φ 120um)
MK-WD20 细拉成品线径	Mini-drawing finished product wire diameter	Φ 40um 以上 (Above Φ 40um)
设定张力	Tension set	MK-WD10: 0.5~20cN; MK-WD20: 5~40cN
功率	Power	7KW
电源	Power supply	220V, 50HZ
外形尺寸 (长 X 宽 X 高) mm	Dimension(L×W×H) mm	2760x890x1700

## 3、用途

主要用于金、银、铜、不锈钢丝及合金线等其他超细金属丝的拉拔处理。

## 3、Application

Mainly used for the drawing processing of gold, silver, copper, stainless steel wire, alloy wire and other ultrafine metal wire.

## 带软化功能的微细无滑拉丝机 Minuteness Non-slip Wire Drawing Machine With Softening Function

MK-WD100/WD200



### 1、特点

- (1) 一个眼模、一个驱动轮、一个张力杆组成一个单元，控制系统直接控制十组独立的驱动轮，实现无滑动拉丝。
- (2) 眼模前后装有导向轮，可以保证线材直入 / 直出眼模，提高线材的表面质量。
- (3) 各个独立的驱动轮严格与拉丝速度同步，线材和驱动轮之间不产生滑动及摩擦，实现无滑动拉丝，可抑制线材表面划伤或断线，并且可高速运转。
- (4) 每个驱动轮不受上个眼模拉丝张力影响，即使拉丝张力设置的非常小，也可给眼模提供稳定张力。
- (5) 张力杆由精密直流电机控制，可进行高精度数字设置。
- (6) 可进行反张力拉丝，降低拉丝压力及线材对眼模的模压力，从而可以减少眼模损耗及提高成品品质及成品率。
- (7) 各个驱动轮分别单独控制，因此能够及时追踪眼模损耗引起的减面率变化，而驱动轮的速度根据眼模状况自动调节，眼模只要满足一定精度就可以使用，对眼模的内径精度要求不严格，可以大幅度减轻选模作业。
- (8) 本产品根据眼模状况自动调整驱动轮转速，对任意搭配的减面率眼模，控制系统可以自动调整驱动轮转速对应。另外超低张力控制可以降低反张力进行大减面率配模，减少眼模个数。因此本产品可以对应不同线材进行多品种拉丝。
- (9) 根据各个驱动轮的速度比计算出眼模的实际减面率，通过观察减面率变化可以对每个眼模进行分别管理，不用通过测量成品直径或计算拉丝长度便可判断出各个眼模的使用情况，及时更换不良眼模，提高质量及生产率。
- (10) 带软化功能，线材在拉丝前可预加热软化处理，消除应力，具有惰性气体保护装置。
- (11) 具有两套放线机构：不使用软化功能时使用左边放线机构，使用软化功能时使用右边放线机构。
- (12) 具有辅助穿线装置。
- (13) 十模、十五模根据客户要求可选。

## 1、Characteristic

- (1) One unit consists of one drawing die, one driving wheel and one tension rod, the control system directly control 10 groups of independent drive wheel, realize non-slip wire drawing.
- (2) Before and after the drawing die is equipped with guide wheel, can guarantee the wire straight into/straight out of the drawing die, improve the surface quality of the metal wire.
- (3) Each independent driving wheel is strictly synchronized with the drawing speed, there is no sliding friction between wire and drive wheel, realize non-slip drawing, can restrain the scratch or break of wire surface and can run at high speed.
- (4) Each drive wheel is not affected by drawing tension of the upper drawing die, even the drawing tension setting is very small, also can give drawing die stable tension.
- (5) The tension rod is controlled by a precision DC motor and can be set with high-precision digital settings.
- (6) Counter tension wire drawing is available, can reduce the drawing pressure and reduce the die pressure of the wire to the drawing die, which can reduce the loss of the drawing die and improve the quality of the finished product and the yield.
- (7) Each drive wheel is separately controlled, and therefore can timely tracking the change of the reduction rate caused by the loss of the drawing die, the speed of drive wheel is adjusted automatically according to the condition of drawing die, the drawing die can be used as long as it meets certain accuracy, the requirement for inner diameter precision of the drawing die is not strict, which can greatly reduce the selection of mold selection.
- (8) The control system can automatically adjust the speed of driving wheel according to the arbitrary collocation reduction rate drawing die. In addition, the ultra-low tension control can reduce the back tension to carry out the large reduction rate configure mold, reduce the number of drawing die. Therefore, this product can be used for different kinds of wire drawing.
- (9) According to the drive wheel speed ratio to calculate the actual reduction ratio of the drawing die, by observing reduction ratio changes can make each drawing die be managed separately, not by measuring the finished diameter or calculate the drawing length can determine the usage of each drawing die, timely change bad drawing die, improve quality and productivity.
- (10) With softening function, the wire can be pre heated and softened before wire drawing to eliminate stress, equipped with inert gas protection device.
- (11) With two sets of pay-off mechanism: use the left pay-off mechanism when not using the softening function, and use the right pay-off mechanism when using the softening function.
- (12) Equipped with auxiliary threading device.
- (13) Ten drawing dies and fifteen drawing dies can be selected according to customer requirements.

### 3、用途

主要用于金、银、铜、不锈钢丝及合金线等其他超细金属丝的拉拔处理。

### 3、Application

Mainly used for the drawing processing of gold, silver, copper, stainless steel wire, alloy wire and other ultrafine metal wire.

### 3、主要性能参数 Main performance parameters

最大速度	Max wire speed	1000m/min
眼模数	Drawing die No.	10
MK-WD100 微拉入口线径	Micro-drawing entrance wire diameter	Φ60um 以下 (Below Φ60um)
MK-WD100 微拉成品线径	Micro-drawing finished product wire diameter	Φ12um 以上 (Above Φ12um)
MK-WD200 细拉入口线径	Mini-drawing entrance wire diameter	Φ120um 以下 (Below Φ120um)
MK-WD200 细拉成品线径	Mini-drawing finished product wire diameter	Φ40um 以上 (Above Φ40um)
设定张力	Tension set	MK-WD100: 0.5~20cN; MK-WD200: 5~40cN
电源	Power supply	220V, 50HZ
功率	Power	15KW
外形尺寸(长X宽X高)mm	Dimension(L×W×H)mm	2800x900x1650

## 带退火功能的微细无滑拉丝机 Minuteness Non-slip Wire Drawing Machine With Annealing Function

MK-WD100A/WD200A



### 1、特点

- (1) 具有微细无滑拉丝机的所有功能特点。
- (2) 具有在线退火功能。连拉连退，线材在拉拔完成后可在线退火，消除应力。
- (3) 具有两套收线机构，不使用退火功能时使用右边收线机构，使用退火功能时使用左边收线机构。
- (4) 具有辅助穿线装置。
- (5) 具有惰性气体保护装置。

### 3、用途

主要用于金、银、铜、不锈钢丝及合金线等其他超细金属丝的拉拔及退火。

### 1、Characteristic

- (1) Featuring all the functional features of a minuteness non-slip wire drawing machine.
- (2) Equipped with online annealing function. Continuous drawing and annealing, the wire can be annealed online after drawing to eliminate stress.
- (3) It has two sets of take-up mechanisms, with the right take-up mechanism used when not using the annealing function and the left take-up mechanism used when using the annealing function.
- (4) Equipped with auxiliary threading device.
- (5) Equipped with inert gas protection device.

### 3、Application

Mainly used for drawing and annealing of gold, silver, copper, stainless steel wire, alloy wire and other ultrafine metal wire.

### 3、主要性能参数 Main performance parameters

最大速度	Max wire speed	1000m/min
眼模数	Drawing die No.	15
MK-WD100 微拉入口线径	Micro-drawing entrance wire diameter	Φ60um 以下 (Below Φ60um)
MK-WD100 微拉成品线径	Micro-drawing finished product wire diameter	Φ12um 以上 (Above Φ12um)
MK-WD200 细拉入口线径	Mini-drawing entrance wire diameter	Φ120um 以下 (Below Φ120um)
MK-WD200 细拉成品线径	Mini-drawing finished product wire diameter	Φ40um 以上 (Above Φ40um)
设定张力	Tension set	MK-WD100: 0.5~20cN; MK-WD200: 5~40cN
电源	Power supply	220V, 50HZ
功率	Power	15KW
外形尺寸(长×宽×高)mm	Dimension(L×W×H)mm	2800×900×1650

