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*Innovation, integrity and service*

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# 包装行业解决方案

PACKAGING INDUSTRY  
SOLUTIONS

控制 | 驱动 | 传感 | 机电 | 信息



禾川股份龙游总部  
HCFA Headquarter (Longyou)

浙江禾川科技股份有限公司(HCFA)成立于2011年,是一家专注于工业自动化产品的研发、制造、销售及应用集成,致力于为智慧工厂提供核心部件和系统集成解决方案的企业。

HCFA秉承“成为最具价值的工业自动化核心部件及方案提供商”的企业愿景,服务客户的整体方案需求,经营业绩取得了几何式增长(复合增长率超过80%),

Established in 2011,HCFA is an enterprise, focusing on the R&D, manufacturing, sales and application integration of industrial automation products, and committed to providing core components and system integration solutions for smart factories.

Adhering to the corporate vision of "becoming the most valuable industrial automation core components and solutions provider", we have achieved geometric growth in business performance (compound growth rate of more than 80%),

快速成长为工业自动化高端装备及机器人核心部件的主要供应商,跻身国产第一品牌方阵。

HCFA产品广泛应用于机器人、机械手、光伏电子、3C电子、锂电池、包装机械、木工机械等OEM领域。

Now HCFA has become a major supplier of high-end industrial automation equipment and robots core components, and ranks among the top domestic brands.

And these products are widely used in robots, manipulators, photovoltaic electronics, 3C electronics, lithium batteries, packaging machinery, woodworking machinery and other OEM fields.

## 根植中国 客户中心 行业导向

CUSTOMER-CENTERIC  
INDUSTRY ORIENTATION



### 机器自动化领域

IPC/PAC/PLC+伺服系统+伺服电机+变频器,提供整套机器自动化解决方案,广泛应用电子非标、锂电池、光伏电子等领域

#### Machine automation area

IPC/PAC/PLC+Servo drive+Servo motor+Inverter, providing a complete set of machine automation solutions, widely used in electronic non-standard, lithium battery, photovoltaic power and other fields



### 工厂自动化领域

IPC/PAC/PLC+机器人+视觉系统+伺服系统+伺服电机+变频器,提供整厂自动化解决方案,应用于电子生产、电机生产等领域

#### Factory automation area

IPC/PAC/PLC+ Robot+ Visual system + Servo drive+Servo motor+inverter Provide the factory automation solution, applied in the electronic production, and motor production etc.



### 智能制造领域

信息+控制+机电+驱动+传感提供智能制造领域整体柔性解决方案,涵盖信息层->控制层->驱动层->传感/执行层

#### Intelligent manufacturing area

Info.+Control+Mechatronics+Servo drive+Sensor Provide overall flexible solutions in the field of intelligent manufacturing, covering information layer -> control layer -> driver layer -> sensing/execution layer



■ 总部基地与研发中心  
■ 销售中心与办事处(覆盖长三角 珠三角 山东 华中)

### 总部基地与研发中心

Headquarter and R & D Center

龙游:行政总部&生产基地&研发中心

Longyou: Administrative Headquarter & Production factory & R & D Center

杭州:研发中心

Hangzhou: R & D Center

深圳:研发中心

Shenzhen: R & D Center

大连:研发中心

Dalian: R & D Center

无锡:研发中心

Wuxi: R & D Center

### 销售中心与办事处(覆盖长三角 珠三角 山东 华中)

Sales centers and offices (covering Yangtze River Delta, Pearl River Delta, Shandong, central China)

销售中心:佛山

Sales Center: Foshan

华南:深圳 东莞 广州 中山 惠州 泉州 厦门

South China: Shenzhen, Dongguan, Guangzhou, Zhongshan, Huizhou, Quanzhou, Xiamen

华东:上海 苏州 昆山 无锡 常州 南京 南通 杭州 宁波 台州 温州 合肥

East China: Shanghai, Suzhou, Kunshan, Wuxi, Changzhou, Nanjing, Nantong, Hangzhou, Ningbo, Taizhou, Wenzhou, Hefei

华北:济南 青岛 石家庄 天津

North China: Jinan, Qingdao, Shijiazhuang, Tianjin

华中:武汉 长沙 郑州

Central China: Wuhan, Changsha, Zhengzhou

华西:成都 西安

West China: Chengdu, Xi'an

### 服务

Services

合作渠道:超过150家

Channels of cooperation: Over 150

全国服务热线:400 012 6969

National Service Hotline: 4000126969



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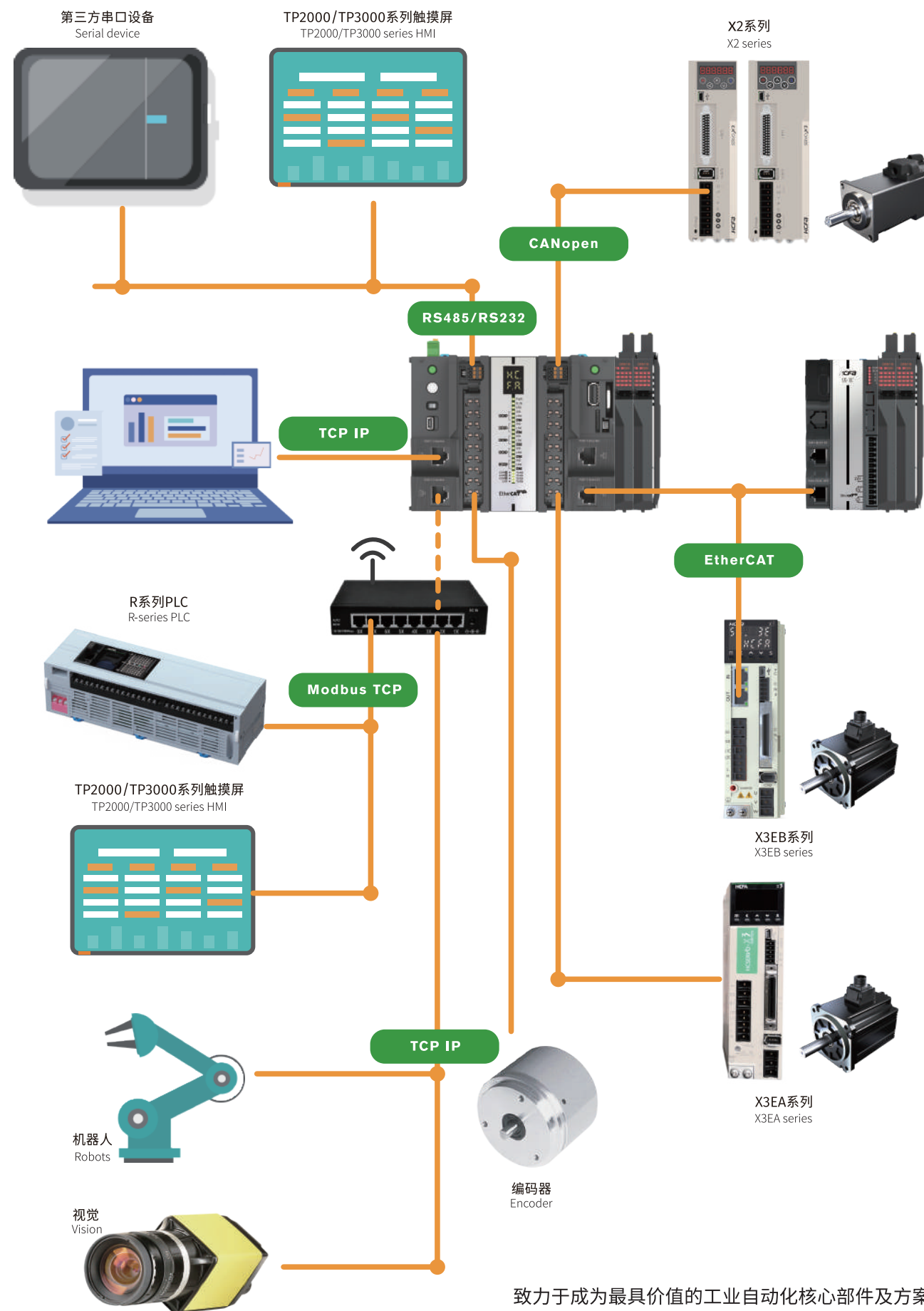
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## Q1系统网络拓扑

