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# 并联机器人选型手册

Type selection manual  
for parallel robots

# 董事长寄语

Message from the chairman

目前，全球处于工业4.0发展时期，以机器人技术为代表的智能装备产业正蓬勃兴起，中国已成为全球最大工业机器人应用市场。

面对智能时代带来的机遇和挑战，我们华盛控始终坚持以创新为本，专注于智能机器人技术研发与应用，努力为客户提供满足其个性化需求的高品质智能定制产品——这是我们不变的承诺。

我们感恩时代的馈赠，也一直在思考和探索，能为这个时代多做些什么？成为中国智能机器人行业的智造先锋，为推动“中国制造”向“中国智造”转型升级的梦想贡献我们的力量，就是我们的目标。

不畏挑战，创造未来。我们始终怀着诚信之心，与合作伙伴风雨同舟，共谋发展，致力成为“全球最具有竞争力的智能机器人科技企业”。

智，无止境；华盛控，矢志前行。



At present,the world is in the development period of Industry 4.0,the intelligent equipment industry represented by robotics technology is boomina, and China has become the world's laraest industriarobot application market

In the face of the opportunities and challenges brought about by the intelligent era, we warsonco have always insisted on innovation, focusing on the development and application of intelligent robot technology and striving to provide all customers with high-quality intelligent customized products that meet their individual needs –this is our unchanging commitment.

We are grateful for the gift of the times,and have been thinking and exploring what more we can do for this era. To be the pioneer of intelligent robotics in China and to contribute to the dream of transforming and upgrading from "Made in China" to "Intelligent Manufacturing in China" is our goal.

We will not be afraid of challenges and create the future.We are committed to becoming"the most competitive intelligent robotics company in the world".

Wisdom, no end; Warsonco,determinedto move forward.

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## 企业概况

### Company Profile

深圳市华盛控科技有限公司成立于2011年，是一家机器人及相关产品的研发、生产、销售为一体的国家级高新技术企业。是以工业机器人核心技术，国际一流的，自动化方案提供商。我们的产品涵盖并联机器人、全系列协作机器人、工业视觉及机器人控制系统等系列，广泛应用于医药、3C、食品、印包、日化等多个行业领域。

从立足中国，到迈向全球。华盛控始终以客户为中心，以专业的工匠精神，为客户量身定制独一无二的全产业链机器人科技研发解决方案，成为机器人行业应用中的典范。产品出口欧美、中东、东南亚等50多个国家和地区。

持续发展，以卓越的品质、价值和服务满足客户的需求，尊重社会和自然环境，成为让员工引以为荣的企业。

Established in 2011, Shenzhen Warsonco Technology Co., Ltd. is a national high-tech enterprise integrating research and development, production and sales of robots and related products. Warsonco Technology is first-class, automation solution provider with the core technology focusing on industrial robot. Our products cover parallel robots, full series of Collaborative Robots industrial vision and robotic control systems etc., and the products are widely used in many fields such as pharmaceuticals, 3C, food, packaging, daily chemical and others.

From taking the footprint in China to moving globally now Warsonco Technology has always been customer-centered With a professional craftsman spirit customized the unique tailor-made R&D solution for industry chain robots, becoming a model for the application of industrial robots. Our products are exported to more than 50 countries and regions such as Europe, America, Middle East and Southeast Asia.

By focusing on sustainable development, excellent quality, value and service to meet customers' needs, while respecting the society and natural environment, Warsonco Technology is becoming an enterprise that makes employees proud of being a member.

50<sup>+</sup>

产品出口50多个国家和地区。  
Products are exported to more than 50 countries and regions.

180<sup>+</sup>

华盛控科技累积各项专利80多项，其他各项荣誉100多种。  
Warsonco Technology has accumulated more than 80 patents and more than 100 other honors.

4600<sup>+</sup>

累积服务客户4600多家。  
Accumulated service more than 4,600 customers.

# 发展历程 Development History

并联改变世界，协作成就未来。华盛控始终致力于机器人的核心技术和智能应用，为推动“中国制造”走向“中国智造”的进程持续贡献我们的力量！

Paralleling robots changes the world and collaborating robots achieves the future. Warsonco Technology has always been committed to the core technology and intelligent applications of robots and continuously contributes to the change from "Made in China" to "Intelligent Manufacturing in China"!

- 深圳市华盛控科技有限公司成立，在科学技术升级化发展的大潮中诞生；
- Shenzhen Warsonco Technology Co., Ltd. was established.
- It was born in the tide of scientific and technological upgrading;

2011

- 并联DELTA机器人，六轴机器人相继面世；
- 产品全面推向市场并获得金球奖等多项荣誉；
- DELTA robots, six-axis robots launched successively;
- The products have been fully marketed and won many honors such as Golden Globe Award;

2014-2015

2012-2013

- 国际水准科研团队专注于工业机器人本体和运动控制器研发领域；
- 推出DELTA机器人及机器人控制系统和应用软件；
- International level scientific research team focuses on the field of research and development of industrial robot body and motion controller;
- Launch of DELTA robot and robot control system and application software;

2016-2018

- 第三代并联机器人研发成功并投入市场，获得多项产品专利；
- DELTA机器人名列行业前五榜单；
- The third generation parallel robot has been successfully developed and put into market, obtained many product patents.
- DELTA robot ranks among the top five in the robot industry;



- 华盛控创新升级，隆重推出第四代并联机器人；产品远销欧美、中东、东南亚等50多个国家和地区。
- 同年开始研发并联装箱工作站及大负载协作码垛机器人。
- Warsonco Technology upgraded its innovation, launched the fourth generation of parallel robot; Our products are exported to more than 50 countries and regions in Europe, America, Middle East and Southeast Asia.
- In the same year, the Top Load Case Packer and Heavy-Load Cobot Palletizer Were developed.

2019

- 产品持续优化升级，完成全系列协作码垛机器人平台，并稳定批量应用于医药、食品、印包、日化等多个行业。
- Our products are continuously optimized and upgraded to complete the whole series of collaborative stacking robot platform, and stable batch application in many industries such as pharmaceuticals, food, packaging and daily chemical industry.

2021

2020

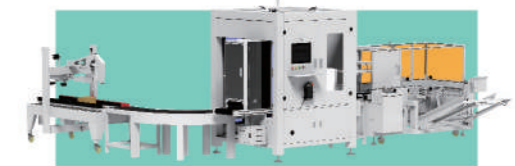
- 率先推出并联装箱工作站和码垛工作站。
- Warsonco Technology was the first to launch Top Load Case Packer and Palletizing Workstation.



2023

2022

- 并联机器人出货量行业第一；
- 大负载协作机器人出货量行业第一。
- No. 1 in the industry for parallel robot shipments;
- No. 1 in the industry for shipments of heavy-load collaborative robots.



# 企业荣誉 Enterprise Honor

华盛控坚持重技术、优服务，在高精机器人领域潜心研究，致力于掌握机器人控制核“芯”技术，已经取得80多项国家专利，为不同行业的企业量身定制更精准、更智能、更优质的智能产品和全自动智能生产解决方案。

Warsonco Technology adheres to technology and excellent service, devotes itself to researching in the field of high-precision robotics and is committed to mastering robot control "core" technology. It has obtained more than 80 national patents, customizing more accurate, smarter and better-quality intelligent products and full-automatic intelligent production solutions for enterprises in different industries.