## 中型无滑拉丝机 Medium Non-slip Wire Drawing Machine

### 1、特点

- (1) 一个眼模、一个驱动轮、一个张力杆组成一个单元，5个单元为一组可以级联。
- (2) 眼模前后装有导向轮，可以保证线材直入 / 直出眼模，提高线材的表面质量。
- (3) 各个独立的驱动轮严格与拉丝速度同步，实现无滑动拉丝，可抑制线材表面划伤或断线，并且可高速运转。
- (4) 张力杆由伺服电机控制，可进行高精度数字设置。
- (5) 可进行反张力拉丝，降低拉丝压力及线材对眼模的模压力，从而减少眼模损耗及提高成品品质及成品率。
- (6) 根据眼模状况自动调整驱动轮转速，对应任意搭配的减面率眼模，控制系统可以自动调整驱动轮转速对应。
- (7) 根据各个驱动轮的速度比计算出眼模的实际减面率，通过观察减面率变化可以对每个眼模进行分别管理，及时更换不良眼模，提高质量及生产率。
- (8) 放线部可选用放线架或主动放线机构。

### 1、Characteristic

- (1) One unit consists of one drawing die, one driving wheel and one tension rod, every five units are a group can be cascaded.
- (2) Before and after the drawing die is equipped with guide wheel, can guarantee the wire straight into/straight out of the drawing die holder, improve the surface quality of the metal wire.
- (3) Each independent driving wheel is strictly synchronized with the drawing speed, realize non-slip drawing, can restrain the scratch or break of wire surface and can run at high speed.
- (4) The tension rod is controlled by a servo motor and can be set with high-precision digital settings.
- (5) Counter tension wire drawing is available, can reduce the drawing pressure and reduce the die pressure of the wire to the drawing die, which can reduce the loss of the drawing die and improve the quality of the finished product and the yield.
- (6) The control system can automatically adjust the speed of driving wheel according to the arbitrary collocation reduction rate drawing die.
- (7) According to the drive wheel speed ratio to calculate the actual reduction ratio of the drawing die, by observing reduction ratio changes can make each drawing die be managed separately, timely change bad drawing die, improve quality and productivity.
- (8) The pay-off section can choose a pay-off rack or an active pay-off mechanism.



### 2、主要性能参数

### Main performance parameters

最大速度	Max wire speed	600m/min
眼模数	Drawing die No.	10
设定张力	Tension set	0.2~24N
入口线径	Entrance wire diamete	Φ1.0mm 以下 (Below Φ1.0mm)
成品线径	Finished product wire diameter	Φ0.1mm 以上 (Above Φ0.1mm)
功率	Power	35KW
电源	Power supply	380V, 50HZ
外形尺寸 (长 X 宽 X 高) mm	Dimension(L×W×H)mm	6400x1905x1900

### 3、用途

主要用于金、银、铜、不锈钢丝及合金线等其他超细金属丝的拉拔处理。

### 3、Application

It is mainly used for the drawing processing of gold, silver, copper, stainless steel wire, alloy wire and other ultrafine metal wire.



## 大拉机 Large Wire Drawing Machine

MK-WD50



### 1、特点

#### (1) 直线拉丝

放线滚筒和收线滚筒同步移动，高精度的控制使两部位的排线移动达到高度同步，实现材料直出眼模，笔直的缠绕到收线轴上，尽可能地减少影响材料品质的不平衡负荷。

#### (2) 快速装夹

在放线部装有用于快速夹线的气缸装夹机构。

#### (3) 高功能的菜单设定

张力、速度、线距等所有设置都可以通过触摸屏直接输入数值进行设置，可以大幅度的缩短辅助时间，提高了生产效率。

#### (4) 张力稳定

应用高精度控制技术，进行精密的惯性补偿，把快速加减速时的张力变动降到最低。

#### (5) 双滚筒

同时具备放线滚筒和收线滚筒，可反向复绕，减少线的摩擦，提高线材表面质量。

#### (6) 减面率的即时监视

对眼模的更换时期的判断能够根据减面率的变化进行管理，另外根据减面率可以持续算出成品线径，算出的线径超过上限设定值会自动停机，防止线材不良品的发生。

### 1、Characteristic

#### (1) Straight line wire drawing

The pay-off drum and take-up drum move synchronously, high precision control to make the two parts of line movement to achieve high synchronization, realize the material straight out of the drawing die, straight to wrap it around the take-up spool, as much as possible to reduce the unbalanced load to influence the quality of material.

#### (2) Fast clamping

In the pay-off department equipped with cylinder clamping mechanism for fast clip wire.

#### (3) High functional menu settings

Tension, speed, line spacing and so on all settings can be set through the touch screen input values directly, can greatly shorten the auxiliary time, improve the production efficiency.

#### (4) Tension stable

Application of the high-precision control technology, carries on the precise inertia compensation, minimize tension changes during fast acceleration and deceleration.

#### (5) Double drum

At the same time with the pay-off drum and take-up drum, which can reversible rewinding, so as to reduce wire friction and improve wire surface quality.

#### (6) Real-time monitoring of surface reduction rate

To judge the replacement period of the drawing die can be managed according to the change of the surface reduction rate, and according to the surface reduction rate can continue to work out the finished wire diameter, the machine will automatically stop if the calculated wire diameter exceeds the upper set value, prevent wire non-conforming.

### 2、主要性能参数 Main performance parameters

最大速度	Max wire speed	100m/min
可加工材料	Machinable materials	金、银、铜及合金 (Gold, silver, copper and alloy)
设定张力	Tension set	10~400N
入口线径	Entrance wire diamete	Φ8mm 以下 (Below Φ8mm)
成品线径	Finished product wire diameter	Φ1mm 以上 (Above Φ1mm)
放线 / 收线滚筒直径	Pay-off /Take-up roller diameter	480mm
电源功率	Power	380V, 50HZ, 15KW
外形尺寸 (长 X 宽 X 高) mm	Dimension(L×W×H)mm	3125x1900x1974
机器占地面积 mm <sup>2</sup>	Machine floor space mm <sup>2</sup>	4266x3125

## 大拉机 Large Wire Drawing Machine

MK-WD50-AS



### 1、特点

- (1) 放线部分主动放线和被动放线两种方式。
- (2) 一个眼模、一个驱动轮、一个张力杆组成一个单元，控制系统直接控制多组独立的驱动轮。
- (3) 拉丝单元可以级联。
- (4) 放线部和拉丝部之间距离可调。
- (5) 拉丝部采用无滑动直线拉丝，提高线的表面质量。
- (6) 收线部具有精密排线装置。
- (7) 工艺采用配方控制，方便统一管理。
- (8) 完善的断线保护功能，断线后能迅速停机。
- (9) 单模、两模、三模、四模、六模、八模可根据客户要求选择任意组合。

### 1、Characteristic

- (1) There are two ways of pay-off part: active pay-off and passive pay-off.
- (2) One unit consists of one drawing die, one driving wheel and one tension rod, the control system directly control multiple groups of independent drive wheel.
- (3) The wire drawing unit can be cascaded.
- (4) The distance between the pay-off part and the wire drawing part is adjustable.
- (5) The wire drawing part adopts non sliding straight line drawing to improve the surface quality of the wire.
- (6) The take-up unit has a precise wire arranging device.
- (7) The process adopts formula control, convenient for unified management.
- (8) Perfect wire breakage protection function, which can quickly shut down the machine after wire breakage.
- (9) One drawing die, two drawing dies, three drawing dies, four drawing dies, six drawing dies and eight drawing dies can be selected any combination according to customers request .

### 2、主要性能参数 Main performance parameters

最大速度	Max wire speed	100m/min
排线分辨率	Cable resolution	0.001mm
设定张力	Tension set	10~400N
驱动轮直径	Drive wheel diameter	Φ318.5mm
入口线径	Entrance wire diameter	Φ5mm 以下 (Below Φ5mm)
成品线径	Finished product wire diameter	Φ1mm 以上 (Above Φ1mm)
电源功率	Power	380V, 50HZ, 25KW
外形尺寸 (长 X 宽 X 高)	Dimension(L×W×H)mm	7500×1200×1700

## 金刚线拉丝机 Diamond Wire Drawing Machine

MK-WD40

### 1、特点

- (1) 一个眼模、一个驱动轮、一个张力杆组成一个单元，5个单元为一组可以级联。
- (2) 眼模前后装有导向轮，可以保证线材直入/直出眼模，提高线材的表面质量。
- (3) 各个独立的驱动轮严格与拉丝速度同步，实现无滑动拉丝，可抑制线材表面划伤或断线，并且可高速运转。
- (4) 张力杆由伺服电机控制，可进行高精度数字设置。
- (5) 可进行反张力拉丝，降低拉丝压力及线材对眼模的模压力，从而减少眼模损耗及提高成品品质及成品率。
- (6) 各个驱动轮分别单独控制，因此能够及时追踪眼模损耗引起的减面率变化，而驱动轮的速度根据眼模状况自动调节，眼模只要满足一定精度就可以使用，对眼模的内径精度要求不严格，可以大幅度减轻选模作业。
- (7) 根据眼模状况自动调整驱动轮转速，对应任意搭配的减面率眼模，控制系统可以自动调整驱动轮转速对应。
- (8) 最后一个眼模具备万向调节功能。
- (9) 具有防翘头装置。

### 1、Characteristic

- (1) One unit consists of one drawing die, one driving wheel and one tension rod, every five units are a group can be cascaded.
- (2) Before and after the drawing die is equipped with guide wheel, can guarantee the wire straight into/straight out of the drawing die, improve the surface quality of the metal wire.
- (3) Each independent driving wheel is strictly synchronized with the drawing speed, realize non-slip drawing, can restrain the scratch or break of wire surface and can run at high speed.
- (4) The tension rod is controlled by a servo motor and can be set with high-precision digital settings.
- (5) Counter tension wire drawing is available, can reduce the drawing pressure and reduce the die pressure of the wire to the drawing die, which can reduce the loss of the drawing die and improve the quality of the finished product and the yield.
- (6) Each drive wheel is separately controlled, and therefore can timely tracking the change of the reduction rate caused by the loss of the drawing die, the speed of drive wheel is adjusted automatically according to the condition of drawing die, the drawing die can be used as long as it meets certain accuracy, the requirement for inner diameter precision of the drawing die is not strict, which can greatly reduce the selection of mold selection.
- (7) The control system can automatically adjust the speed of driving wheel according to the arbitrary collocation reduction rate drawing die.
- (8) The last drawing die has universal adjustment function.
- (9) Equipped with anti warping head device.