Q1 System Network Topology



致力于成为最具价值的工业自动化核心部件及方案提供商  
Committed to becoming the most valuable industrial automation core component and solution provider

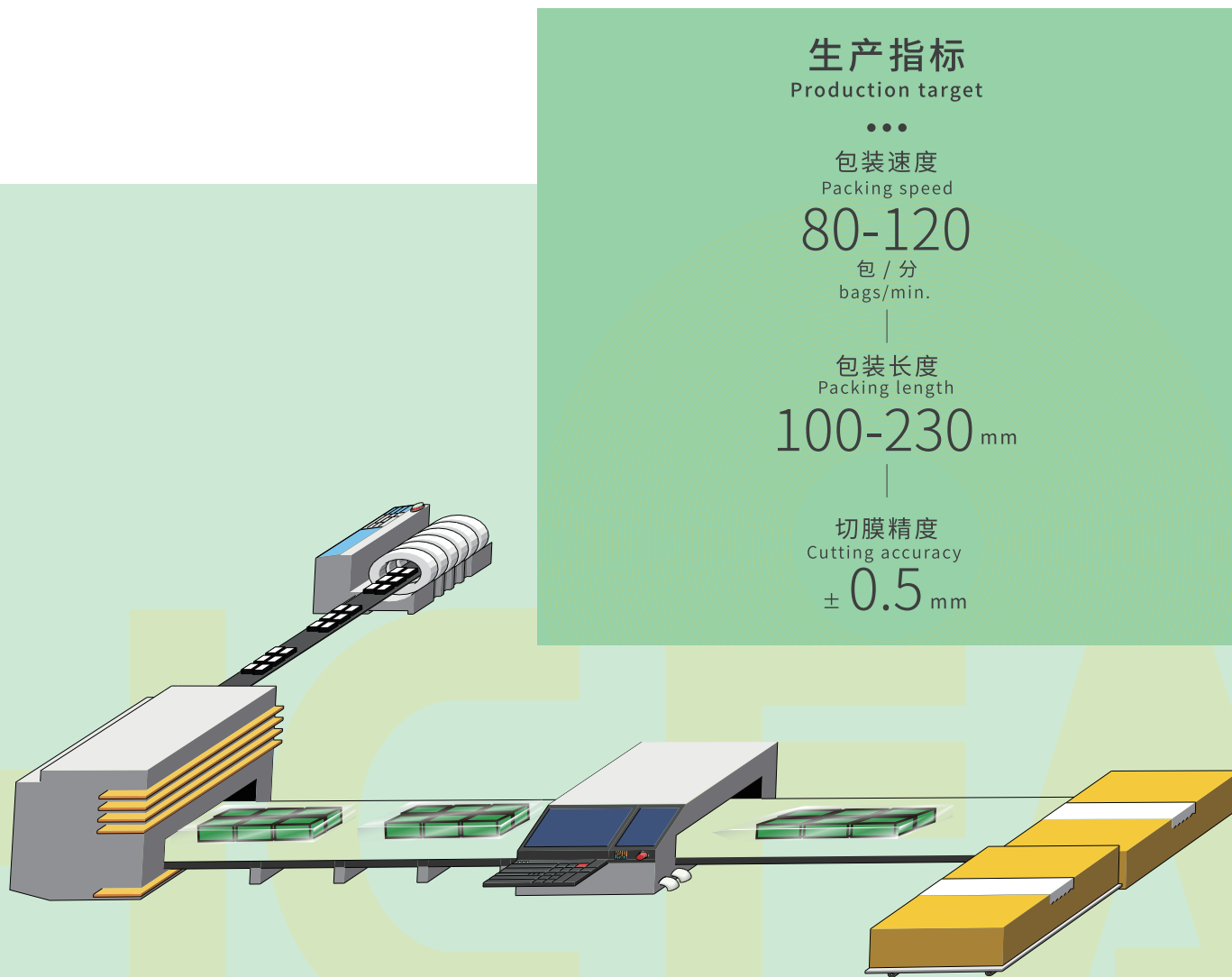


# 软抽纸包装机 工艺原理

Paper towel packaging machine  
Process principle

叠纸机生产出的纸堆经过输送到达送纸链钩，再经过下膜机构送膜，切断、折边、烫边、中送，完成包装工艺标签附膜。

The paper produced by the paper stacker is conveyed to the paper feeding chain hook, and then the paper is fed through the filming, cutting, folding, ironing, and delivered to complete the packaging process.



## 设备介绍 Equipment Introduction

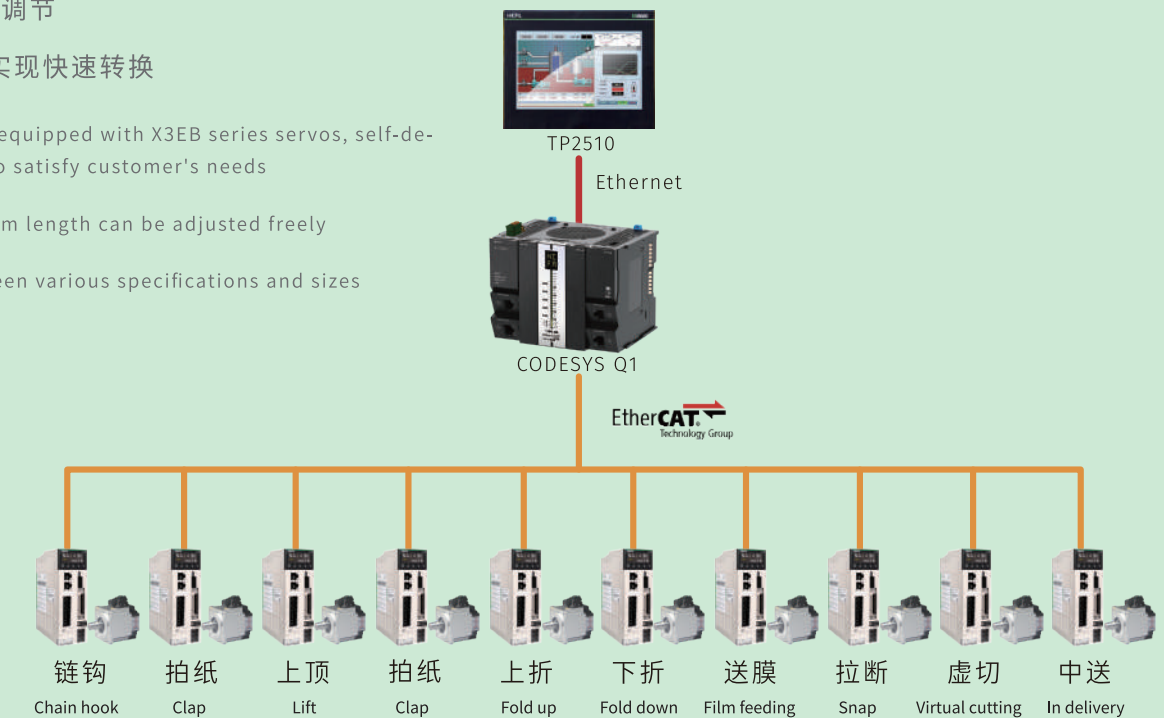


软抽纸包装机主要用于各种规格的软抽纸的外包装(面巾纸、方巾纸、餐巾纸等),是纸巾生产环节后段包装的重要设备之一,通常与前道叠纸机,后道中包机、大包机连接成自动化生产线。

The paper towel packaging machine is mainly used for the outer packaging of paper towel of various specifications (tissue paper, Napkin, etc.). It is one of the important packaging equipment to become the automatic production line with the former stacking machine, later medium and large packing machine.