发明专利：16项  
Patent inventions

创新比赛荣誉：49项  
Honor and prizes in Innovation Competition

软件产品：7款  
Software products

社会和行业认可荣誉：58项  
Social and industry recognized honors

软件专利：24项  
Software patents

实用新型专利：33项  
Utility model patents

外观设计专利：11项  
Appearance design patents



# 并联机器人—志华系列

## Parallel Robots—ZhiHuaSeries

矢志铸梦，已启华章！华盛控用拓荒牛精神打造核心产品，产品厚重、稳定、可靠。

志华系列并联机器人为经典并联机器人构型，三维空间XYZ平动和绕Z轴旋转作业模式，具有速度快、精度佳、稳定性高、柔性强等优势。广泛应用于医药、食品、3C、日化、五金分拣等行业。

The dream has been forged with determination. WSC uses the spirit of a pioneering cow to build its core products, which are heavy, stable and reliable.

Zhihua series parallel robots are classical parallel robot configurations, with three-dimensional space XYZ flat motion and rotation around Z axis operation mode, with the advantages of fast speed, good precision, high stability and strong flexibility. It is widely used in the pharmaceutical, food, 3C, daily chemical, hardware sorting and other industries.



## 产品特性 Product Features

**定位精准、稳定可靠、柔性强**

Accurate positioning, stable and reliable, flexible.

**独特压簧设计，延长使用寿命，提高使用安全性**

Unique spring design extends service life and improves safety.

**独特第四轴设计，旋转精度高达 0.05 度**

Unique fourth axis design achieves a rotation accuracy of up to 0.05 degrees.

**倒置式安装、良好的跟踪性能**

Inverted installation with excellent tracking performance.

**高品质、高性价比、视觉动态跟踪取放**

High-quality, cost-effective, visual dynamic tracking fetch and drop.

**超高速拾取货物，高达120次/min**

Ultra-high speed picking of goods, up to 120 times/min.

**高性价比，自主研发系统、外形**

High cost-performance, independently developed system and appearance.

**承载能力强、刚度大、自重负荷比小，动态性能好**

Strong bearing capacity, high rigidity, small self-weight load ratio, and good dynamic performance.

## 配置 Settings

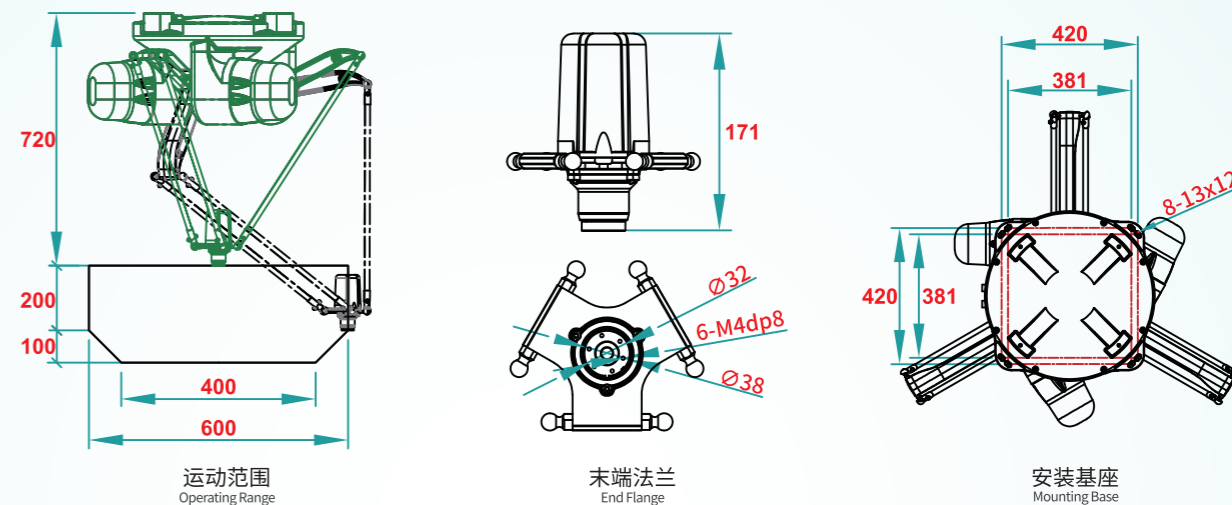
配置 Settings	品牌 Brand
伺服电机 Servo motor	WARSONCO/PANASONIC
减速机 Machine reducer	新宝/绿的 Nidec Corporation/green
控制器 Controller	奥地利 KEBA Austria KEBA

并联机器人—

# 志华系列—WSC-600D

Parallel Robots—ZhiHuaSeries

## 行程范围 Technical Specifications



## 性能参数 Performance parameters

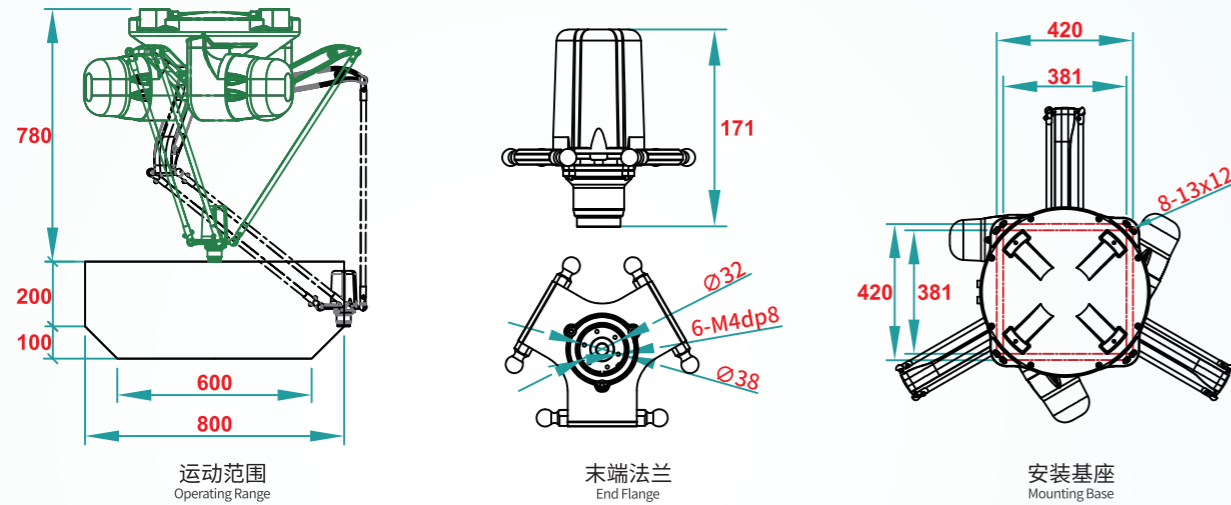
型号 Model	WSC-600D-L3	WSC-600D-L8	WSC-600D-L12
动作自由度 Power Rating	四轴	四轴	四轴
最大负载 (kg) Max Load	3kg	8kg	12kg
标准循环时间 (s) Standard cycle time	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)
重复定位精度 (mm) Repeat positioning accuracy	±0.05mm	±0.05mm	±0.05mm
角度定位精度 Angular Positioning Accuracy	0.05°	0.05°	0.05°
电源 Power	220V	220V	220V
额定功率 Power Rating	2.5kw	3.5kw	5kw
噪音水平 Noise Level	<75db	<75db	<75db
防护等级 Protection Level	IP54	IP54	IP54
驱动方式 Motor Method	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives
示教器 Demonstrator	7寸示教器 7 inch	7寸示教器 7 inch	7寸示教器 7 inch
视觉定位模组 Vision Positioning Module	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)
运动指令 Operating Instructions	PTP、LINE、PICK、PLACE	PTP、LINE、PICK、PLACE	PTP、LINE、PICK、PLACE
安装方式 Installation Method	倒置式 Inverted	倒置式 Inverted	倒置式 Inverted
机器人重量 Robot Weight	72kg	72kg	72kg