### 2、用途

金刚线专用拉丝机，  
用于金刚线的拉拔处理。

### 2、Application

It is special wire drawing machine for diamond wire, which is used for drawing of diamond wire.



### 3、主要性能参数

### Main performance parameters

最大速度	Max wire speed	600m/min
眼模数	Drawing die No.	10
设定张力	Tension set	0.2~24N
入口线径	Entrance wire diameter	Φ120um 以下 (Below Φ120um)
成品线径	Finished product wire diameter	Φ30um 以上 (Above Φ30um)
功率	Power	26KW
电源	Power supply	380V, 50HZ
外形尺寸 (长 X 宽 X 高) mm	Dimension(L×W×H)mm	5282x1700x1910

## 微型有滑拉丝机 Micro Slip Wire Drawing Machine

MK-WDS10



### 1、特点

- (1) 双排塔轮水平排放，六轴独立伺服驱动（定速轮是双伺服轴驱动）。可选五轴（定速轮一个伺服轴驱动）。
- (2) 润滑方式分为喷淋和浸泡两种方式，适应不同线材需求。
- (3) 塔轮采用氧化锆材料。
- (4) 控制方式分为张力杆和无张力杆两种方式，收线及排线均采用伺服电机控制，配备精密收线功能。
- (5) 最后一出口眼模处带万向调节功能。
- (6) 线材在最后出口眼模处带独立清洗功能。

### 1、Characteristic

- (1) Double row tower wheels horizontally arranged, with six-axis independent servo drive(The fixed speed wheel is driven by dual servo shafts).Optional five-axis(Fixed speed wheel driven by one servo shaft).
- (2) The lubrication method is divided into two types: spraying and soaking, which are suitable for different wire needs.
- (3) The tower wheel is made of zirconia material.
- (4) The control methods are divided into two types: tension rod and non tension rod. The take-up and arrange wire are both controlled by servo motors and equipped with precision take-up function.
- (5) The last exit drawing die has a universal adjustment function.
- (6) The wire has an independent cleaning function at the final exit drawing die.

### 2、用途

广泛适用于贵金属丝的拉拔。

### 2、Application

Widely suitable for drawing precious metal wires.

### 3、主要性能参数

### Main performance parameters

最大速度	Max wire speed	600m/min
眼模数	Drawing die No.	最大 21 模 Max21 (10+10+1)
减面率	Reduction rate	5.5%
入口线径	Entrance wire diameter	Φ 50um 以下 (Below Φ 50um)
成品线径	Finished product wire diameter	Φ 13um 以上 (Above Φ 13um)
润滑方式	Lubrication method	喷淋和浸泡 Spray and soak
电源功率	Power	380V, 50HZ, 11KW
外形尺寸 (长 X 宽 X 高) mm	Dimension(L×W×H)mm	2075×1095×1895

## 细型有滑拉丝机 Fine Slip Wire Drawing Machine

### MK-WDS20A/WDS20B



#### 1、特点

- (1) WDS20A 为双排塔轮水平排放, WDS20B 为双排塔轮上下排放, 五轴独立伺服驱动。
- (2) WDS20A 润滑方式分为喷淋和浸泡两种方式 ; WDS20B 润滑方式为喷淋方式。
- (3) 塔轮采用氧化锆材料。
- (4) 控制方式分为张力杆和无张力杆两种方式, 收线及排线均采用伺服电机控制, 配备精密收线功能。
- (5) 最后一出口眼模处带万向调节功能。
- (6) 线材在最后出口眼模处带独立清洗功能。

#### 1、Characteristic

- (1) WDS20A is double row tower wheels horizontally arranged, WDS20B is double row tower wheels up and down arranged, with five -axis independent servo drive.
- (2) The lubrication method of WDS20A is divided into two methods: spraying and soaking; The lubrication method of WDS20B is spray.
- (3) The tower wheel is made of zirconia material.
- (4) The control methods are divided into two types: tension rod and non tension rod. The take-up and arrange wire are both controlled by servo motors and equipped with precision take-up function.
- (5) The last exit drawing die has a universal adjustment function.
- (6) The wire has an independent cleaning function at the final exit drawing die.

#### 2、用途

广泛适用于贵金属丝的拉拔。

#### 2、Application

Widely suitable for drawing precious metal wires.

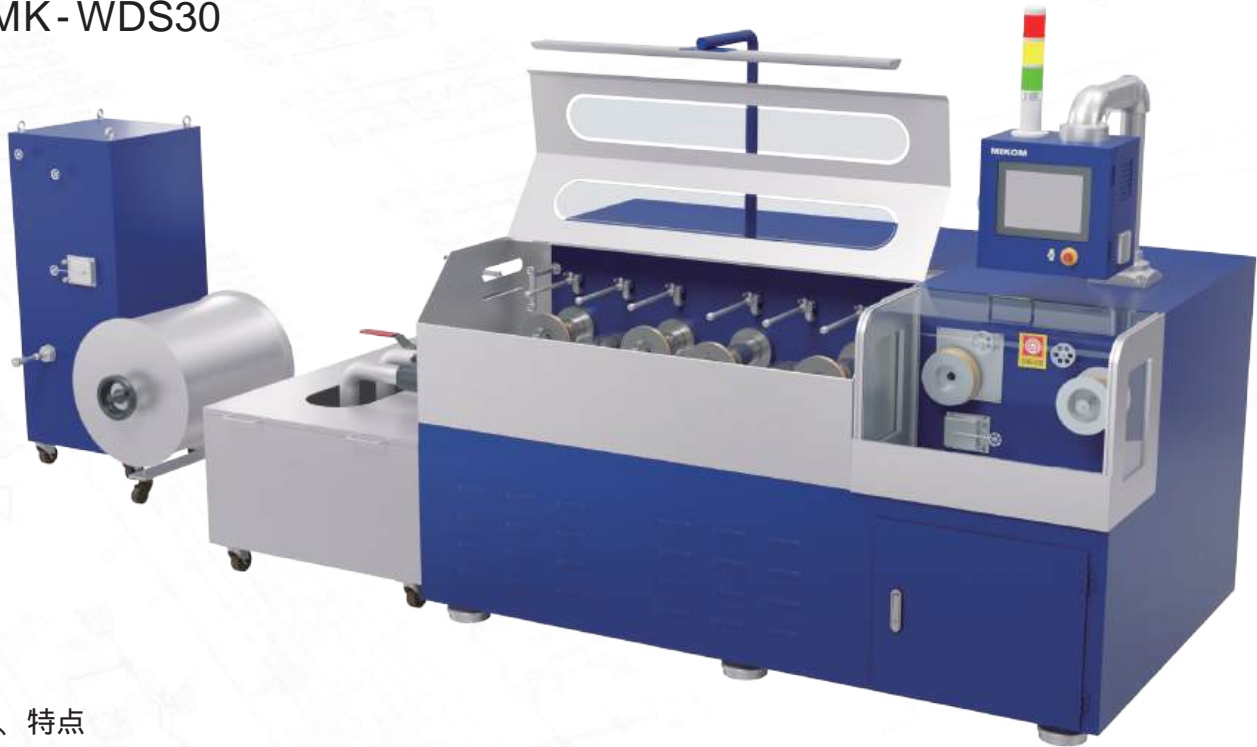
#### 3、主要性能参数

#### Main performance parameters

最大速度	Max wire speed	600m/min
眼模数	Drawing die No.	最大 21 模 Max21 (10+10+1)
减面率	Reduction rate	8.5%
入口线径	Entrance wire diamete	Φ0.35mm 以下 (Below Φ0.35mm)
成品线径	Finished product wire diameter	Φ0.04mm 以上 (Above Φ0.040mm)
润滑方式	Lubrication method	WDS20A : 喷淋和浸泡 Spray and soak WDS20B : 喷淋 Spray
电源功率	Power	380V, 50HZ, 15KW
外形尺寸 (长 X 宽 X 高) mm	Dimension(L×W×H)mm	2010×1100×1934

## 中型有滑拉丝机 Medium Slip Wire Drawing Machine

MK-WDS30



### 1、特点

- (1) 双排塔轮左右排放，塔轮及定速轮双轴控制，可选五轴独立伺服驱动。
- (2) 润滑方式分为喷淋和浸泡两种方式，适应不同线材需求。
- (3) 塔轮采用氧化锆材料。
- (4) 收线采用张力杆方式，收线及排线均采用伺服电机控制，配备精密收线功能。

### 1、Characteristic

- (1) Double row tower wheels are arranged left and right, tower wheel and fixed speed wheel double-shaft control, and optional five-axis independent servo drive.
- (2) The lubrication method is divided into two types: spraying and soaking, which are suitable for different wire needs.
- (3) The tower wheel is made of zirconia material.
- (4) The take-up adopts tension rod method, the take-up and arrange wire are both controlled by servo motors and equipped with precision take-up function.