## 方案效果及优势 Solution Advantages

- Q1系列Ethercat运动控制器,搭配高性能X3EB总线伺服,内建自主开发工艺包,快速实现客户工艺
- 包装速度、膜长任意调节
- 各种规格尺寸之间实现快速转换
- Q1 PACs with Ethercat, equipped with X3EB series servos, self-developed process pack to satisfy customer's needs
- Packaging speed and film length can be adjusted freely
- Quick conversion between various specifications and sizes

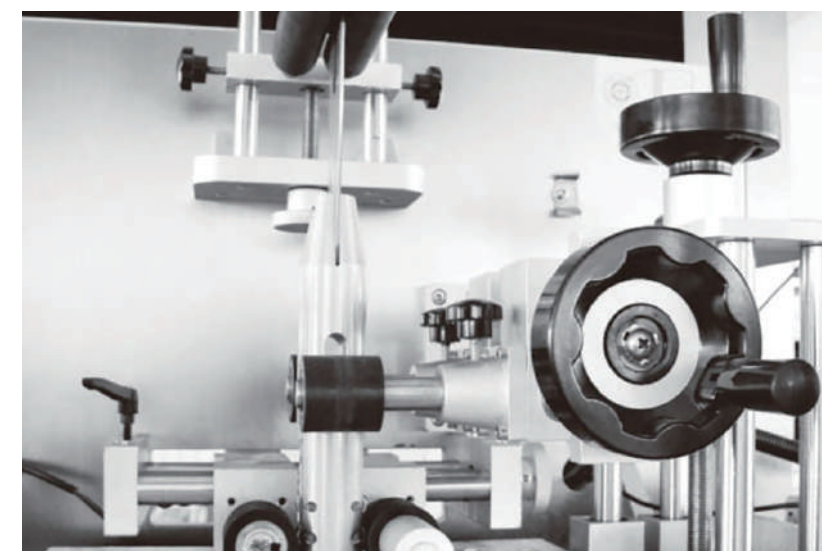
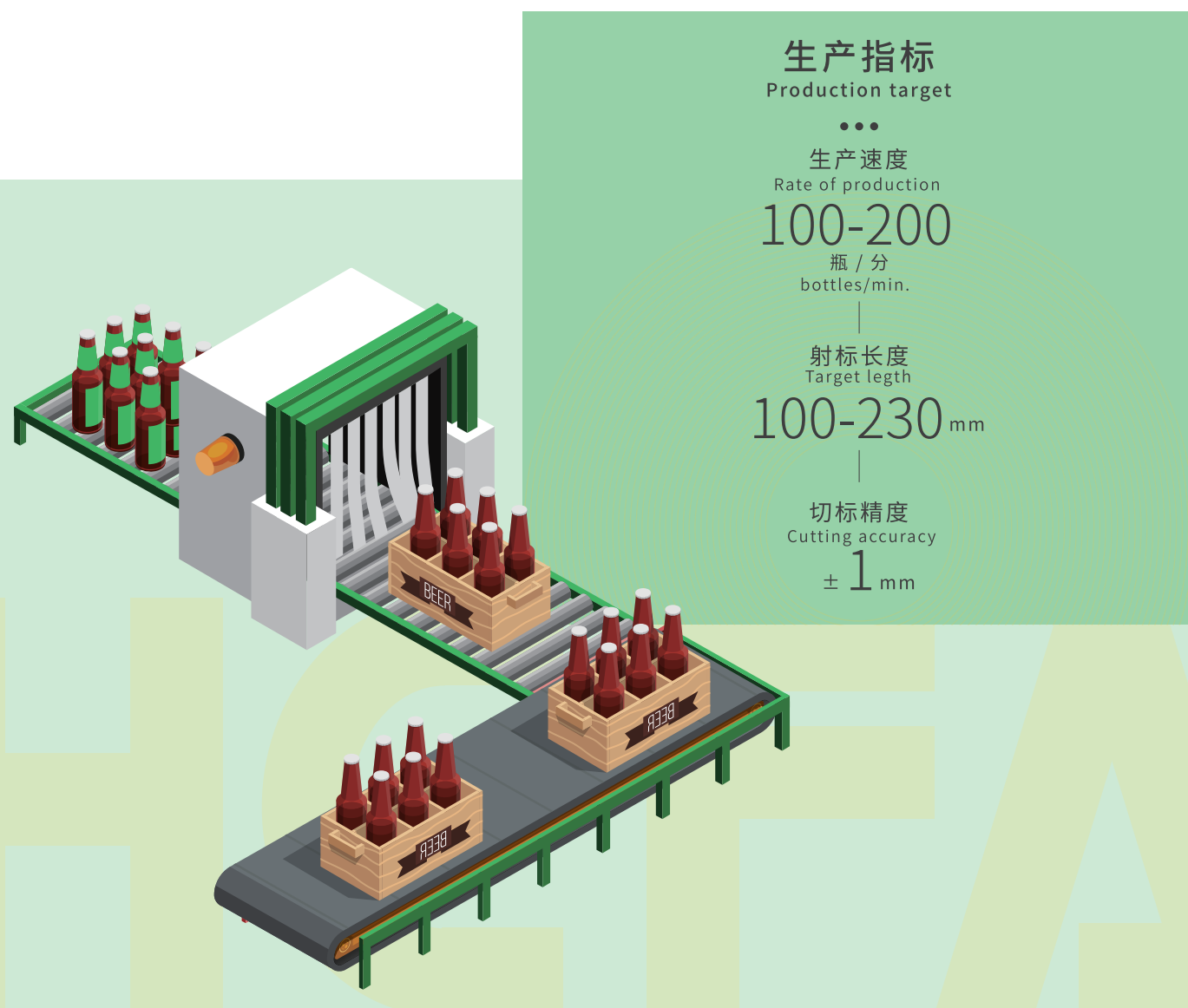


# 套标机 工艺原理

Marking machine  
Process principle

送瓶电眼触发推瓶，进入套标系统，依次完成：送标、定位、切标、射标、收缩标签等环节。

When the electric eye is triggered to push bottle, enter the sleeve labeling system to complete the label sending, positioning, label cutting, marking, shrinking label, etc.



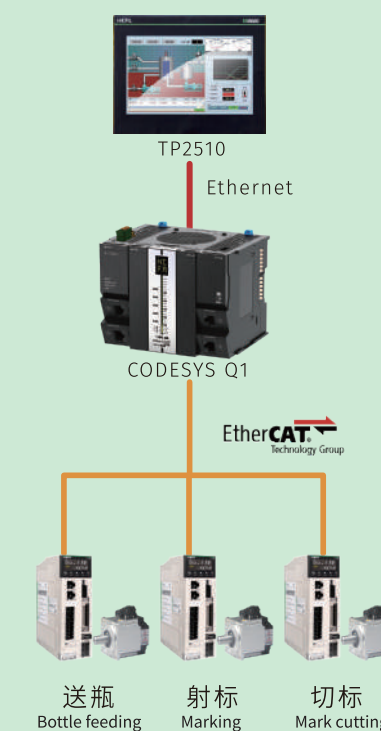
## 设备介绍 Equipment Introduction

全自动套标机具有送瓶、分瓶、套标、收缩标签等功能，是高速高精度的包装设备，主要应用于饮料和健康饮品行业。

Automatic labeling machine is a high-speed and high-precision packaging equipment, which is mainly used in the beverage and health drinks industry.

## 方案效果及优势 Solution Advantages

- Q1控制器基于CODESYS平台，支持PLC OPEN标准运动控制指令，兼容多种通讯协议，支持EtherCAT, CANopen运动总线。支持丰富的本地扩展以及远程扩展。
- 高响应、高通讯兼容性的X3EB伺服控制器，兼容X2/X6系列电机，支持17bit磁编和23bit光编编码器。
- Based on the CODESYS platform, Q1 series controllers support PLC OPEN standard motion control instructions, and compatible with multiple communication protocols, and support EtherCAT and CANopen motion buses. And Support local extension and remote extension.
- X3EB series servo drive, with high response and high communication compatibility, is compatible with X2/X6 series motors, which support 17bit magnetic encoder and 23bit optical encoder.





# 贴标机 工艺原理

## Labeling machine Process principle

送膜轴放膜，通过机械结构拉直膜，先涂胶后切膜，实现凸轮同步，标签到达送瓶区域同送瓶轴保持同步，将标签贴上瓶身。

The feeding axis releases the film, straightens the film through the mechanical structure, spreads the glue before cutting the film, realizes the Cam synchronization, the label arrives at the feeding bottle area to keep the synchronization with the feeding bottle axis, sticks the label to the bottle body.

### 生产指标

Production target

...

生产速度

Rate of production

10-120

瓶 / 分  
bottles/min.