并联机器人——

# 志华系列—WSC-800D

Parallel Robots—ZhiHuaSeries

## 行程范围 Technical Specifications



## 性能参数 Performance parameters

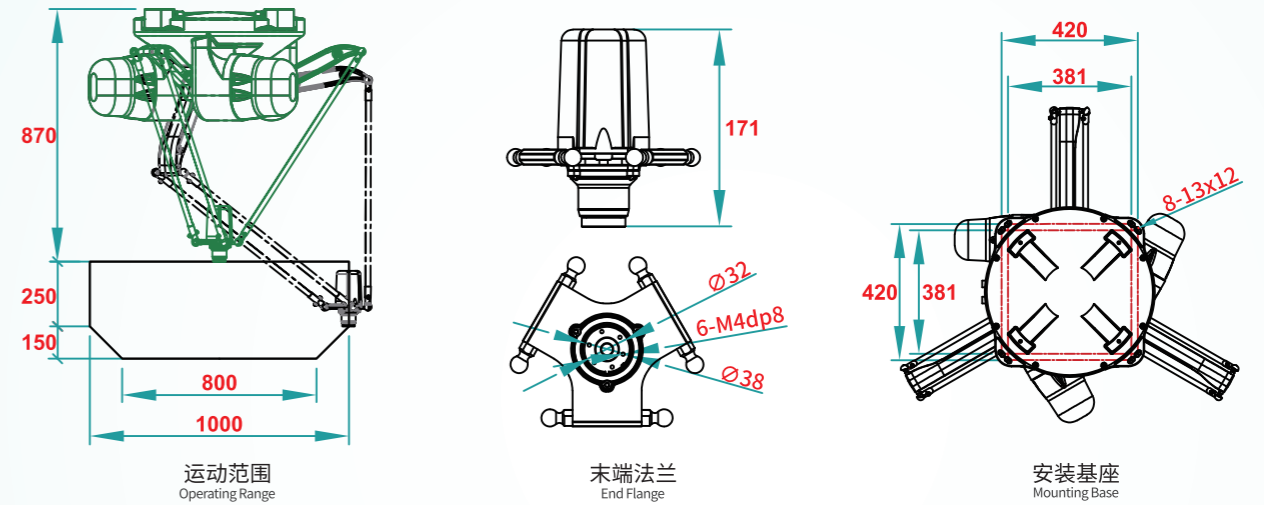
型号 Model	WSC-800D-L3	WSC-800D-L8	WSC-800D-L12
动作自由度 Power Rating	四轴	四轴	四轴
最大负载 (kg) Max Load	3kg	8kg	12kg
标准循环时间 (s) Standard cycle time	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)
重复定位精度 (mm) Repeat positioning accuracy	$\pm 0.05\text{mm}$	$\pm 0.05\text{mm}$	$\pm 0.05\text{mm}$
角度定位精度 Angular Positioning Accuracy	$0.05^\circ$	$0.05^\circ$	$0.05^\circ$
电源 Power	220V	220V	220V
额定功率 Power Rating	2.5kw	3.5kw	5kw
噪音水平 Noise Level	<75db	<75db	<75db
防护等级 Protection Level	IP54	IP54	IP54
驱动方式 Motor Method	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives
示教器 Demonstrator	7寸示教器 7 inch	7寸示教器 7 inch	7寸示教器 7 inch
视觉定位模组 Vision Positioning Module	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)
运动指令 Operating Instructions	PTP、LINE、PICK、PLACE	PTP、LINE、PICK、PLACE	PTP、LINE、PICK、PLACE
安装方式 Installation Method	倒置式 Inverted	倒置式 Inverted	倒置式 Inverted
机器人重量 Robot Weight	72kg	72kg	72kg

并联机器人——

# 志华系列—WSC-1000D

Parallel Robots—ZhiHuaSeries

## 行程范围 Technical Specifications



## 性能参数 Performance parameters

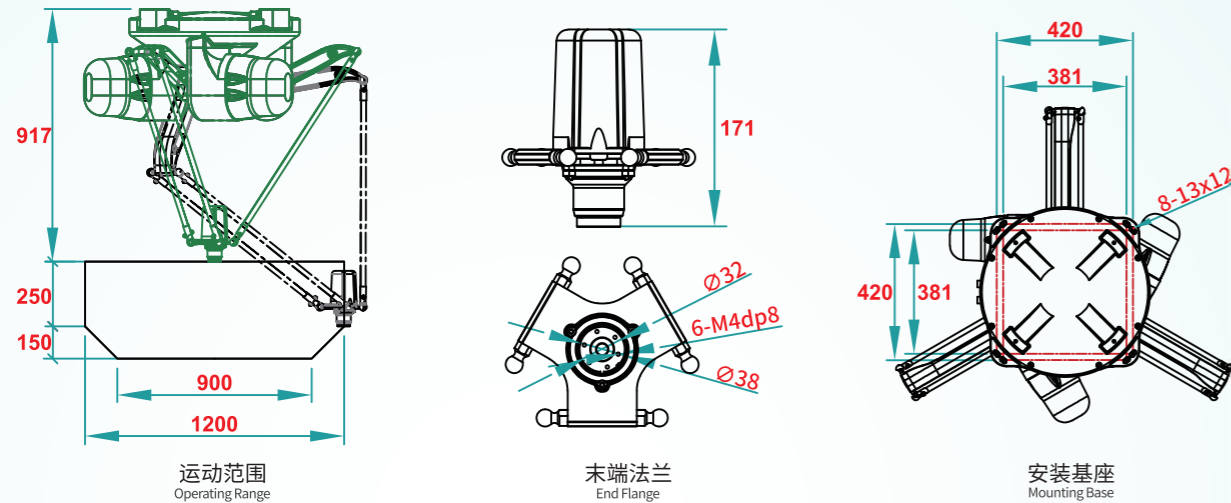
型号 Model	WSC-1000D-L3	WSC-1000D-L8	WSC-1000D-L12
动作自由度 Power Rating	四轴	四轴	四轴
最大负载 (kg) Max Load	3kg	8kg	12kg
标准循环时间 (s) Standard cycle time	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)
重复定位精度 (mm) Repeat positioning accuracy	$\pm 0.05\text{mm}$	$\pm 0.05\text{mm}$	$\pm 0.05\text{mm}$
角度定位精度 Angular Positioning Accuracy	$0.05^\circ$	$0.05^\circ$	$0.05^\circ$
电源 Power	220V	220V	220V
额定功率 Power Rating	2.5kw	3.5kw	5kw
噪音水平 Noise Level	<75db	<75db	<75db
防护等级 Protection Level	IP54	IP54	IP54
驱动方式 Motor Method	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives
示教器 Demonstrator	7寸示教器 7 inch	7寸示教器 7 inch	7寸示教器 7 inch
视觉定位模组 Vision Positioning Module	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)
运动指令 Operating Instructions	PTP、LINE、PICK、PLACE	PTP、LINE、PICK、PLACE	PTP、LINE、PICK、PLACE
安装方式 Installation Method	倒置式 Inverted	倒置式 Inverted	倒置式 Inverted
机器人重量 Robot Weight	72kg	72kg	72kg

并联机器人——

# 志华系列—WSC-1200D

Parallel Robots—ZhiHuaSeries

## 行程范围 Technical Specifications



## 性能参数 Performance parameters

型号 Model	WSC-1200D-L3	WSC-1200D-L8	WSC-1200D-L12
动作自由度 Power Rating	四轴	四轴	四轴
最大负载 (kg) Max Load	3kg	8kg	12kg
标准循环时间 (s) Standard cycle time	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)
重复定位精度 (mm) Repeat positioning accuracy	$\pm 0.05\text{mm}$	$\pm 0.05\text{mm}$	$\pm 0.05\text{mm}$
角度定位精度 Angular Positioning Accuracy	$0.05^\circ$	$0.05^\circ$	$0.05^\circ$
电源 Power	220V	220V	220V
额定功率 Power Rating	2.5kw	3.5kw	5kw
噪音水平 Noise Level	<75db	<75db	<75db
防护等级 Protection Level	IP54	IP54	IP54
驱动方式 Motor Method	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives
示教器 Demonstrator	7寸示教器 7 inch	7寸示教器 7 inch	7寸示教器 7 inch
视觉定位模组 Vision Positioning Module	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)
运动指令 Operating Instructions	PTP, LINE, PICK, PLACE	PTP, LINE, PICK, PLACE	PTP, LINE, PICK, PLACE
安装方式 Installation Method	倒置式 Inverted	倒置式 Inverted	倒置式 Inverted
机器人重量 Robot Weight	72kg	72kg	72kg