### 2、用途

广泛适用于贵金属丝的拉拔。

### 2、Application

Widely suitable for drawing precious metal wires.

### 3、主要性能参数

### Main performance parameters

最大速度	Max wire speed	300m/min
眼模数	Drawing die No.	最大 19 模 Max19 (9+9+1)
减面率	Reduction rate	13%
入口线径	Entrance wire diamete	Φ 1.5mm 以下 (Below Φ 1.5mm)
成品线径	Finished product wire diameter	Φ 0.1mm 以上 (Above Φ 0.1mm)
润滑方式	Lubrication method	喷淋和浸泡 Spray and soak
电源功率	Power	380V, 50HZ, 20KW
外形尺寸 (长 X 宽 X 高) mm	Dimension(L×W×H)mm	4600×1500×2000

## 单头熔炼炉 Single-head Smelting Furnace

### MK-VM10



#### 1、特点

- (1) 本设备由中高频电源、溶解保持炉、真空槽、真空装置（旋转泵、罗茨泵、分子泵，其中分子泵可选扩散泵，附带二次加料装置）及引出装置所构成。
- (2) 由于是真空炉，所以能防止熔融原料的氧化及防止杂质的混进。为此适合于高纯度金属材料或含有容易氧化元素金属的铸造。
- (3) 引出装置采用伺服马达两旋转轴来驱动引出辊的方式，可精密控制而引出铸物。
- (4) 由于是在惰性气体的气氛下进行溶解，所以碳质坩埚等的氧化损耗极少。

#### 1、Characteristic

- (1) This equipment is composed of a medium to high frequency power supply, a dissolution and holding furnace, a vacuum tank, a vacuum device (rotary pump, Roots pump, molecular pump, among which the molecular pump can be selected as a diffusion pump and comes with a secondary feeding device), and an extraction device.
- (2) As it is a vacuum furnace, it can prevent the oxidation of molten raw materials and prevent the mixing of impurities. For this reason, it is suitable for casting high-purity metal materials or metals containing easily oxidizing elements.
- (3) The extraction device adopts a servo motor with two rotating axes to drive the pull roll, which can be precisely controlled to extract the casting.
- (4) Due to the dissolution in an inert gas atmosphere, the oxidation loss of carbon crucibles and other materials is minimal.

#### 2、用途

金、银、铜及合金等线材的连铸。

#### 2、Application

Continuous casting of wires such as gold, silver, copper, and alloys.

#### 3、主要性能参数 Main performance parameters

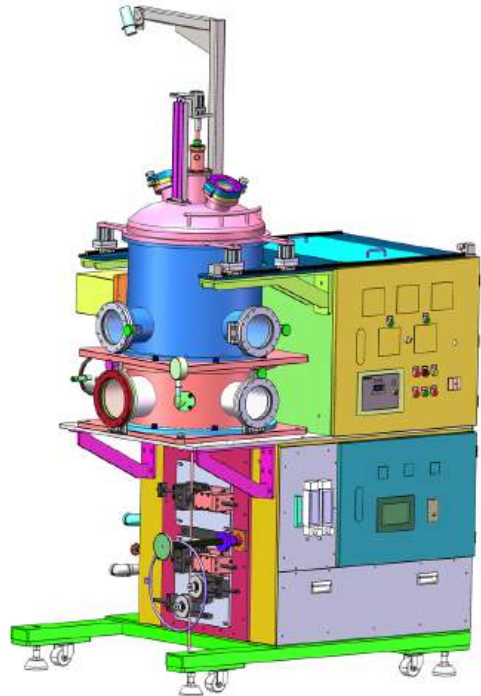
可加工材料	Machinable Materials	金、银、铜 Gold, Silver, Copper
溶解量	Dissolution amount	5kg/Au, 3kg/Ag, 3kg/Cu
溶解温度	Dissolution temperature	1250°C
铸造尺寸	Casting size	φ 8mm
到达真空度	Vacuum level reached	$2 \times 10^{-2}$ pa, 极限真空度 $6.3 \times 10^{-3}$ pa (Ultimate vacuum)
坩埚	Crucible	高纯度碳 High purity carbon
冷却水	Cooling water	40L/分 水温 25-30°C 水压 0.4Mpa 40L/min Temperature 25-30 °C Water pressure 0.4Mpa
高纯度氢气（或氮气）	High purity hydrogen (or nitrogen)	纯度 99.9995% 以上 0.002Mpa Purity above 99.9995% 0.002Mpa
压缩空气	Compressed air	0.5Mpa 以上 Above 0.5Mpa
电源功率	Power	380V, 50HZ, 30KW
外形尺寸（长 X 宽 X 高）mm	Dimension(L×W×H)mm	2410×2100×2300

## 连铸炉 Continuous Casting Furnace

MK-VM100

### 1、特点

- (1) 熔炼电源配带独立电表，具有水温、水压、流量监控和报警系统；满足石墨坩埚、氧化物坩埚、钨坩埚使用要求。
- (2) 自动控温（可提供多条工艺曲线供储存、选择或循环使用，加热过程可记录，可输出）。
- (3) 引出装置采用伺服马达两旋转轴来驱动引出辊的方式，牵引速度 0 ~ 150mm/min 内可精准调控，通过液晶屏输入调整速度；牵引机构具备拉 - 停周期或连续拉铸功能并可程序调控。
- (4) 金属杆出结晶器炉腔后，设置水冷及惰性气体冷却用独立腔体，用以二次冷却金属杆。
- (5) 配有高真空分子泵机组。
- (6) 附带二次加料装置。
- (7) 配有双组冷水机。
- (8) 可选配双出杆机构。



### 1、Characteristic

- (1) The smelting power supply is equipped with an independent electricity meter, with water temperature, water pressure, flow monitoring and alarm system; Meet the requirements for the use of graphite crucibles, oxide crucibles, and tungsten crucibles.
- (2) Automatic temperature control (can provide multiple process curves for storage, selection, or recycling, and the heating process can be recorded and output).
- (3) The extraction device adopts a servo motor with two rotating axes to drive the pull roll, the traction speed can be accurately adjusted within 0-150 mm/min, and the speed can be adjusted through LCD screen input; The traction mechanism has a pull-stop cycle or continuous casting function and can be programmed for regulation.
- (4) After the metal rod comes out of the crystallizer chamber, set independent chambers for water cooling and inert gas cooling, for secondary cooling of the metal rod.
- (5) Equipped with a high vacuum molecular pump unit.
- (6) Equipped with a secondary feeding device.
- (7) Equipped with dual water cooler.
- (8) Optional with double output rod mechanism.

### 2、用途

金、银、铜及合金等线材的连铸。

### 2、Application

Continuous casting of wires such as gold, silver, copper, and alloys.