包装长度

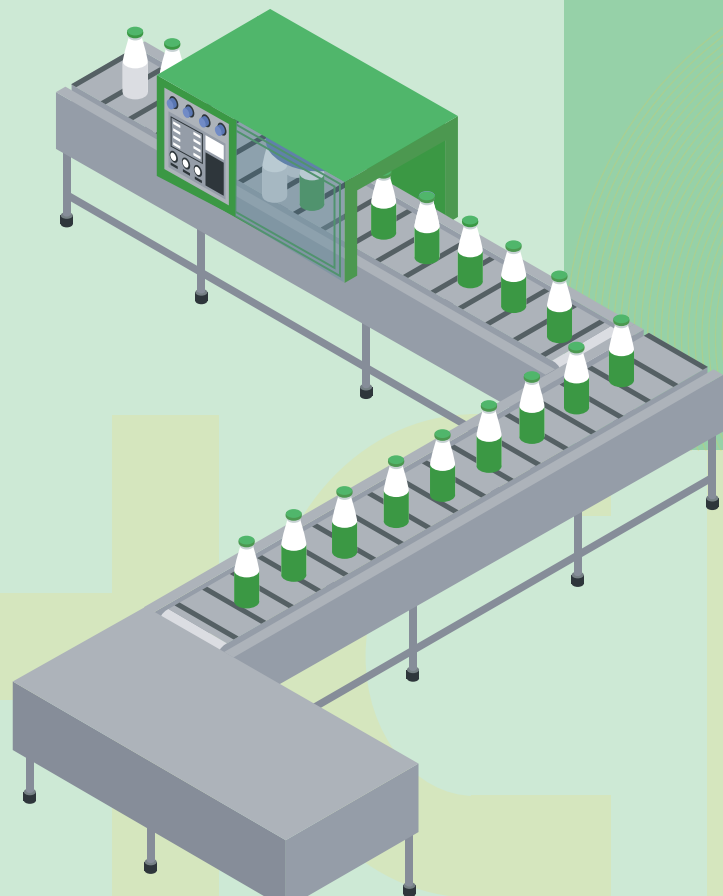
Packing length

170-320 mm

切标精度

Cutting accuracy

± 1 mm



### 设备介绍 Equipment Introduction

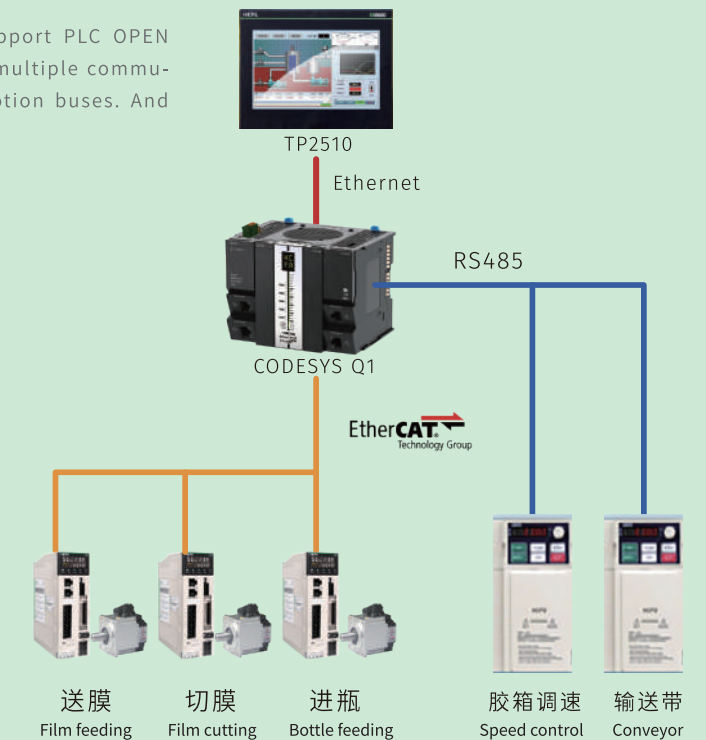
全自动贴标机具有送瓶、切标、涂胶等功能，是高效高精度的包装设备，主要应用于饮料等各种液体瓶身包装。

Automatic labeling machine with feeding, cutting, gelatinize and other functions, is a high-efficiency and high-precision packaging equipment, mainly used in beverages and other liquid bottle packaging.

### 方案效果及优势

Solution Advantages

- Q1控制器基于CODESYS平台，支持PLC OPEN标准运动控制指令，兼容多种通讯协议支持EtherCAT，CANopen运动总线。支持丰富的本地扩展以及远程扩展。
- Based on the CODESYS platform, Q1 series controllers support PLC OPEN standard motion control instructions, and compatible with multiple communication protocols, and support EtherCAT and CANopen motion buses. And Support local extension and remote extension.

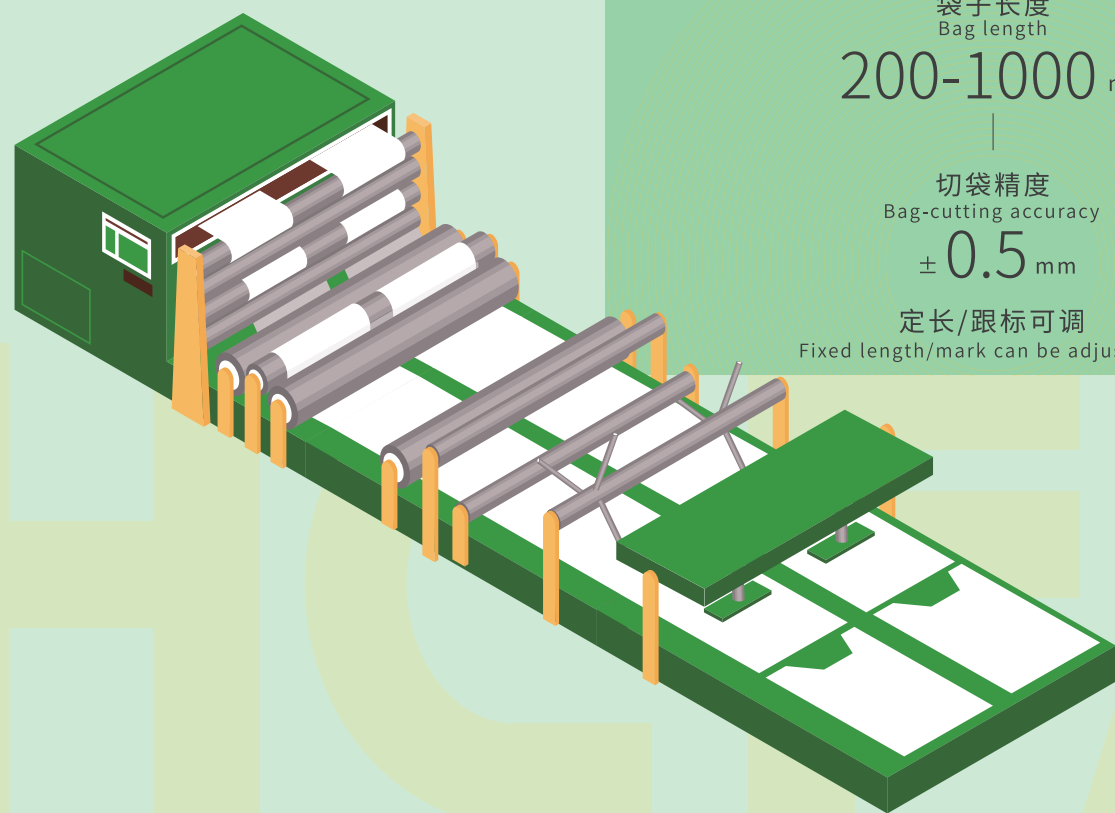


# 制袋机 工艺原理

## Bag Making machine Process principle

背心袋一般前道工序是吹膜机, 经过双通道伺服高速送袋, 切刀在变频器的带动下上下封切, 再按设定的数量组成一叠, 再经过冲孔、折叠完成制作过程。

The former procedure for T-shirt bags is generally by the film blowing machine, then through 2-channel servo high-speed bag feeding, the cutter is driven by the inverters to seal and cut up and down, and then come into a pile according to the set number, and then go through punching and folding to complete the production process;