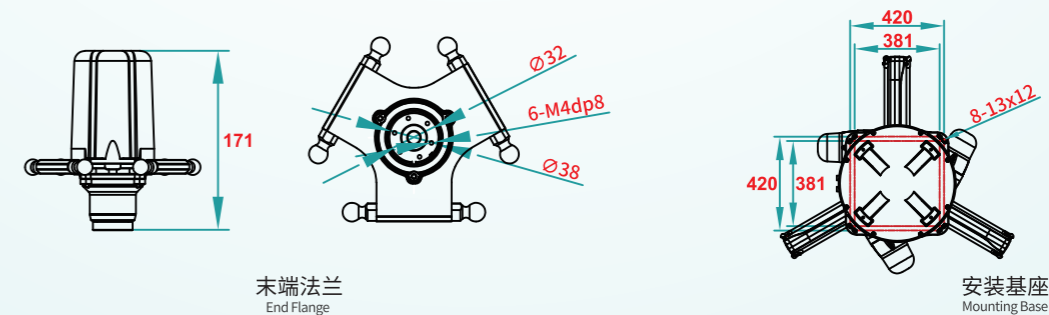
并联机器人——

# 志华系列—WSC-1400D/1600D

Parallel Robots—ZhiHuaSeries

## 性能参数 Performance parameters

型号 Model	WSC-1400D-L3	WSC-1400D-L8	WSC-1400D-L12	WSC-1600D-L3	WSC-1600D-L8	WSC-1600D-L12
动作自由度 Power Rating	四轴			四轴		
最大负载 Load (kg)	3kg	8kg	12kg	3kg	8kg	12kg
行程范围 Working Range (mm)						
标准循环时间 (s) Standard cycle time	0.4秒/节拍 (25/305/25mm)			0.4秒/节拍 (25/305/25mm)		
重复定位精度 (mm) Repeat positioning accuracy	$\pm 0.05\text{mm}$			$\pm 0.05\text{mm}$		
角度定位精度 Angular Positioning Accuracy	$0.5^\circ$			$0.5^\circ$		
电源 Power	220V			220V		
额定功率 Power Rating	2.5kw	3.5kw	5kw	5kw		
噪音水平 Noise Level	<75db			<75db		
防护等级 Protection Level	IP54			IP54		
驱动方式 Motor Method	Ac伺服驱动 Servo drives			Ac伺服驱动 Servo drives		
示教器 Demonstrator	7寸示教器 7 inch			7寸示教器 7 inch		
视觉定位模组 Vision Positioning Module	选配 (130w相机、镜头、光源)			选配 (130w相机、镜头、光源)		
运动指令 Operating Instructions	PTP, LINE, PICK, PLACE			PTP, LINE, PICK, PLACE		
安装方式 Installation Method	倒置式 Inverted			倒置式 Inverted		
机器人重量 Robot Weight	72kg			72kg		





# 并联机器人—智盛系列

## Parallel Robots—ZhiSheng Series

智能时代、智造兴盛！华盛持续进行技术创新，追求产品的高适用性、高性价比、精巧美丽。

智盛系列并联机器人为创新并联机器人构型，在三维空间XYZ平动和绕Z轴旋转作业模式的基础上优化升级，具有速度快、高性价比、兼容性强、操作维护简单等优势。广泛应用于医药、食品、3C、日化、五金分拣等行业。

Smart era, smart prosperity! WSC continues to innovate and pursue high applicability, cost effectiveness and beauty of its products.

The ZhiSheng series parallel robots are innovative parallel robot configurations, optimized and upgraded on the basis of the three-dimensional space XYZ parallel motion and rotation around the Z axis operation mode, with the advantages of fast speed, high cost performance, strong compatibility and simple operation and maintenance. It is widely used in the pharmaceutical, food, 3C, daily chemical, hardware sorting and other industries.



### 产品特性 Product Features

**定位精准、稳定可靠、柔性强**

Accurate positioning, stable and reliable, flexible.

**独特压簧设计，延长使用寿命，提高使用安全性**

Unique spring design extends service life and improves safety.

**独特第四轴设计，旋转精度高达 0.05 度**

Unique fourth axis design achieves a rotation accuracy of up to 0.05 degrees.

**倒置式安装、良好的跟踪性能**

Inverted installation with excellent tracking performance.

**高品质、高性价比、视觉动态跟踪取放**

High-quality, cost-effective, visual dynamic tracking fetch and drop.

**超高速拾取货物，高达120次/min**

Ultra-high speed picking of goods, up to 120 times/min.

**高性价比，自主研发系统、外形**

High cost-performance, independently developed system and appearance.

**承载能力强、刚度大、自重负荷比小，动态性能好**

Strong bearing capacity, high rigidity, small self-weight load ratio, and good dynamic performance.

### 配置 Settings

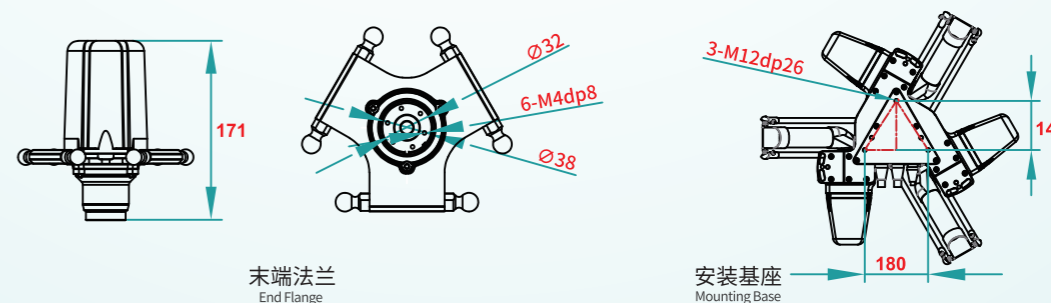
配置 Settings	品牌 Brand
伺服电机 Servo motor	WARSONCO/PANASONIC
减速机 Machine reducer	新宝/绿的Nidec Corporation/green
控制器 Controller	奥地利KEBA Austria KEBA

# 并联机器人—智盛系列—WSC-600DJ/800DJ/1000DJ

## Parallel Robots—ZhiHuaSeries

### 性能参数 Performance parameters

型号 Model	WSC-600DJ-L3	WSC-800DJ-L3	WSC-1000D-L3
动作自由度 Power Rating	四轴	四轴	四轴
最大负载 Load (kg)	3kg	3kg	3kg
行程范围 Working Range (mm)			
重复定位精度 (mm) Repeat positioning accuracy	±0.05mm	±0.05mm	±0.05mm
标准循环时间 (s) Standard cycle time	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)
角度定位精度 Angular Positioning Accuracy	0.05°	0.05°	0.05°
电源 Power	220V	220V	220V
额定功率 Power Rating	2.5kw	2.5kw	2.5kw
噪音水平 Noise Level	<75db	<75db	<75db
防护等级 Protection Level	IP54	IP54	IP54
驱动方式 Motor Method	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives
示教器 Demonstrator	7寸示教器 7 inch	7寸示教器 7 inch	7寸示教器 7 inch
视觉定位模组 Vision Positioning Module	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)
运动指令 Operating Instructions	PTP, LINE, PICK, PLACE	PTP, LINE, PICK, PLACE	PTP, LINE, PICK, PLACE
安装方式 Installation Method	倒置式 Inverted	倒置式 Inverted	倒置式 Inverted
机器人重量 Robot Weight	40kg	40kg	40kg



# 并联机器人—至控系列

## Parallel Robots—ZhiKong Series

应用极致，核心掌控！华盛控在机器人应用领域内不断拓展、深挖产品潜力，着力研发更高精度、更快速度、更柔性化、更简单操控功能的产品。

至控系列机器人是华盛控研发团队量身打造的一款小型并联机器人，外形设计小巧精美、易于搬动、经久耐用。广泛应用于教学、实验、高精高速分拣等领域。

The ultimate in applications, the core is in control! WSC is constantly expanding and exploring its product potential in the field of robotics, focusing on the development of products with higher precision, faster speed, more flexibility and simpler control functions.