### 3、主要性能参数

### Main performance parameters

可加工材料	Machinable Materials	金、银、铜及合金 Gold, silver, copper, and alloys
溶解量	Dissolution amount	10kg/Cu (5kg, 20kg 可选) (5kg, 20kg optional)
溶解温度	Dissolution temperature	最高 1950°C Max 1950°C
铸造尺寸	Casting size	φ 8mm
极限真空度	Ultimate vacuum	$6.3 \times 10^{-3}$ pa
升压率	High purity hydrogen (or nitrogen)	≤ 3Pa/h (关闭 15min 后测量, 真空无坩埚状态) Measure after 15min of shutdown, vacuum crucible free state
电源功率	Power	380V, 50HZ, 40KW
外形尺寸 (长 X 宽 X 高) mm	Dimension(L×W×H)mm	1830 × 1415 × 2900



## 连续退火机 Continuous Annealing Machine

MK-WA30

### 1、特点

- (1) 连续退火机由主动放线、预热、退火、冷却、通保护气接口、收线组成，可对直径 0.1mm ~ 0.8mm 的线材进行在线退火。
- (2) 在 100m/min 的速度下退火后性能一致性有保障。
- (3) 张力有两种方式：①被动放线 ②主动放线，由张力杆控制放线伺服主动放线。
- (4) 退火温度由退火电流控制，三个电极由伺服驱动。线材通过电极之间时进行直流加热，电压电流可调。
- (5) 三个电极可往复运动，防止磨损；可快速拆卸，方便维护。
- (6) 冷却方式有两种：一种是液体冷却；一种是进入充满惰性气体的冷却箱里进行降温，防止二次氧化。
- (7) 收线部由收线伺服和排线伺服构成，收线装置排线精密，收线速度稳定。
- (8) 采用直线模组，直排和球排两种收线模式。



### 1、Characteristic

- (1) The continuous annealing machine is composed of active pay-off, preheating, annealing, cooling, protective gas interface and take-up. It can conduct online annealing for wire with diameter of 0.1mm ~ 0.8mm.
- (2) The performance consistency is guaranteed after annealing at the speed of 100m/min.
- (3) Tension has two ways: ① Passive pay-off; ② Active pay-off, the tension rod controls the servo active pay-off.
- (4) Annealing temperature is controlled by annealing current, the three electrodes are driven by servo. The wire is heated by DC when passing between electrodes, the voltage and current are adjustable.
- (5) The three electrodes can reciprocating motion to prevent wear and tear; Quick disassembly for easy maintenance.
- (6) There are two cooling methods: one is liquid cooling; One method is to enter a cooling box filled with inert gas for cooling to prevent secondary oxidation.
- (7) The take-up part is composed of take-up servo and arrange wire servo. The take-up device has precise arrange wire and stable take-up speed.
- (8) Adopt straight line module, and there are two take-up modes: rectangle winding and trapezoidal winding.

### 2、用途

在线电极退火装置，用于改善提高细线径的金属丝的特性。

### 2、Application

The on-line electrode annealing device, which is used to improve and enhance the characteristics of the metal wire with fine wire diameter.

### 3、主要性能参数

### Main performance parameters

张力范围	Tension Range	10~1000cN
电极数量	Electrodes Number	3
电极直径	Electrode Diameter	1 × φ 180mm + 2 × φ 140mm
退火电流	Annealing Current	0~150A
退火电压	Annealing Voltage	0~30V
退火功率	Annealing Power	3KW
收线功率	Take-up Power	3.4KW
放线功率	Pay-off Power	3KW
排线分辨率	Arrange wire resolution ratio	0.001mm
总功率	Total power	10KW
电源	Power Supply	220V, 50HZ, 10KW
外形尺寸(长×宽×高)mm	Dimension(L×W×H)mm	2560×1360×1650

## 立式退火炉 Vertical Annealing Furnace

MK-LTH-2



### 1、特点

- (1) 两线立式退火炉，每线可独立退火。
- (2) 全自动程控。对退火时丝线的工作速度、排线形态（直排、球排及排线疏密程度）可在触摸屏界面上设置。
- (3) 绕排线驱动和放线驱动全部采用伺服驱动与控制。
- (4) 两个温度可分别设定的独立温区，退火温度可随工艺要求设定，温度 PID 控制。
- (5) 采用微张力控制系统，张力设置与控制可随工艺需要程序控制，既准确、方便又稳定、可靠。
- (6) 收线软启动。
- (7) 无线停机。
- (8) 采用力偶平衡摆杆式张力平衡装置，既可有效平衡张力，又可减少导向轮对丝线的摩擦损伤。
- (9) 退火管内可通保护气体（氮气、氮氢混合气），竖式炉腔内通入保护气体后，气体分布既均匀又充分，防氧化效果好，可实现光亮退火。
- (10) 设退火液浸蘸装置和浸液烘干装置。
- (11) 配导轮监测装置，可对掉线及导轮转动的流畅度进行监测，对异常情况可报警提示操作者，避免废品产生。

### 1、Characteristic

- (1) Double-wire vertical annealing furnace, each line can be independent annealing.
- (2) Automatic program control. Working speed and platoon line form (direct discharging, the ball row and row line density) of annealing can be set up on the touch screen interface.
- (3) Servo drive and control are used in winding drive and pay-off drive.
- (4) Two independent temperature zones that can be set separately, annealing temperature can be set with the technological requirements, temperature PID control.
- (5) The micro tension control system, tension setting and control can be program control with the technique, is accurate, convenient and stable and reliable.
- (6) Take-up soft start.
- (7) Wireless downtime.
- (8) The balance of couple pendulum rod tension balance device is adopted, which can effectively balance the tension, and can reduce the guide wheel friction damage of wire.
- (9) Annealing pipe can connect protective gas (nitrogen, hydrogen and nitrogen mixture), the shaft furnace cavity after ventilation with protective gas, gas distribution is uniform and fully, anti-oxidation effect is great, bright annealing can be realized.
- (10) Set annealing immersion dipping device and dipping drying device.
- (11) Equipped with guide wheel monitoring device, it can monitor the line dropping and the smoothness of the guide wheel rotation, and can alarm the operator for abnormal conditions, so as to avoid waste products.

### 2、用途

- (1) 整机适用于各种贵金属细丝、极细丝的退火。
- (2) 特别对贵金属丝退火中做防氧化处理，本机是最佳选择。

### 2、Application

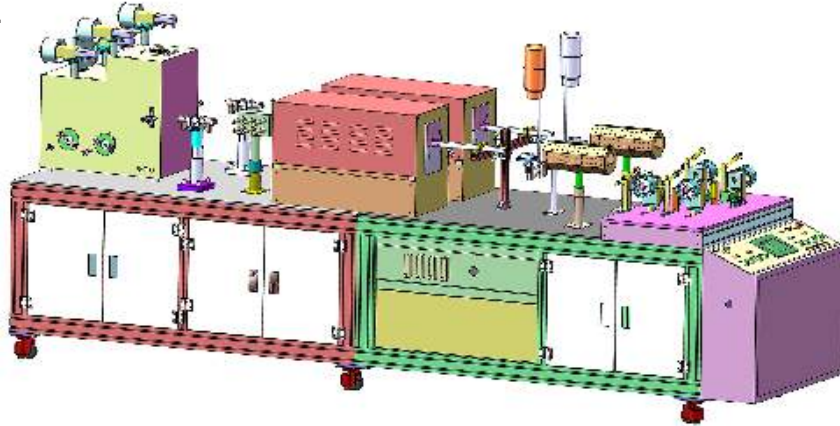
- (1) The machine is suitable for annealing of various precious metal filaments and very fine wires.
- (2) This machine is the best choice for anti oxidation treatment of precious metal wire during annealing.

### 3、主要性能参数 Main performance parameters

收线速度	Take-up speed	0 ~ 150m/min
张力范围	Tension range	0.5 ~ 20cN
退火丝径	Anneal wire diameter	0.010 ~ 0.070mm
加热炉体长度	Heating furnace length	730mm
恒温区长度	Constant temperature zone length	400mm
温度偏差	Temperature deviation	±2.5°C
退火温度设置范围	Scope of annealing temperature settings	0 ~ 800°C
放线轮径	Pay-off wheel diameter	80、100mm
排线摆幅	Cable swing	70mm
电源	Power supply	220V, 50HZ
总功率	Total power	9KW
外形尺寸（长×宽×高）（至退火炉顶部）mm	Dimension(L×W×H) (Up to the top of the annealing furnace) mm	1000X650X2050

## 卧式退火炉 Horizontal Annealing Furnace

### MK-WTH-4



#### 1、特点

- (1) 四线卧式退火炉，每线可独立退火。
- (2) 退火炉前可选加高压水清洗、超声波清洗、风刀、烘干等装置，退火后可选择防二次氧化装置、滴液装置、风刀、烘干等装置。
- (3) 收放线张力稳定，线速度稳定。
- (4) 可在微张力下工作 (0.3 ~ 20cN)，且数字化标定与设置。
- (5) 退火三段式恒温区自动控制 (PLC+PID)，温度稳定，高效退火。
- (6) 收放线全伺服驱动、PLC 可编程自动控制，触摸屏人机界面操作。可方便地设置：工作速度、退火温度、排线宽度、排线间隔、起排位置、排线形态 (直排、球排) 等。
- (7) 选配导轮监测装置，可对掉线及导轮转动的流畅度进行监测，对异常情况可报警提示操作者，避免废品产生。
- (8) 采用力偶平衡摆杆式张力平衡装置，既可有效平衡张力，又可减少导轮对丝线的摩擦损伤。

#### 2、用途

- (1) 适用于各种贵金属键合丝的细丝、极细丝成品退火及工序的中间退火。
- (2) 本退火机的收线机、放线机、退火炉体总成及其控制系统均可用于旧设备升级、改造，也可用于配套洗丝机、镀丝机等。

#### 1、Characteristic

- (1) Four-wire horizontal annealing furnace, each line can be independent annealing.
- (2) High pressure water cleaning, ultrasonic cleaning, air knife, drying and other devices can be added in front of annealing furnace. After annealing, anti secondary oxidation device, dropping liquid device, air knife, drying device and other devices can be selected.
- (3) The take-up and pay-off tension and line speed are stable.
- (4) It can work under micro tension (0.3 ~ 20 cN), and digital calibration and setting.
- (5) Annealing three-step constant temperature zone automatic control (PLC + PID), temperature stability and high annealing.
- (6) Take-up and pay-off full servo drive, PLC programmable automatic control and touch screen man-machine interface operation. It can be conveniently set: work speed, annealing temperature, the line width, line spacing and the row of position, line shape (straight row, ball row) etc.
- (7) Equipped with guide wheel monitoring device, it can monitor the line dropping and the smoothness of the guide wheel rotation, and can alarm the operator for abnormal conditions, so as to avoid waste products.
- (8) The balance of couple pendulum rod tension balance device is adopted, which can effectively balance the tension, and can reduce the guide wheel friction damage of wire.