### 生产指标 Production target

生产速度  
Rate of production  
**400**  
个 / 分 / 双刀  
bags/min./double cutter

袋子长度  
Bag length  
**200-1000** mm

切袋精度  
Bag-cutting accuracy  
**± 0.5** mm

定长/跟标可调  
Fixed length/mark can be adjustable



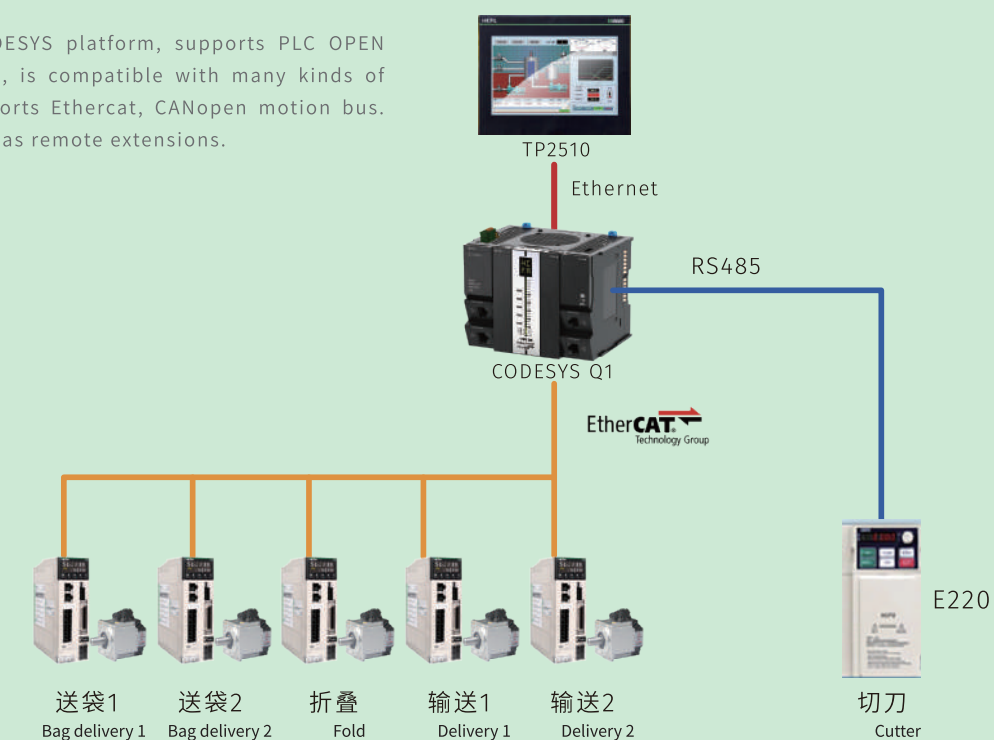
### 设备介绍 Equipment Introduction

制袋机根据袋子的原料不同有塑料、尼龙、无纺布等, 是将单层材料经过热切、冲孔、折叠完成可以盛装物品的设备, 伴随着人们生活质量的提升, 对袋子的要求也越来越高。

According to the raw materials of the bag, the plastic, nylon, and Non-woven fabric, etc., the single layer material can be cut, punched, and folded to become a device that can hold things. With the life quality improved, the promotion of the bag is also greatly improved.

### 方案效果及优势 Solution Advantages

- Q1控制器基于CODESYS平台, 支持PLC OPEN标准运动控制指令, 兼容多种通讯协议, 支持EtherCAT, CANopen运动总线。支持丰富的本地扩展以及远程扩展。
- The Q1 controller is based on CODESYS platform, supports PLC OPEN standard motion control instruction, is compatible with many kinds of communication protocols, and supports Ethercat, CANopen motion bus. Support rich local extensions as well as remote extensions.



# 印标机

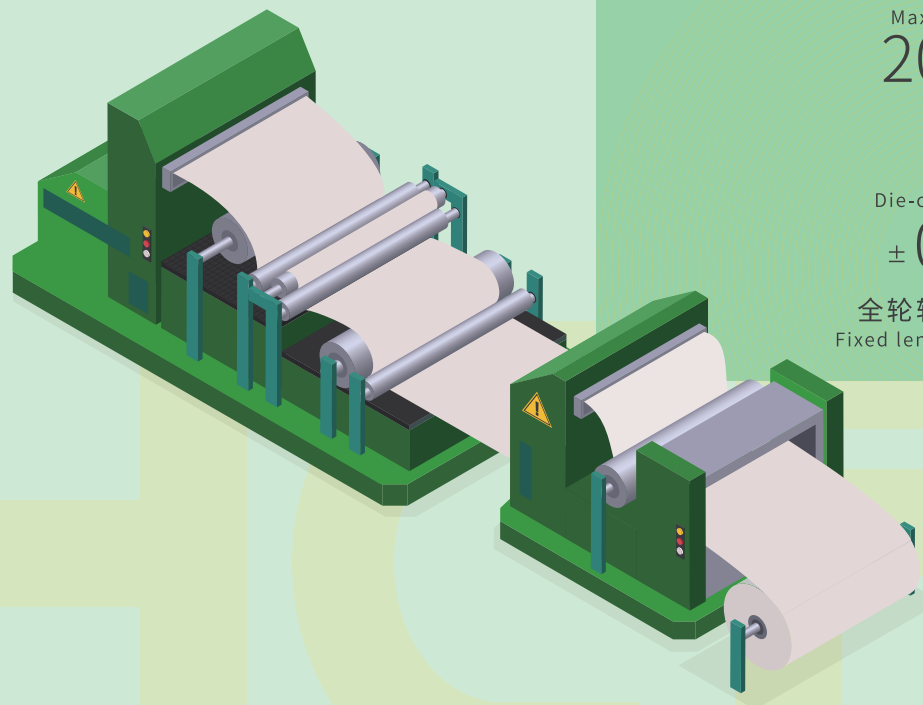
## 工艺原理

### Label Printer

### Process principle

4轴收放卷、恒张力控制，左右牵引形成内部张力。5轴同步，摆棍轴间歇式实现滚刀与标签位置同步，印刷轴位置同步将标签印色，通过覆膜轴在纸质标签附膜。

4-axis rewinding and unwinding, constant tension control, left and right traction to form internal tension. 5-axis synchronization, swing rod shaft intermittently realizes the synchronization of hob and label position. The axis position synchronously prints the label, and the paper label is attached to the paper through the laminating axis.



### 生产指标

Production target

•••

最大机械速度

Max. mechanical speed

120

米 / 分  
meter/min.

最大切数

Maximum Tangent

200

刀 (Knives)