The ZhiKong series robots are small, compact, easy to move and durable robots designed by our R&D team. It is widely used in teaching, experimentation, high precision and high speed sorting.



### 产品特性 Product Features

**定位精准、稳定可靠、柔性强**

Accurate positioning, stable and reliable, flexible.

**独特压簧设计，延长使用寿命，提高使用安全性**

Unique spring design extends service life and improves safety.

**独特第四轴设计，旋转精度高达 0.05 度**

Unique fourth axis design achieves a rotation accuracy of up to 0.05 degrees.

**倒置式安装、良好的跟踪性能**

Inverted installation with excellent tracking performance.

**高品质、高性价比、视觉动态跟踪取放**

High-quality, cost-effective, visual dynamic tracking fetch and drop.

**超高速拾取货物，高达120次/min**

Ultra-high speed picking of goods, up to 120 times/min.

**高性价比，自主研发系统、外形**

High cost-performance, independently developed system and appearance.

**承载能力强、刚度大、自重负荷比小，动态性能好**

Strong bearing capacity, high rigidity, small self-weight load ratio, and good dynamic performance.

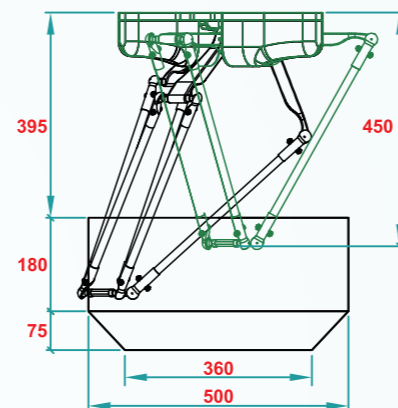
### 配置 Settings

配置 Settings	品牌 Brand
伺服电机 Servo motor	WARSONCO/PANASONIC
减速机 Machine reducer	新宝/绿的 Nidec Corporation/green
控制器 Controller	奥地利 KEBA Austria KEBA

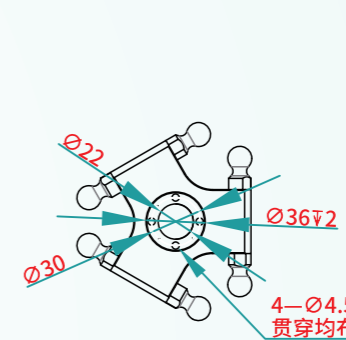
# 并联机器人—至控系列—WSC-500DZ

## Parallel Robots—ZhiHuaSeries

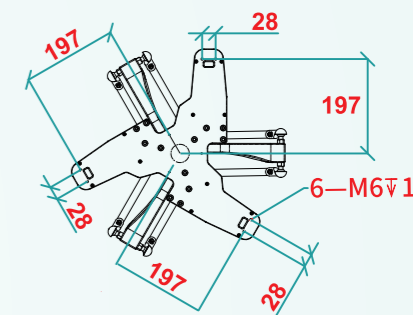
### 行程范围 Technical Specifications



运动范围  
Operating Range



末端法兰  
End Flange



安装基座  
Mounting Base

### 性能参数 Performance parameters

型号 Model	WSC-500DZ-L1	WSC-500DZ-L3
动作自由度 Power Rating	四轴	四轴
负载 Load (kg)	≤0.5kg	≤0.5kg
重复定位精度 (mm) Repeat positioning accuracy	±0.05mm	±0.05mm
标准循环时间 (s) Standard cycle time	0.4秒/节拍 (25/305/25mm)	0.4秒/节拍 (25/305/25mm)
角度定位精度 Angular Positioning Accuracy	0.05°	0.05°
电源 Power	220V	220V
额定功率 Power Rating	1kw	1.5kw
噪音水平 Noise Level	<75db	<75db
防护等级 Protection Level	IP54	IP54
驱动方式 Motor Method	Ac伺服驱动 Servo drives	Ac伺服驱动 Servo drives
示教器 Demonstrator	7寸示教器 7 inch	7寸示教器 7 inch
视觉定位模组 Vision Positioning Module	选配 (130w相机、镜头、光源)	选配 (130w相机、镜头、光源)
运动指令 Operating Instructions	PTP、LINE、PICK、PLACE	PTP、LINE、PICK、PLACE
安装方式 Installation Method	三角立装或倒置式 Triangular standing or inverted	
机器人重量 Robot Weight	35kg	35kg

# 并联机器人—二轴系列

## Parallel Robots—ZhiHuaSeries

华盛控持续进行技术创新，追求产品的高适用性、高性价比。

二轴系列并联机器人是针对物料的平面搬运和装配作业需求量身打造的2自由度（可选配第3旋转轴）高速并联机器人，无需配备视觉，依靠传感器定位完成平面作业。具有负载大、速度快、高性价比、操作维护简单等优势。

Smart era, smart prosperity! WSC continues to innovate and pursue high applicability, cost effectiveness and beauty of its products.

The Wisdom Sheng series parallel robots are innovative parallel robot configurations, optimized and upgraded on the basis of the three-dimensional space XYZ parallel motion and rotation around the Z axis operation mode, with the advantages of fast speed, high cost performance, strong compatibility and simple operation and maintenance. It is widely used in the pharmaceutical, food, 3C, daily chemical, hardware sorting and other



### 产品特性 Product Features

**定位精准、稳定可靠、柔性强**

Accurate positioning, stable and reliable, flexible.

**独特第三轴设计，旋转精度高达 0.05 度**

Unique spring design extends service life and improves safety.

**倒置式安装、良好的跟踪性能**

Unique fourth axis design achieves a rotation accuracy of up to 0.05 degrees.

**高品质、高性价比**

Inverted installation with excellent tracking performance.

**自主研发系统、外独特外观设计**

High-quality, cost-effective.

**承载能力强、刚度大、自重负荷比小，动态性能好**

Ultra-high speed picking of goods, up to 120 times/min.

High cost-performance, independently developed system and appearance.

Strong load-carrying capacity, high stiffness, low weight-to-load ratio, and good dynamic performance.