#### 2、Application

- (1) Suitable for all kinds of expensive metallic bonding wire filaments, filaments finished product annealing and intermediate annealing process.
- (2) The annealing machine take-up machine, pay-off machine, annealing furnace body assembly and its control system can be used in the old equipment upgrading, transformation, can also be used to supporting washing machine, plating machine, etc.

#### 3、主要性能参数

#### Main performance parameters

工作速度	Working speed	0 ~ 150m/min
张力范围	Tension range	0.5 ~ 20cN; 4 ~ 40cN; 20 ~ 200cN
退火丝径	Anneal wire diameter	0.010 ~ 0.070mm
放线轮径	Pay-off wheel diameter	80、100mm、其它 (Other)
排线摆幅	Cable swing	70mm
退火温度	Annealing temperature	0 ~ 800℃
总功率	Total power	9KW (标配) (Standard configuration)
电源	Power supply	380V, 50HZ
外形尺寸 (长 X 宽 X 高) mm	Dimension(L×W×H)mm	(2600 ~ 4300) X900X1300

## 四线立式复绕机 Four-wire Vertical Rewinder

MK-LFR06-4

### 1、特点

- (1) 整体结构采用复绕收线机与放线机集成一体的立式布局，操作方便、美观、实用。四轴收线共用一个排线机构。
- (2) 系统的张力可随排线程序段的不同按工艺的需要设置与控制，满足工艺对变张力的特殊要求。
- (3) 收放线均为伺服驱动控制，运行稳定，丝线不抖不跳。
- (4) 本机采用微张力控制的自主专利技术，张力稳定，可实现极细线 (0.010mm, 0.5cN 张力) 复绕。
- (5) 装取线轴不需拆装夹具，既方便使用，又节省时间，大大提高生产效率。
- (6) 配夹线器，方便再次上线。
- (7) 内置配方生成器，可根据设置参数自动生成绕线配方，降低工作难度。
- (8) 绕线速度快，提高生产效率。

### 1、Characteristic

- (1) The overall structure adopts vertical layout of rewinding machine and pay-off machine, which is easy to operate, beautiful and practical. The four-axis take-up shares a common wire arrangement mechanism.
- (2) The tension of the system can be set and controlled according to the needs of the process and according to the different winding program segments, so as to meet the special requirements of the process for variable tension.
- (3) Take-up and pay-off are servo driven control, stable operation, wire does not shake or jump.
- (4) This machine adopts independent patent technology of micro tension control, with stable tension, and can realize rewinding of very fine wire (0.010mm, 0.5cN tension).
- (5) There is no need to disassemble fixtures when assembling and taking the spool. It is convenient to use, save time and greatly improve the production efficiency.
- (6) Equipped with thread clamping device, it is convenient to go online again.
- (7) The built-in formula generator can automatically generate winding formulas based on the set parameters, reducing work difficulty.
- (8) Fast winding speed, improving production efficiency.



### 2、用途

广泛适用于各种贵金属细丝、极细丝产品的复绕工序。

### 2、Application

It is widely used in rewinding process of various precious metal filament and ultra-fine wire products.

### 3、主要性能参数 Main performance parameters

收线速度	Pay-off speed	0 ~ 1200rpm
张力范围	Tension range	0.5 ~ 10cN
放线轮轴直径	Pay-off axle diameter	50, 80, 100mm
收线轮轴直径	Take-up axle diameter	50mm (高、低轴均可) (Both high and low shaft)
复绕丝径	Rewinding wire diameter	0.010 ~ 0.060mm
程序容量	Program capacity	线型: 80 种; 每种线型的程序段: 185 段 Linetype: 80; The procedures section of each linetype: 290
排线摆幅	Cable swing	70mm
功率	Power	1.5KW
电源	Power supply	220V, 50HZ
外形尺寸 (长 X 宽 X 高) mm	Dimension(L×W×H)mm	1200×750×1390

## 复绕机 Rewinder MK-FR06-4

### 1、特点

- (1) 此机为四线 L 型收放线一体复绕机。四轴收线共用一个排线机构。
- (2) 全部采用伺服驱动，PLC 可编程系统控制，触摸屏人机界面。
- (3) 内置配方生成器，可根据设置参数自动生成绕线配方，降低工作难度。
- (4) 张力控制可随工艺段的需要程序控制，既准确、方便又稳定、可靠。
- (5) 采用力偶平衡摆杆式张力平衡装置，既可有效平衡张力，又可减少导向轮对丝线的摩擦损伤。
- (6) 排线平整、美观，放线效果好。
- (7) 绕线速度快，提高生产效率。
- (8) 排线架固定，从根本上避免了丝线与导向轮槽边的摩擦，有效地提高了产品质量。
- (9) 配导轮监测装置，可对掉线及导轮转动的流畅度进行监测，对异常情况可报警提示操作者，避免废品产生。

复绕机系列为：单线、两线、四线。

Rewinder series: single-wire, double-wire and four-wire ;



### 1、Characteristic

- (1) This machine is a four-wire L-type take-up and pay-off integrated rewinder. The four-axis take-up shares a common wire arrangement mechanism.
- (2) All adopt the servo drive, PLC programmable control system and touch screen man-machine interface.
- (3) The built-in formula generator can automatically generate winding formulas based on the set parameters, reducing work difficulty.
- (4) Tension control can be controlled by program according to the needs of process section, which is accurate, convenient, stable and reliable.
- (5) The balance of couple pendulum rod tension balance device is adopted, which can effectively balance the tension, and can reduce the guide wheel friction damage of wire.
- (6) Arrange lines are flat and beautiful, and have good pay-off effect.
- (7) Fast winding speed, improving production efficiency.
- (8) Fixed line frame, fundamentally avoid the friction between the wire and guide wheel groove side, effectively improve the quality of the product.
- (9) Equipped with guide wheel monitoring device, it can monitor the line dropping and the smoothness of the guide wheel rotation, and can alarm the operator for abnormal conditions, so as to avoid waste products.

### 2、用途

- (1) 广泛适用于各种贵金属细丝、极细丝产品的复绕工序。
- (2) 放线轴轮大小均可，成品线轴高、低均可。

### 2、Application

- (1) It is widely used in rewinding process of various precious metal filament and ultra-fine wire products.
- (2) Pay-off arbor wheel can be big or small, the finished spool can be high or low.

### 3、主要性能参数

#### Main performance parameters

收线速度	Pay-off speed	0 ~ 1200rpm
张力范围	Tension range	0.5 ~ 20cN
复绕丝径	Respooling wire diameter	0.010 ~ 0.070mm
放线轮径	Pay-off wheel diameter	50、80、100mm, 其它 (Other)
排线摆幅	Cable swing	70mm
程序容量	Program capacity	线型: 80 种; 每种线型的程序段: 185 段 Linetype: 80; The procedures section of each linetype: 290
电源	Power supply	220V, 50HZ
功率	Power	1.5KW
外形尺寸 (长 X 宽 X 高)mm	Dimension(L×W×H)mm	1000×780×850

## 两线铝丝复绕机 Double-wire Aluminum Rewinder

### MK-TARX

#### 1、特点

- (1) 采用专用装具和特殊定制装具，精度高，双头复绕工作。
- (2) 工作过程稳定，不断线，不抖线，线速恒定。
- (3) 绕线程序可设置配方，方便对不同线径进行精确参数设置。
- (4) 排线采用直线电机。
- (5) 放线带排线机构，可自动跟踪排线位置，使放线轴的出线和收线始终保持一条直线上。
- (6) 张力稳定，可数字化设置。
- (7) 两种功能模式，细线使用张力杆模式，粗线使用转矩模式。
- (8) 可选配导轮微调机构。



#### 1、Characteristic

- (1) Adopting specialized fixtures and special customized fixtures, with high accuracy and double end rewinding work.
- (2) Stable working process, continuous wire, no shaking wire and constant wire speed.
- (3) The winding program can set formulas to facilitate precise parameter settings for different wire diameters.
- (4) The arrangement wire adopts a linear motor.
- (5) Pay-off with wire arrangement mechanism, which can automatically track the position of the winding line, so that the outgoing wire and the take-up of the pay-off bobbin are always in a straight line.
- (6) Tension is stable and can be set digitally.
- (7) There are two function modes: tension bar mode for thin wire and torque mode for thick wire.
- (8) Optional guide wheel fine adjustment mechanism.