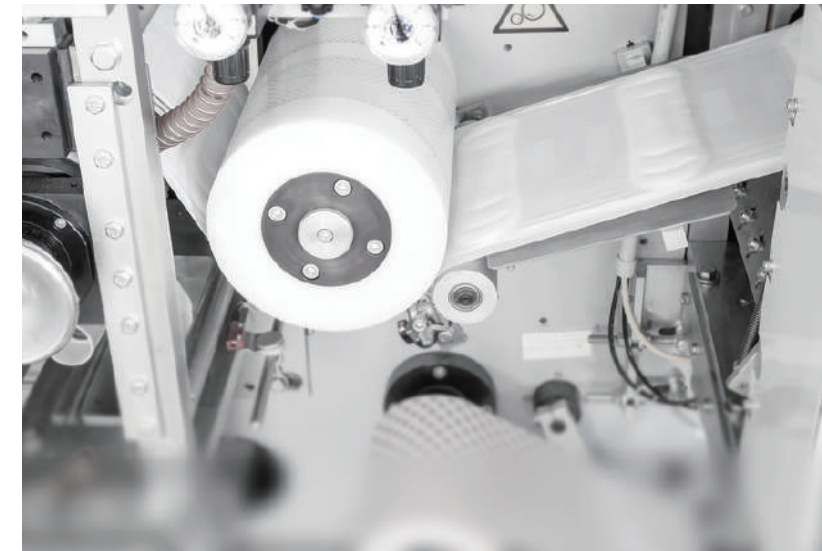
模切精度

Die-cutting accuracy

± 0.15 mm

全轮转/间歇式可调

Fixed length/adjustable heel



### 设备介绍

Equipment Introduction

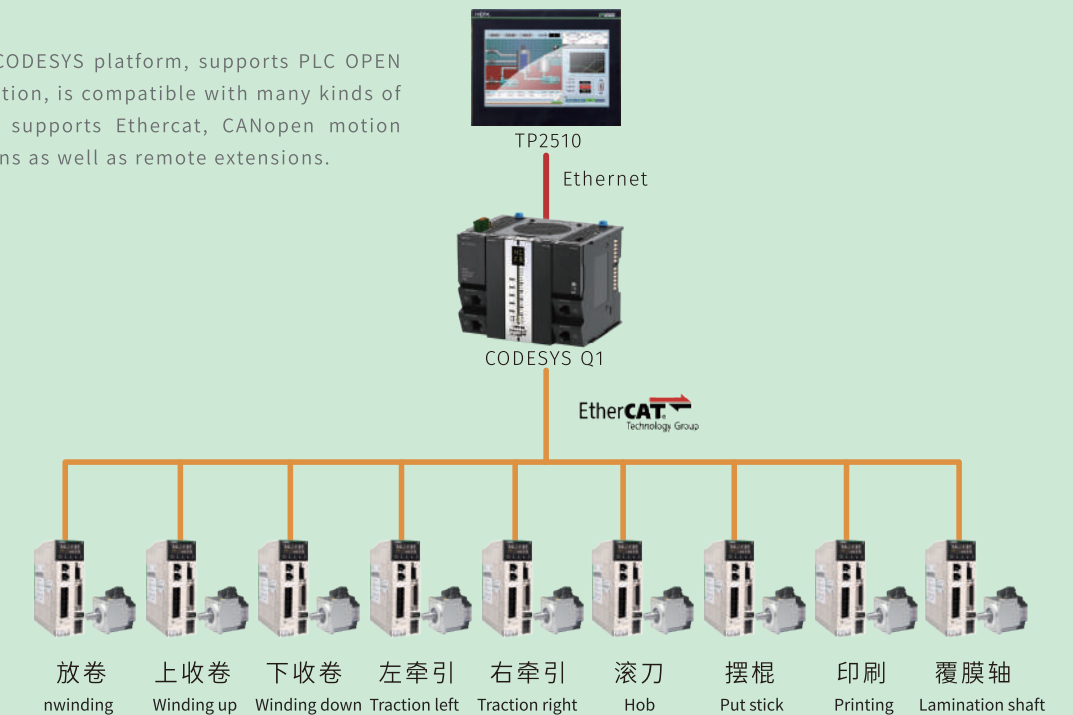
由伺服驱动模切单元(全轮转或间歇式), 适合短、中长标签的卷到卷或卷到单张的模切印刷, 可模切(全穿、半穿)、分条、收集平台等多功能; 操作简单方便, 效率高。

Driven by Servo die-cutting unit (full wheel or intermittent), suitable for short, medium and Long Label roll-to-roll or roll-to-sheet die-cutting printing, can die-cutting (full-wear, half-wear), slitting, collection platform and other multi-functional; simple and convenient operation, high efficiency.

### 方案效果及优势

Solution Advantages

- Q1控制器基于CODESYS平台, 支持PLC OPEN标准运动控制指令, 兼容多种通讯协议支持EtherCAT, CANopen运动总线。支持丰富的本地扩展以及远程扩展。
- The Q1 controller is based on CODESYS platform, supports PLC OPEN standard motion control instruction, is compatible with many kinds of communication protocols, and supports Ethercat, CANopen motion bus. Support rich local extensions as well as remote extensions.





# 贴窗机 工艺原理

## Window patching machine patching machines

通过主轴与各轴的线速度同步实现纸板高速连续进给。送纸轴,纠偏轴分别进行粗纠偏,精纠偏,实现高精度贴窗。

Through the spindle and axis speed synchronization to achieve high-speed continuous feeding paperboard. The paper feeding shaft and the deviation correcting shaft carry out rough deviation correction and fine deviation correction respectively to realize high precision window sticking.

### 生产指标 Production target

生产速度  
Rate of production  
**30000**  
个 / 时  
pcs/hour

袋板长度  
Length of bag board  
**20-600** mm

贴窗精度  
Window placement accuracy  
**± 0.5** mm



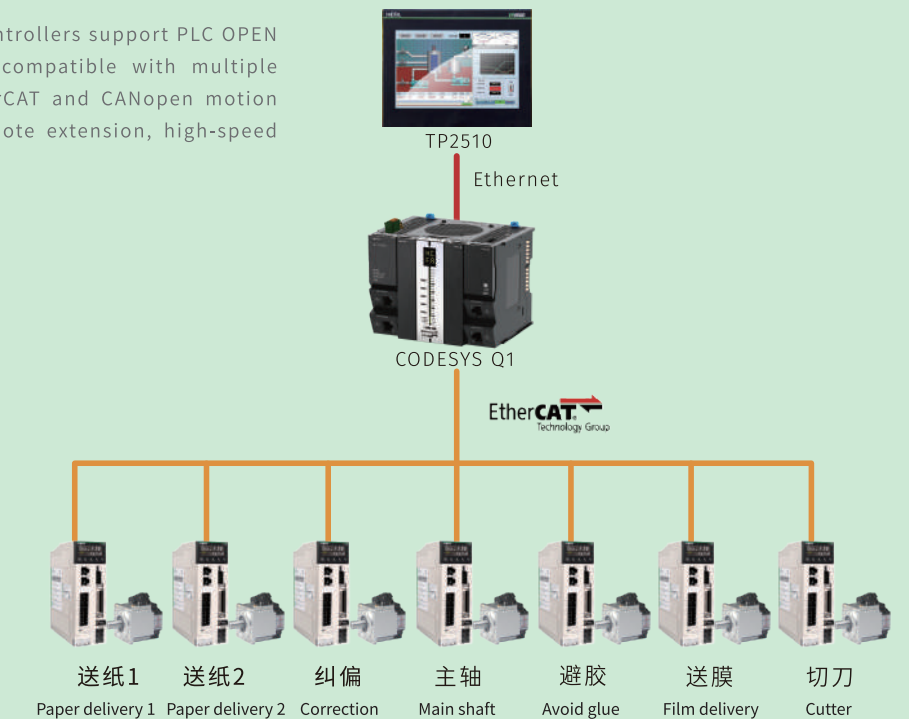
### 设备介绍 Equipment Introduction

全自动贴窗机是为开窗彩盒,彩箱等包装用品贴膜等专用设备,高精度,高稳定性。设备适用卡纸和瓦楞纸,实现对纸巾盒,礼品盒,玩具盒,衬衫盒,牛奶箱等窗口的贴膜功能。

The automatic window sticking machine is a special equipment for sticking film on window-opening color boxes, color boxes and other packaging supplies, with high precision and high stability. The equipment is suitable for cardboard and corrugated paper, and realizes the filming function of paper towel boxes, gift boxes, toy boxes, shirt boxes, milk boxes etc.

### 方案效果及优势 Solution Advantages

- Q1控制器基于CODESYS平台,支持PLC OPEN标准运动控制指令,兼容多种通讯协议,支持EtherCAT, CANopen运动总线。支持丰富的本地扩展,远程扩展,高速脉冲输出,伺服探针功能。
- Based on the CODESYS platform, Q1 series controllers support PLC OPEN standard motion control instructions, and compatible with multiple communication protocols, and support EtherCAT and CANopen motion buses. And Support local extension and remote extension, high-speed pulse output, Servo probing function.