### 配置 Settings

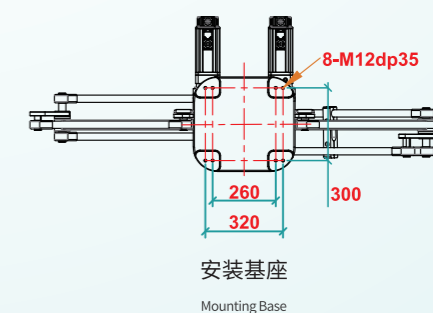
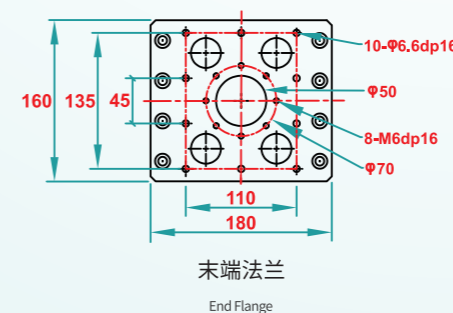
配置 Settings	品牌 Brand
伺服电机 Servo motor	WARSONCO/PANASONIC
减速机 Machine reducer	新宝/绿的 Nidec Corporation/green
控制器 Controller	奥地利KEBA Austria KEBA

# 并联机器人—二轴系列—WSC-600DE/800DE

## Parallel Robots—ZhiHuaSeries

### 性能参数 Performance parameters

型号 Model	WSC-600DE-L15	WSC-600DE-L30	WSC-800DE-L15	WSC-800DE-L30
动作自由度 Power Rating	三轴	三轴	三轴	三轴
最大负载 (kg) Max Load	15kg	30kg	15kg	30kg
行程范围 Working Range (mm)				
重复定位精度 (mm) Repeat positioning accuracy	±0.05mm		±0.05mm	
标准循环时间 (s) Standard cycle time	0.4秒/节拍 (25/305/25mm)		0.4秒/节拍 (25/305/25mm)	
角度定位精度 Angular Positioning Accuracy	0.05°		0.05°	
视觉定位模组 Vision Positioning Module	选配 (130w相机、镜头、光源)		选配 (130w相机、镜头、光源)	
电源 Power	220V		220V	
额定功率 Power Rating	2.5kw	4.5kw	2.5kw	4.5kw
噪音水平 Noise Level	<75db		<75db	
防护等级 Protection Level	IP54		IP54	
示教器 Demonstrator	7寸示教器 7 inch		7寸示教器 7 inch	
运动指令 Operating Instructions	PTP、LINE		PTP、LINE	
安装方式 Installation Method	倒置式 inverted		倒置式 inverted	
机器人重量 Robot Weight	65kg		65kg	

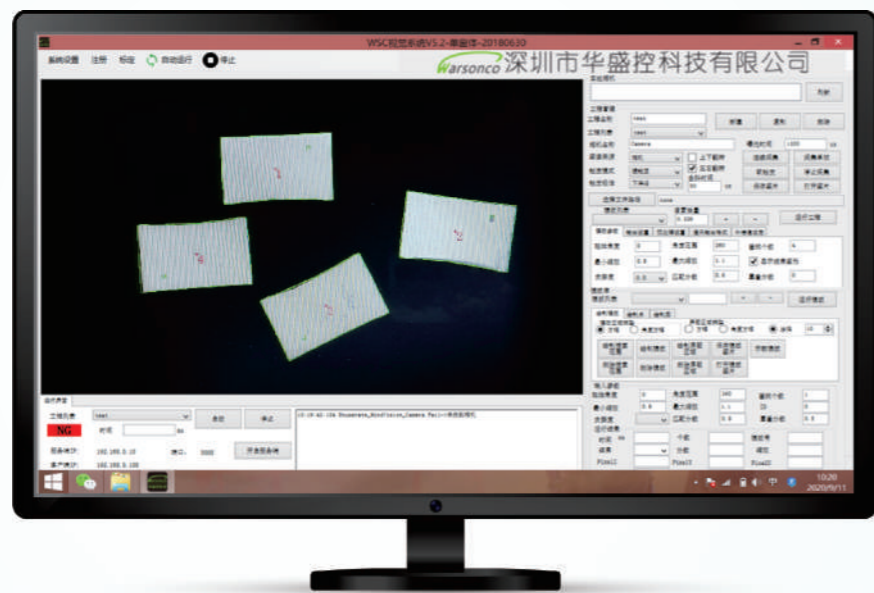


# 控制系统 Control System

## WASC-VI视觉识别系统 WASC-VI Visual Identity System

深圳市华盛控科技有限公司自主研发的机器人视觉识别软件，具有速度快、精度高和稳定性强等优势。广泛应用于日化、3C电子、五金冲压、食品和药品等行业。

Shenzhen Huashengkong Technology Co., Ltd. independently developed robot vision recognition software, which has the advantages of fast speed, high accuracy and high stability. It is widely used in industries such as daily chemical, 3C electronics, hardware stamping, food and pharmaceuticals.



### 优势 Advantage:

- 快速匹配:** 在相机视野范围内快速搜索目标与提前设置模型相匹配。
- 快速定位:** 当目标的匹配分数,重叠分数大于等于模板匹配分数和贪婪度分数时候目标搜索完毕并快速计算中心坐标,角度,模板型号,把所得结果通过服务端或者客户端。
- 定位精准:** 具备几何模板定位、测量、识别、缺陷、逻辑运算、图像预处理等。
- 兼容性强:** 支持市面上大多数图像采集设备,适用范围广。
- 人机交互:** 使用简单,与华盛控并联机器人系统兼容性较好,试用于移动流水线作业。
- 数据保护:** 具备多个用户等级权限设定操作,防止数据篡改。

- Fast matching:** Fast search for a match between the target and the advance setting model within the camera's field of view.
- Fast positioning:** When the target's matching score, overlap score is greater than or equal to the template matching score and greed score, the target search is completed and the centre coordinates, angle and template model are quickly calculated and the result is passed to the server or client.
- Precise positioning:** With geometric template positioning, measurement, identification, defects, logic operations, image pre-processing, etc.
- High compatibility:** Supports most of the image acquisition devices on the market, with a wide range of applications.
- Human-computer interaction:** Easy to use, good compatibility with Huashengkong parallel robot system, tried and tested in mobile assembly line operations.
- Data protection:** With multiple user levels of authority to set the operation, to prevent data tampering.

## 性能参数 Performance parameters

型号 Model	WASC-VI视觉系统
软件支持操作系统 The Software Supports The Operating System	WIN7/10 32&64位系统 Win7/10 32&64-bit system
兼容性 Compatibility	支持市面上大部分图像采集设备 Support Most Of The Image Acquisition Equipment on The Market
开发语言 Development Language	C++/Halcon
开发环境 Development Environment	QT
数据保护 Data Protection	多个用户等级权限设定 Multiple user level permission settings
功能 Function	图像预处理、形状特征匹配、圆拟合、点跟随、多模板匹配、图像标定等。 Image preprocessing, shape feature matching, circle fitting, point following, multi-template matching, image calibration and so on
相机类型 Camera Type	黑白/彩色 Black And White/Color
型号 Models	MV-GE130GM-T / MV-GE502GC-T-CL-90
传感器 Sensors	1/3" CMOS
快门类型 Shutter Type	全局快门 Global Shutter
分辨率@帧率 Resolution@Frame Rate	1280*960@60.6FPS / 2592X2048@22FPS
有效像素 Effective Pixels	122万/502万 1.22 Million / 5.02 Million
采集模式 Acquisition Mode	连续性/软触发/硬触发 Continuity/soft trigger/hard trigger
视觉标准协议 Visual Software	GigE Vision V1.2, GenICam
镜头接口 Lens Interface	C接口 C Interface
数据接口 Data Interface	Rj45千兆以太网接口, 向下兼容100M网络制式 Rj45 Gigabit Ethernet Interface, Down Compatible With 100M Network Standard
功能 Function	支持任意尺寸的ROI自定义分辨率、对比度和伽玛调节、饱和度和白平衡校正、黑电平校正、自定义死点坐标校正、ISP图像处理加速、3D降噪、自定义LUT表、帧率调节、自定义相机名称等 Support any size ROI custom resolution, contrast and gamma adjustment, saturation adjustment, white balance correction, black level correction, custom dead-point coordinates correction, ISP image processing acceleration, 3D noise reduction, custom LUT table, framerate adjustment, custom camera name
型号 Models	M0814-MP2/M1214-MP2/M1614-MP2
焦距 Focal Length	8mm/12mm/16mm
最大光圈比 Maximum Aperture Ratio	1:1.4
最大画面尺寸 Maximum Picture Size	8.8mm*6.6mm (Φ11mm)
接口 Interface	C接口 C Interface
工作范围 Scope of work	光圈:F1.4-F16C 聚焦:0.1m-Inf/0.15m-Inf/0.3m-Inf Aperture:F1.4-F16C Focus:0.1m-inf./0.15m-inf./0.3m-Inf
控制 Control	光圈:手动 Aperture:manual 聚焦:手动 Focus:manual
工作温度 Operating Temperature	-10~50°C
光源 Light Source	类型 Type LED灯带/条形光源 LED Strip/Strip Light Source
工控机 Industrial Control Computer	型号 Models IPC-610H
处理器 Processor	i5-3570
网卡 Network Card	2个千兆网口 2 Gigabit Ports
兼容主板类型 Compatible With Motherboard Type	ATX标准型 ATX Standard