#### 2、用途

主要用于铝丝精品线复绕。

#### 2、Application

It is mainly used for rewinding of aluminum boutique wire.

#### 3、主要性能参数

#### Main performance parameters

收线速度	Take-up speed	0 ~ 700r/min
线径	Wire diameter	φ 0.1 ~ φ 1.0mm
排线分辨率	Cable resolution	0.001mm
张力范围	Tension range	10 ~ 200cN
配方数量	Formula quantity	线型：40 ~ 100 种；每种线型的程序段：60 段 Linetype: 40 ~ 100; The procedures section of each linetype: 60
功率	Power	2KW
电源	Power supply	220V, 50HZ
外形尺寸 (长 X 宽 X 高)mm	Dimension(L×W×H)mm	1200×730×1850

## 收线机 Take-up Machine

采用微张力控制系统 MK-SX  
数字化张力设置

Adopt micro tension control system  
Digital tension setting



### 1、特点

- (1) 收线速度根据放线速度的快慢可自动跟踪并保证收线均匀不抖动。
- (2) 全自动控制, 收线排线形态(直排、球排及排线疏密程度等)均可在触摸屏界面上设置, 并且支持配方设置, 方便在不同的线型之间进行切换。
- (3) 排线驱动、绕线驱动全部采用伺服驱动与控制, 保证驱动装置的精密和稳定。
- (4) 系统采用微张力控制系统、数字化张力设置, 张力精度 0.1cN。
- (5) 无线停机。
- (6) 可显示整机系统当前的运行速度以及收线的长度。
- (7) 支持运行过程中在线调整排线的里端和外端的排线位置。
- (8) 配有驱动轮, 线材收线驱动可在收线轮和驱动轮之间选择。

### 1、Characteristic

- (1) Take-up speed can automatically track and ensure that the line is uniform and do not shake is according to the speed of pay-off.
- (2) Automatic program control,the take-up and platoon line form (straight row,ball row, row line density degree)can be set on the touch screen interface,and support formula set,convenient in switching between different lines.
- (3) Around the row line drive all adopt servo drive and control,ensure the precision and stability of the driving device.
- (4) Adopt micro tension control system, digital tension setting,tension accuracy 0.1cN.
- (5) Wireless machine halt.
- (6) It can display the whole system running speed and the take-up length of the current.
- (7) Support adjust the row line position of the inner and outer ends of the line operation in the process online.
- (8) Equipped with drive wheel,wire take-up drive can choose between the take-up wheel and drive wheel.

## 2、主要性能参数 Main performance parameters

收线速度	Closed linear velocity	0 ~ 600m/min
排线摆幅	Cable swing	90mm
收线线径	Take-up wheel diameter	0.01 ~ 0.50mm
线轴直径	Spool diameter	50mm、80mm、100mm
张力范围	Tension range	1 ~ 40cN
电源功率	Power	220V, 50HZ, 2.2KW
外形尺寸(长 X 宽 X 高) mm	Dimension(L×W×H)mm	478x730x860

## 主动微细线放线机 Minuteness Active Wire Pay-off Machine



### 1、特点

MK-IFX

### 1、Characteristic

- (1) Adopt micro tension control system and digital tension set.
- (2) The tension balance is stable and the pay-off is stable without jumping.
- (3) In case of emergency stop,the wire won't break and mess.

## 2、主要性能参数 Main performance parameters

放线速度	Pay-off speed	0~600m/min
加减速时间	Acceleration and deceleration time	0~20s
张力范围	Tension range	0.5 ~ 20cN; 4 ~ 40cN; 20 ~ 200cN
线轴直径	Spool diameter	80mm、100mm; 可定制 (Can be customized)
电源功率	Power	220V, 50HZ, 750W
外形尺寸(长 X 宽 X 高) mm	Dimension(L×W×H)mm	500 × 455 × 1250

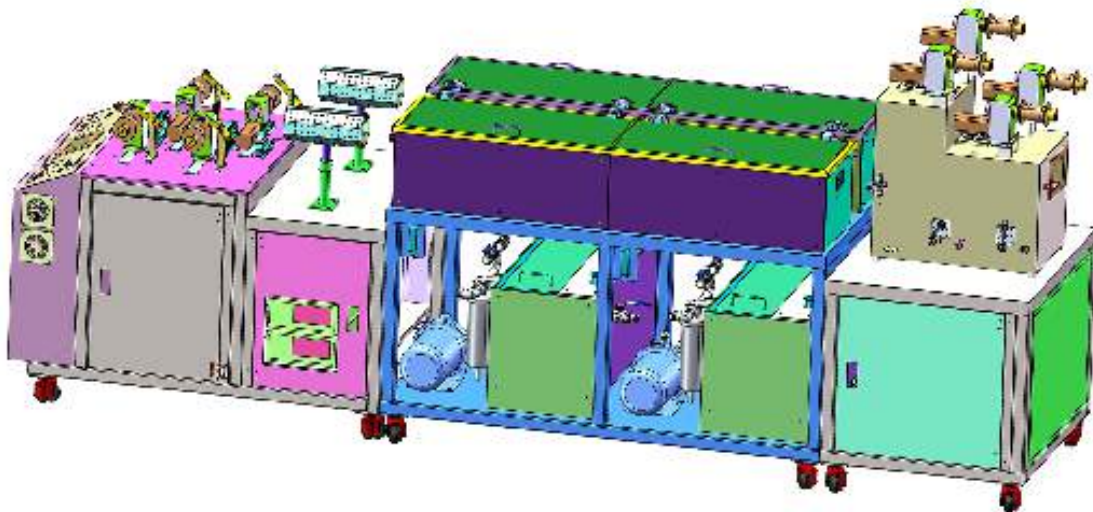
## 清洗机 Cleaning Machine MK-CQXM-4

### 1、特点

- (1) 四线连续清洗，每线可独立使用。
- (2) 全自动程控。对洗丝的工作速度、排线形态（直排、球排及排线疏密程度）可在触摸屏界面上设置。
- (3) 绕排线驱动和放线驱动全部采用伺服驱动与控制。
- (4) 采用微张力控制系统，数字化张力设置。
- (5) 收线软启动。
- (6) 无线停机。
- (7) 清洗方式可选：超声波、高压纯净水、鼓泡等方法。
- (8) 清洗后可烘干处理。
- (9) 清洗液和烘干均自动温控。
- (10) 可选配清洗液自动更换功能。

### 1、Characteristic

- (1) Four-wire continuous cleaning, each line can be used independently.
- (2) Automatic program control. The working speed and wire arrangement form (straight row, ball row and wire density) can be set on the touch screen interface.
- (3) Both winding drive and pay-off drive are driven and controlled by servo.
- (4) Adopt micro tension control system, digital tension setting.
- (5) Take-up soft start.
- (6) Wireless machine halt.
- (7) Cleaning method optional: ultrasonic, high-pressure clean water, bubbling method.
- (8) It can be dried after cleaning.
- (9) Automatic temperature control for cleaning solution and drying.
- (10) Automatic change function of cleaning fluid is optional.