# 灌装机 工艺原理

## Filling machine Process principle

当主输送带启动送空瓶时，活塞式灌装头从起始位置加速与空瓶同步，在垂直方向完成设定的液体灌装，随后立即提升灌装头，返回初始位置等待下一批次空瓶。

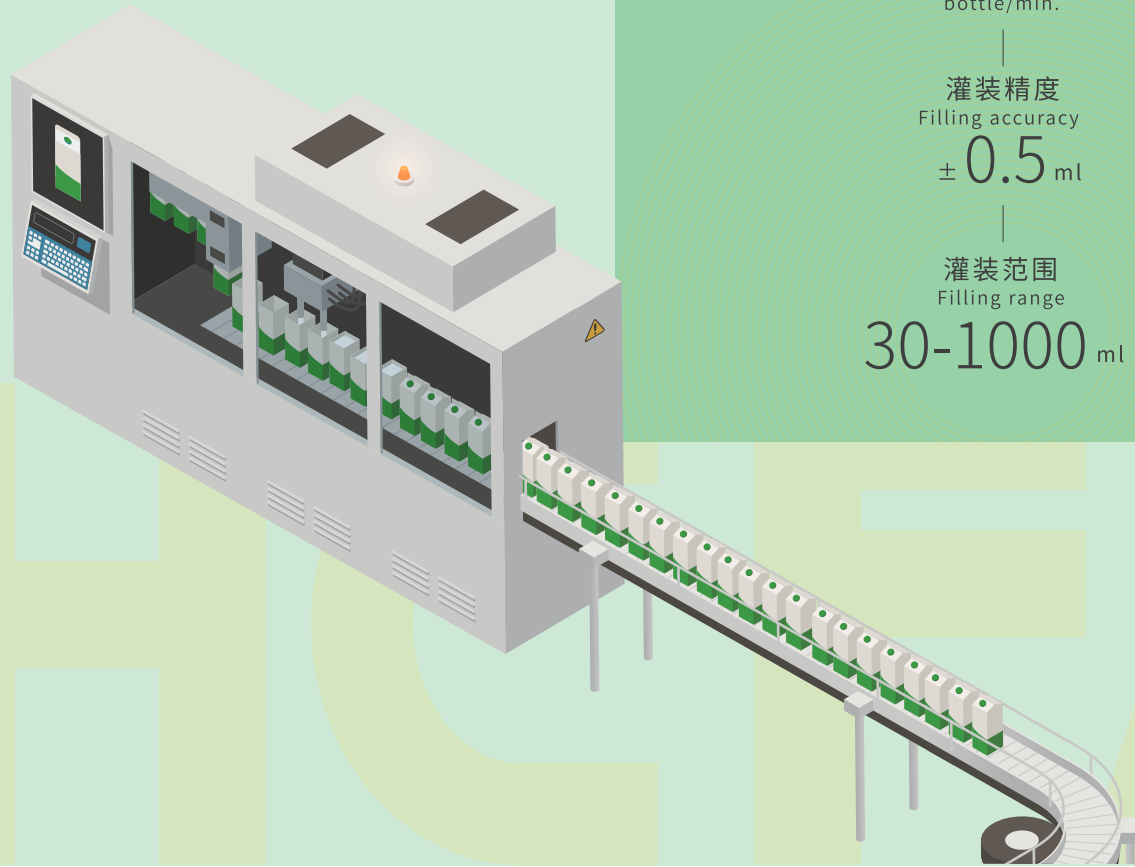
When the main conveyor belt starts to send empty bottles, the piston filling head accelerates from the starting position to synchronize with the empty bottle, completes the liquid filling in the vertical direction, and then immediately raises the filling head and returns to the initial position to wait for the next Empty bottles.

### 生产指标 Production target

灌装速度  
Rate of production  
**60-200**  
瓶 / 分  
bottle/min.

灌装精度  
Filling accuracy  
**± 0.5 ml**

灌装范围  
Filling range  
**30-1000 ml**



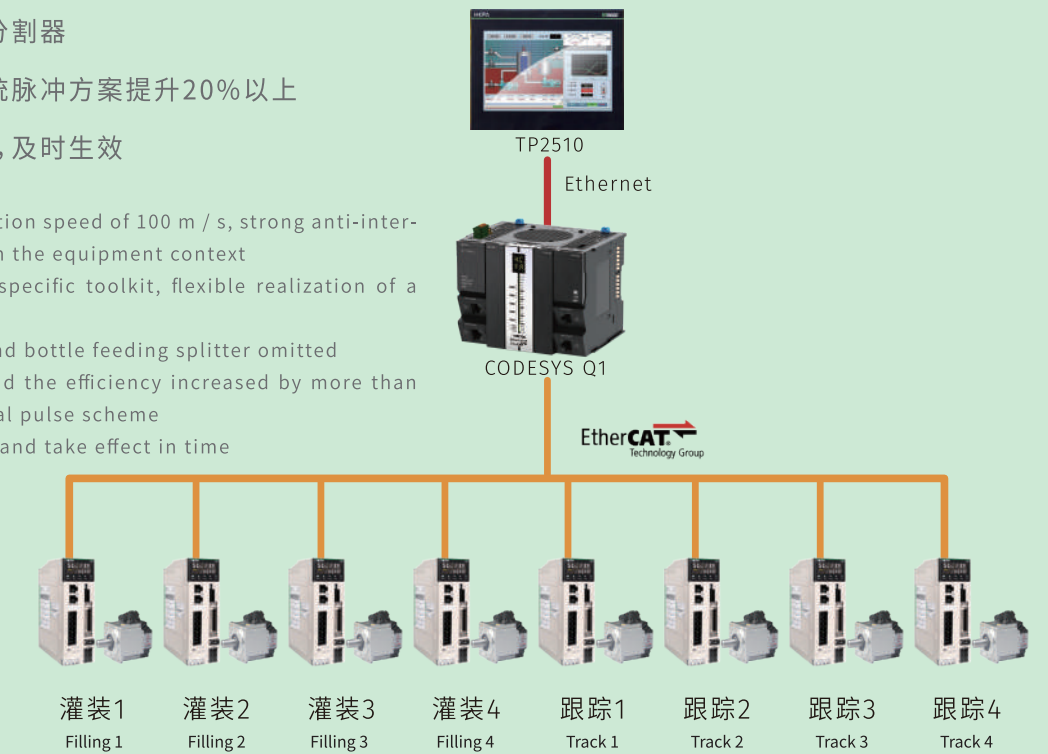
### 设备介绍 Equipment Introduction

全自动液体灌装机广泛适用于各种液体、粘稠体、膏霜的灌装。适用化妆品、食品、化工、日用品、医药等行业

Automatic liquid filling machine is widely used for filling all kinds of liquid, viscous body and cream. Suitable for cosmetics, food, chemical, daily necessities, medicine and other industries

### 方案效果及优势 Solution Advantages

- Ethercat总线控制，通讯速度100M/S，抗干扰能力强，一网打通设备脉络
- 独有灌装机行业专用工具包，灵活实现多种灌装模式
- 实现无间距送瓶，省去送瓶分割器
- 实现高效灌装，效率相比传统脉冲方案提升20%以上
- 具有在线修改灌装容量功能，及时生效
- Ethernet bus control, communication speed of 100 m / s, strong anti-interference ability, a network through the equipment context
- Unique filling machine industry specific toolkit, flexible realization of a variety of filling mode
- No gap bottle feeding realized, and bottle feeding splitter omitted
- High efficiency filling realized, and the efficiency increased by more than 20% compared with the traditional pulse scheme
- Modify the filling capacity online and take effect in time





# 枕包机 工艺原理

## Pillow Packaging Machine Process principle

规则的固体物料，通过皮带或链钩送到包装膜中，包装膜经过制袋器成型；通过横封机构完成横封，再通过切刀进行纵切和纵封，最终完成产品的包装。

Regular solid materials are sent to the packaging film through a belt or chain hook, and the packaging film is formed by the bag maker; the horizontal sealing is completed by the horizontal sealing mechanism, and then the vertical cutting and sealing are carried out by the cutter to complete the product packaging.