# 并联应用案例—医药行业

Pharmaceutical Industry

## 药包装盒—标准装盒方案

Pharmaceutical packaging box – standard cartoning program

### 说明:

主要应用于医药行业颗粒类、冲剂类产品装盒。速度快、精度佳、易用性强。可选配跟随及视觉系统，以适应柔性化生产需求。

### 特点:

- 操作简单: 不同物料可以通过软件来调整动作适应包装要求;
- 集成性好: 可以轻松集成到机械设备及生产线中;
- 功能强大: 可进行物料计数, 叠加, 分类;
- 智能化高: 智能视觉自动定位跟踪, 柔性抓取, 自动纠偏;
- 维护简单: 简化机器人结构, 降低维护难度和系统成本。

## 案例实施效果报告

Case Implementation Effect Report

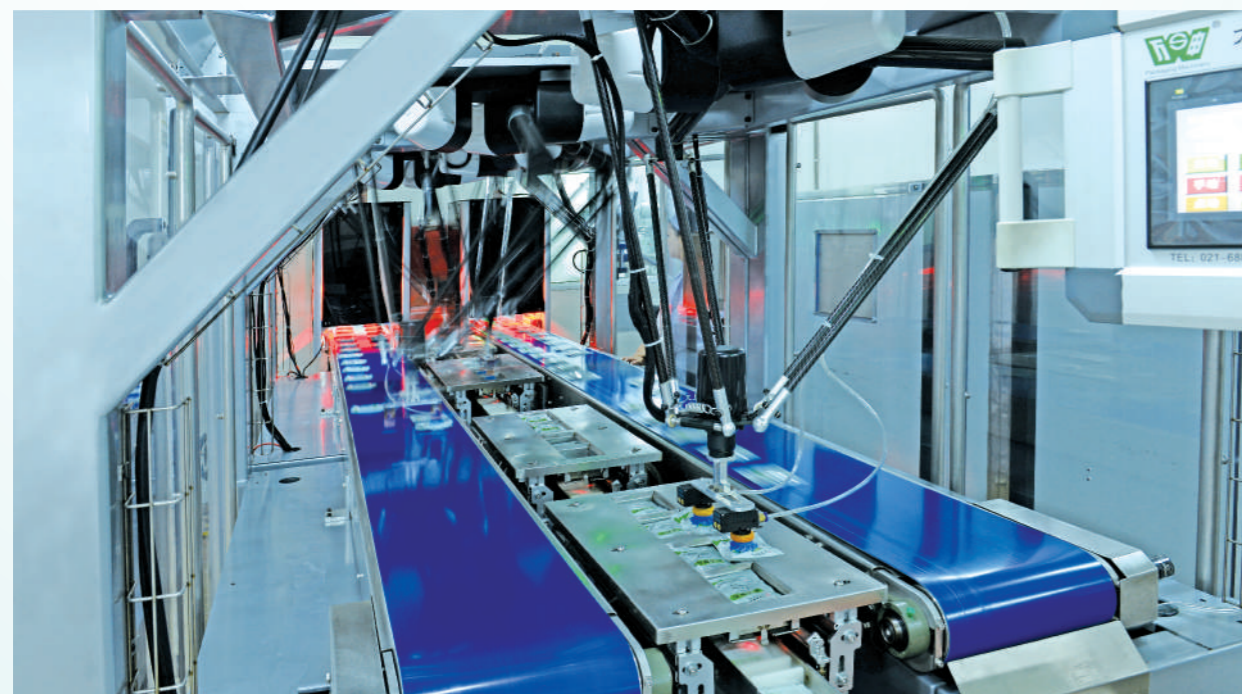
工作效率 Work efficiency	30-45盒/分钟, 每盒5小包 (4台) 30-45 boxes/minute, 5 box per package (4 units)
效率提高率 Efficiency improvement rate	45%
现有人工 Existing Labor	8人
替代人工 Replacement of Labor	7人
成本降低率 Cost reduction rate	40%

### Description:

Mainly applied to the pharmaceutical industry granule class, punch class and other products cartoning. Fast speed, good precision and easy to use. Optional following and vision system is available to meet flexible production requirements.

### Features:

- Easy to operate: different materials can be adjusted to the movements to suit the packaging requirements through the software.
- Good Integration: It can be easily integrated into mechanical equipment and production lines.
- Powerful function: Material Counting, stacking and sorting can be performed.
- High Intelligence: intelligent vision for automatic positioning and tracking, flexible gripping and automatic deflection correction.
- Simple maintenance: simplify robot structure, reduce maintenance difficulty and system cost.





## 并联应用案例—日化行业

Pharmaceutical Industry

### 枕式分拣机——干燥剂标准分拣方案

Pillow sorter – standard sorting solution for desiccant

#### 说明:

枕式分拣机包括输送流水线、机器人机架、视觉系统、并联机器人等，整体结构精密、紧凑，占用空间小，节省场地资源。采用柔性化设计，适应不同产品，换线速度快、调试简单。可极大提高生产效率、降低生产成本。

#### 特点:

- 速度快: 100\*n/分钟,
- 换线快: 适合各种类型产品, 产品可实现15分钟换线
- 调机快: 操作简单、产品更换操作调试容易
- 模块化: 模块化并联, 安装快速,
- 智能化: 智能视觉自动定位跟踪, 柔性抓取, 自动纠偏;

#### Description:

Pillow sorter includes conveying assembly line, robot frame, vision system, parallel robot, etc. The overall structure is precise and compact, occupying little space and saving site resources. It adopts flexible design to adapt to different products, with fast line change and simple debugging. It can greatly improve production efficiency and reduce production cost.

#### Features:

- Fast speed: 100\*n/min.
- Fast line change: suitable for various types of products, the product can achieve 15 minutes to change the line
- Fast tuning: easy to operate, easy to debug product replacement operation
- Modular: modular parallel connection, fast installation, the
- intelligent: intelligent vision automatic positioning tracking, flexible gripping, automatic correction of deflection.