### 2、用途

可做中间工序连续在线洗丝。

### 2、Application

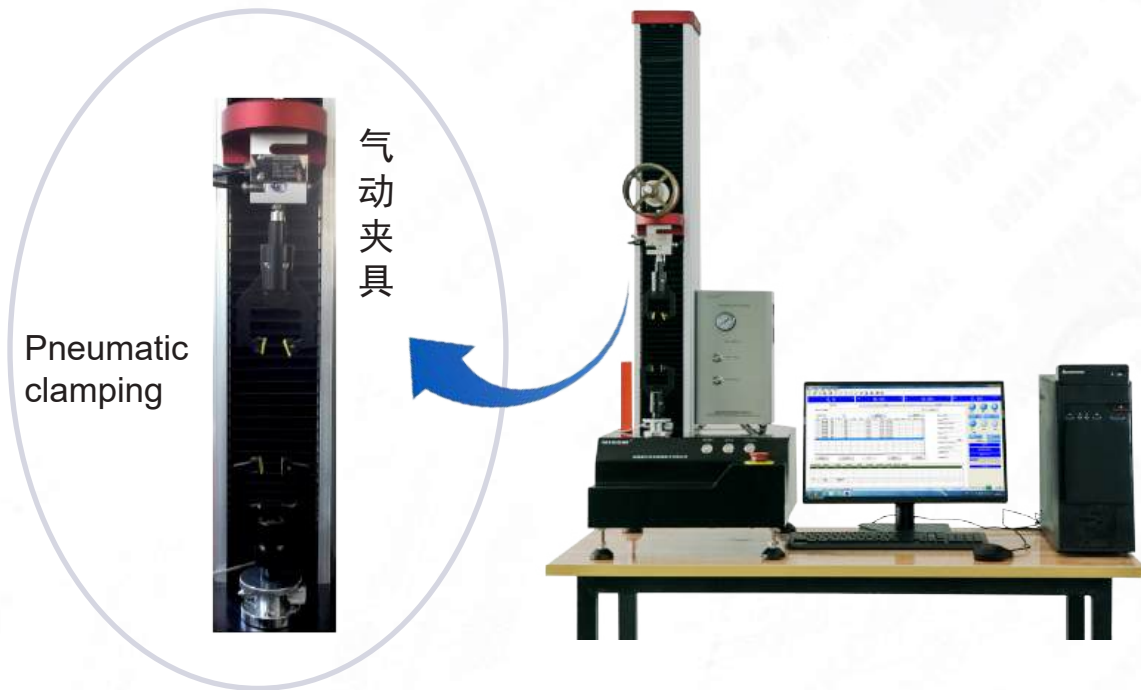
Can do intermediate process continuous online cleaning.

### 3、主要性能参数 Main performance parameters

张力范围	Tension range	10 ~ 250cN
清洗功率	Cleansing power	超声波 1.8KW; 造泡、高压纯净水 1.3KW 1.8KW ultrasound; Bubble, high-pressure clean water 1.3KW
电源功率	Power supply	380V, 50HZ, 15KW
外形尺寸 (长 X 宽 X 高)mm	Dimension(L×W×H)mm	3060X900X1580



拉力测试仪 Tensile Tester MK-PL



1、特点

- (1) 采用伺服及电脑控制,专业测试程序用于数据分析处理,结合高分辨率力量采集传感器及高精数据处理芯片,呈现于客户直观的性能曲线及客户要求的处理后数据值,使更直观准确了解产品性能,从而提高产品质量。
- (2) 夹具可选配气动夹具及 MK-PGC-01 气动夹具控制器。
- (3) 采用上下限保护, 电流超载保护。
- (4) 与电脑联机, 通过电脑测试软件 MK-Testing Software 显示和控制。
- (5) 测试样品间距可调节。
- (6) 拉伸速度平稳, 可调速。
- (7) 软件设置有 BL/EL 拉伸曲线图, 可计算 CPK 值。

1、Characteristic

- (1) Adopt servo and computer control, professional test program used to deal with the data analysis,combined with high resolution power sensor and the high precision data processing chip, present to the customer intuitive performance curves and the customer request processing data values,make more intuitive and accurate understanding the product performance, so as to improve the quality of the product.
- (2) Clamp optional air clamp and MK-PGC-01 air clamp controller.
- (3) Use upper and lower limit protection, current overload protection.
- (4) On line with computer, through the computer test software MK-Testing Software display and control.
- (5) The space between test samples can be adjusted.
- (6) Tensile speed smooth, adjustable speed.
- (7) Software set BL/EL tensile curve, can calculate the CPK value.

2、用途

用于检测线材的拉伸性能, 适用于键合丝、贵金属丝等行业的拉伸性能测试。

2、Application

The machine is used for testing the tensile properties of wire, suitable for the tensile properties test of bonding wire and precious metals, etc.

3、主要性能参数 Main performance parameters

荷重精度	Load precision	±0.5%
有效行程	Effective stroke	700mm
测试速度	Test speed	0.01~500mm/min
使用电源	Power supply	220V, 400W
输入气压	Input air pressure	0.4~0.6MPa
精解度	Resolution ratio	1/500000
外形尺寸(长×宽×高)mm	Dimension(L×W×H)mm	410×405×1150

## 放线测试系统 Pay-off Test System

### MK-PTS



#### 1、特点

- (1) 可同时测试 4 卷成品线轴。
- (2) 通过电脑测试软件可记录卡线次数，并可将当时发生卡线时的信息如圈数、时间、轻微停点、停点和严重停点记录下来，并导出 Excel 文件存档，便于追溯。
- (3) 可设置放线轴尺寸。
- (4) 当出现卡线时，摆臂自动动作，无需人工值守。

#### 1、Characteristic

- (1) It can test 4 rolls of finished bobbins at the same time.
- (2) The computer test software can record the times of clamp wire and record the information such as the number of turns, time, minor stop points, stop points, and severe stop points, and export to an Excel file for archiving, making it easy to trace.
- (3) The size of the pay-off bobbin can be set.
- (4) When a wire gets stuck, the swing arm acts automatically without manual operation.

#### 2、用途

主要用于键合丝的卡线测试。

#### 2、Application

It is mainly used for clamp wire test of bonding wire.

#### 3、主要性能参数 Main performance parameters

放线速度	Pay-off speed	50 ~ 400rpm
转盘尺寸	Turntable size	225 × 445mm
放线轴尺寸	Pay-off bobbin size	50、80、100mm, 或根据客户定制 (or customized)
功率	Power	800W
电源	Power supply	220V, 50HZ
外形尺寸 (长 × 宽 × 高) mm	Dimension(L×W×H)mm	780 × 660 × 830

## MIKOM 数字化绕线机管理系统

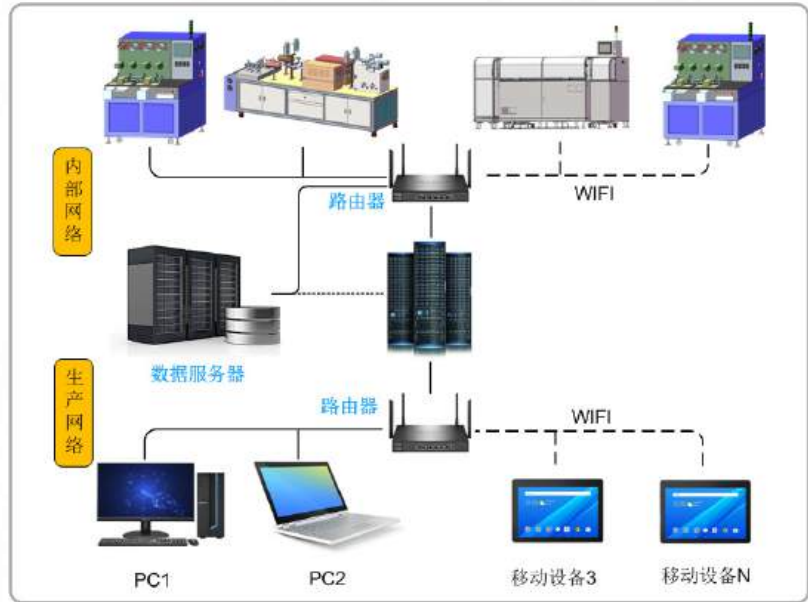
### 1、功能

MIKOM 数字化绕线机管理系统用于连接 MIKOM 所有设备，提供统一的数字化信息采集、记录和发布平台。

- (1) 提供配方的统一管理，支持远程对设备的配方上载和下载。
- (2) 实时采集各个设备的运行状况。
- (3) 对关键运行历史数据自动记录。
- (4) 通过大屏幕对所有设备的运行状况统一展示。

### 2、特点

- (1) 该系统在设计上分为设备网络和生产网络部分，相互隔离。
- (2) 生产网络不对外公开，仅在本地局域网工作；使用安全证书加密；当设置 NAT 时也支持异地访问。
- (3) 基于本地服务，所有数据均在内网中不对外，能够实时传输数据，不存在流量费用，运行成本低。



### 3、平板电脑客户端

- (1) 查看当前设备的运行时数据，在必要时也可以提供部分控制。
- (2) 支持在同型号的绕线设备之间互相传递配方。
- (3) 查看设备运行、停机的关键时间点记录。
- (4) 查看设备运行中发生的异常记录。



### 4、工业看板客户端

- (1) 用于显示厂区内所有设备的关键运行状态，以及系统自动采集的统计信息。
- (2) 可根据实际需要定制显示画面。





## 威海麦科自动控制技术有限公司

地址：山东威海高技区丹东路85号

电话：0631-5626922, 5808951

传真：0631-5801751

网址：[www.mikom.cn](http://www.mikom.cn)

邮箱：[mkjx@mikom.cn](mailto:mkjx@mikom.cn)

## **Weihai MIKOM Automatic Control Technology Co., LTD.**

Add: No.85, Dandong road, Hi-tech zone, Weihai

Tel: 0631-5626922, 5808951

Fax:0631-5801751

[Http://www.mikom.cn](http://www.mikom.cn)

Email: [mkjx@mikom.cn](mailto:mkjx@mikom.cn)



创新、变更不另通知

Innovation and change without notice