### 生产指标

Production target

#### 包装速度

Rate of production

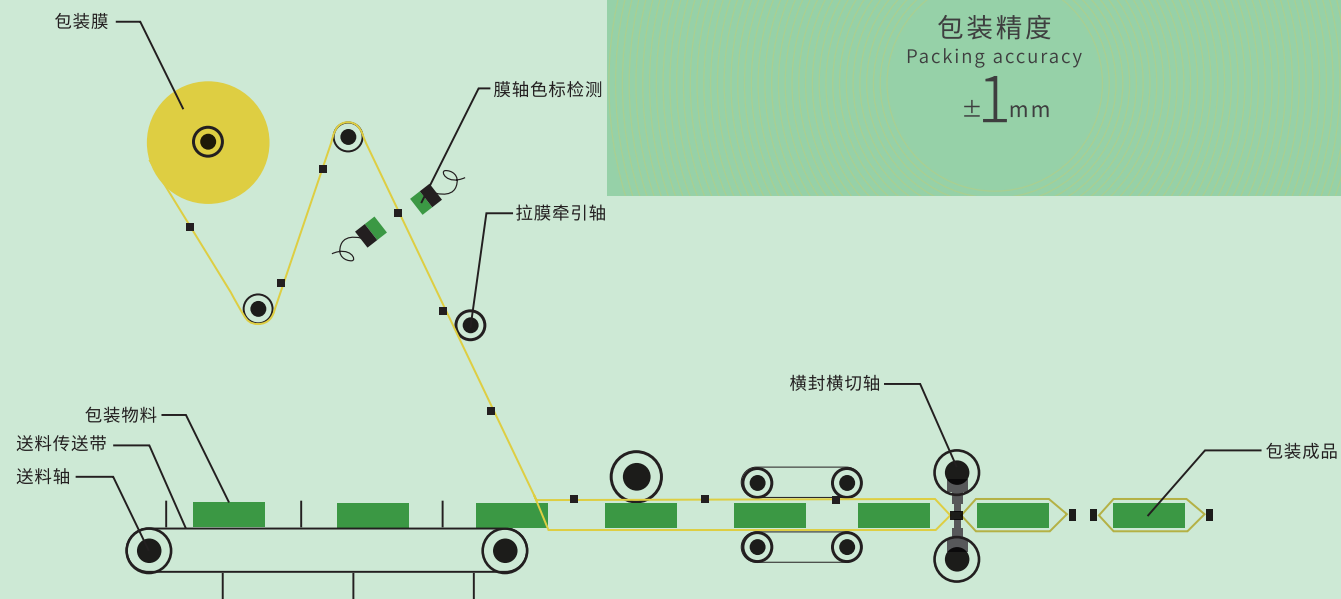
**80-150**

包 / 分 / 单刀  
bags/min./single cutter

#### 包装精度

Packing accuracy

**±1mm**



### 设备介绍 Equipment Introduction

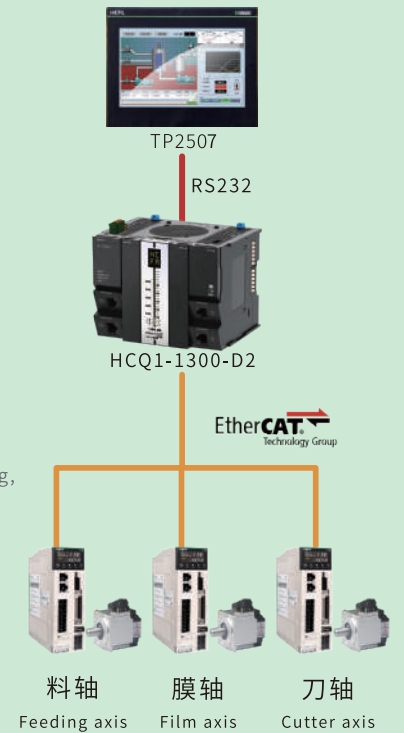
包装行业中较为典型的一种机型，广泛应用于食品、日用品、五金等卧式进料产品的包装。通常作为包装产线的中间工位，对接上下游的包装理料线、下游中包机大包机等设备。

A more typical model in the packaging industry, widely used in the packaging of food, daily necessities, hardware and other horizontal feed products. It is usually used as the intermediate station of the packaging production line to connect with packaging material processing lines and medium and large packaging machines and other equipment.

### 方案效果及优势

Solution Advantages

- 7寸触摸屏，可选以太网或串口版本
- 高性能运动控制器，Ethercat总线方案，一网到底，减少复杂的脉冲接线
- 程序兼容色标模式、定长模式
- 支持多种易用功能：一键恢复启停、防空、防切、防烫等
- 开放机械传动比参数，兼容不同客户的机械设计
- 输入信号支持取反，满足客户两种传感器需求
- 程序核心工艺封装功能块，可快速复制
- 7" touch screen, optional Ethernet or serial ports
- High-performance motion controller, Ethercat bus solution, to reduce complicated pulse wiring
- Program compatible with color code mode, fixed length mode
- Support a variety of easy-to-use functions: one-key recovery start-stop, air defense, anti-cutting, anti-scalding, etc
- Open mechanical transmission ratio parameters, compatible with different mechanical designs
- Input signal supports inversion
- Core process package function block, can be copied quickly



# 圆刀模切机 工艺原理

## Rotary die-cutting machine Process principle

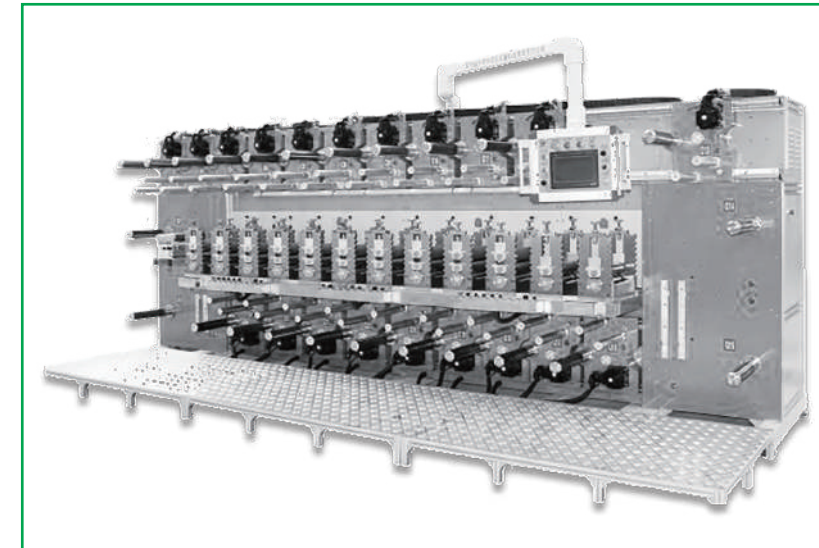
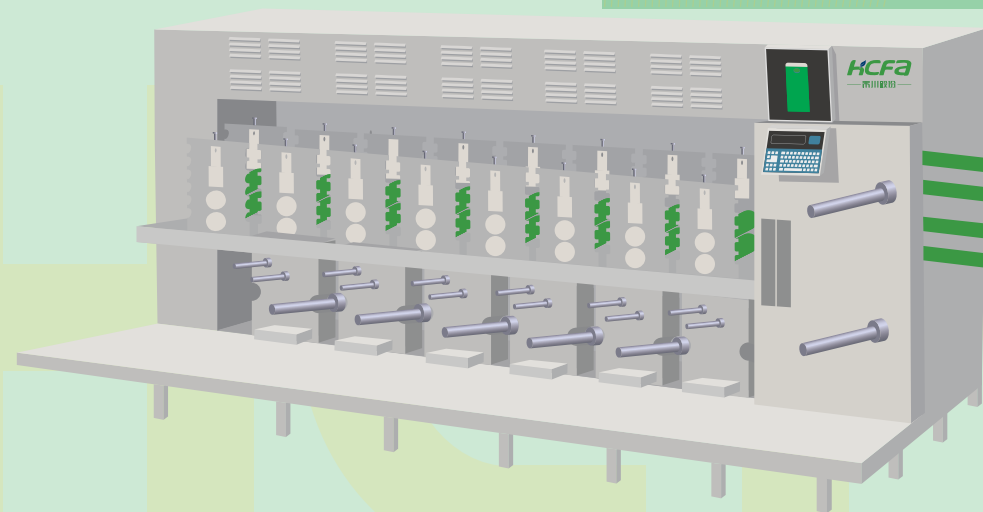
成卷型的原材料经过恒张力放卷，进入模切工位，通过辊版上的模具与材料的连续同步运转，模切出需要的形状，再经过收卷、排废等工艺完成整个过程。

After constant tension unwinding, the rolled raw materials enter the die-cutting station. Through the continuous synchronous operation of the mold and the material on the roller plate, the required shape is cut out by die cutting, and the whole process is completed through winding up and waste discharge.

### 生产指标 Production target

生产速度  
Rate of production  
**60**  
米 / 分  
meter/min.

模切精度  
Die cutting accuracy  
**± 0.05 mm**



### 设备介绍 Equipment Introduction

圆刀模切机因模切刀具为圆形而得名，模切各种形状的单、双面不干胶、保护膜、垫片、防尘网以及铜铝箔等产品，多应用于3C行业。

The rolled raw material is unrolled under constant tension and enters into the die-cutting station. The mold and the material on the roll plate are continuously and synchronously operated to die-cut the required shape, and then the whole process is completed through the process of winding up and waste discharge.

### 方案效果及优势 Solution Advantages

- Q1控制器基于CODESYS平台，支持PLC OPEN标准运动控制指令，兼容多种通讯协议，支持EtherCAT, CANopen运动总线。支持丰富的本地扩展,远程扩展,高速脉冲输出,伺服探针功能。
- The Q1 controller is based on CODESYS platform, supports PLC OPEN standard motion control instruction, is compatible with many kinds of communication protocols, and supports Ethercat, CANopen motion bus. Support rich local extensions as well as remote extensions.



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