### 案例实施效果报告

Case Implementation Effect Report

工作效率 Work efficiency	85-110包/分钟 85-110 packages/min
效率提高率 Efficiency improvement rate	40%
现有人工 Existing Labor	2人
替代人工 Replacement of Labor	1人
成本降低率 Cost reduction rate	40%



# 并联应用案例—日化行业

Pharmaceutical Industry

## 日玻行业——冷端玻璃捡瓶机标准方案

Japanese glass industry – cold-end glass bottle picker standard solution

提供玻璃瓶热端退火转线、冷端分拣转线等环节工艺替代解决方案。有效解决招工难问题，降低用工成本。根据客户现场工艺实际情况定制特殊抓手夹具，提高工作效率。

### 特点：

多种类识别：同时识别和处理三至五种不同型号的瓶子；

耐用性强：耐高温、使用寿命长；

柔性化强：柔性抓取，不损伤瓶体。

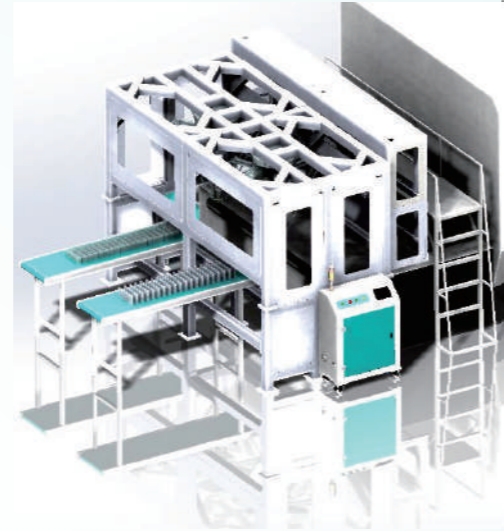
Provide glass bottle hot end annealing transfer line, cold end sorting transfer line and other link process alternative solutions. Effectively solve the problem of recruitment difficulties and reduce Labor costs. Customize special gripper fixture according to the actual situation of customer's site process to improve work efficiency.

### Features:

(1) Multi-species identification: simultaneous identification and handling of three to five different types of bottles.

(2) Strong durability: high temperature resistance and long service life.

(3) Strong flexibility: flexible gripping, no damage to bottles.



案例实施效果报告  
Case Implementation Effect Report

工作效率 Work efficiency	≤60个/分钟 pcs/min
效率提高率 Efficiency improvement rate	35%
现有人工 Existing Labor	6人
替代人工 Replacement of Labor	3人
成本降低率 Cost reduction rate	30%



# 并联应用案例—食品行业

Pharmaceutical Industry

## 食品装箱——标准装箱方案

Food Packing – standard packing solution

主要应用于软袋、盒装物料的排列和装箱。装箱机采用顶部装箱方式，机器人单件或多件抓取装箱，具备极高的灵活性，速度快、精度佳、易用性强。可选配跟随及视觉系统，以适应柔性化生产需求。

### 特点：

- 操作简单：不同物料可以通过软件来调整动作适应包装要求；
- 集成性好：可以轻松集成到机械设备及生产线中；
- 功能强大：可进行物料计数，叠加，分类；
- 智能化高：智能视觉自动定位跟踪，柔性抓取，自动纠偏；
- 维护简单：简化机器人结构，降低维护难度和系统成本。

## 案例实施效果报告

Case Implementation Effect Report

工作效率 Work efficiency	60-65包/分钟 (单机) 60-65 packages/min (single machine)
效率提高率 Efficiency improvement rate	20%
现有人工 Existing Labor	6人
替代人工 Replacement of Labor	5人
成本降低率 Cost reduction rate	40%

Mainly applied to the arrangement and boxing of soft bags and boxed materials. The cartoning machine adopts top cartoning method, and the robot grabs and cartons single or multiple pieces, with high flexibility, fast speed, good precision and easy to use. Optional following and vision system is available to meet flexible production requirements.

### Features:

- Easy to operate: Different materials can be adjusted to the movements to suit the packaging requirements through the software.
- Good Integration: It can be easily integrated into mechanical equipment and production lines.
- Powerful function: material counting, stacking and sorting can be performed.
- High Intelligence: intelligent vision for automatic positioning and tracking, flexible gripping and automatic deflection correction.
- Simple Maintenance: simplify robot structure, reduce maintenance difficulty and system cost.



# 并联应用案例—3C行业、五金行业

Pharmaceutical Industry

## 上托摆盘——精密配件摆盘标准方案

Upper tray – standard solution for precision parts tray

前段设备来料，经视觉检测系统精确识别，配合上托摆盘，利用DELTA机器人完成各类配件的分拣摆盘。提高生产效率、降低人工和管理成本。柔性化设计，换线速度快、调试简单。

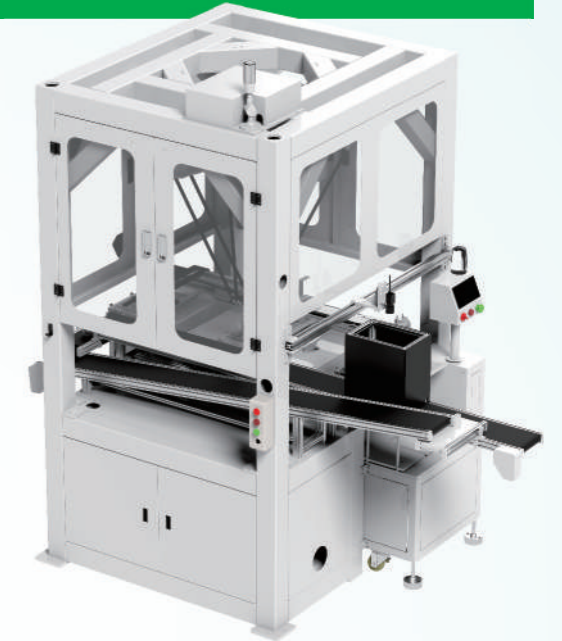
### 特点：

- 柔性强：稳定优速、柔性抓取；
- 调机快：操作简单、调试容易，产品换线速度快；
- 智能化：智能视觉自动定位跟踪，自动纠偏。

The incoming material from the front section equipment is accurately identified by the vision inspection system, and the upper tray is used with the DELTA robot to complete the sorting and traying of various accessories. Improve production efficiency, reduce Labor and management costs. Flexible design, fast line change and simple debugging.

### Features:

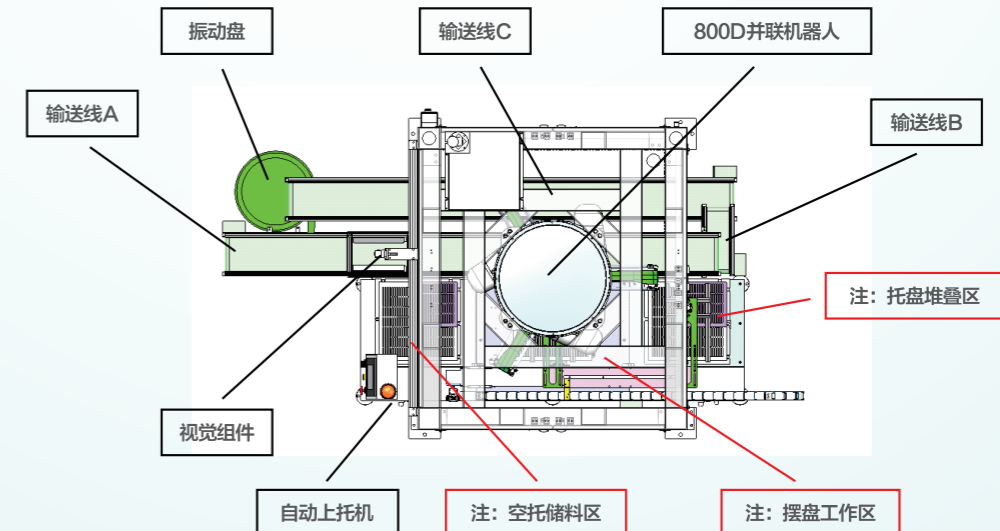
- Flexibility: stable and superior speed and flexible gripping.
- Fast transfer: simple operation, easy debugging and fast product line change.
- Intelligent: intelligent vision automatic positioning and tracking, automatic correction of deviation.



## 案例实施效果报告

Case Implementation Effect Report

工作效率 Work efficiency	60-120次/分钟 60-120 times / min
效率提高率 Efficiency improvement rate	20%-40%
现有人工 Existing Labor	3人
替代人工 Replacement of Labor	2人
成本降低率 Cost reduction rate	30%





# 合作伙伴

Cooperating partners



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