

# 工业机器人 Industrial robot

## SP30 Delta

应用领域：Application:

拾料	Pick up material
分拣	Sorting
搬运	Handling
包装	Packaging
装配	Assemble



Delta 机器人又名并联机器人，具有3个空间自由度和1个转动自由度，通过示教编程或视觉系统捕捉目标物体，由三个并联的伺服轴确定抓具中心（TCP）的空间位置，实现目标物体的快速拾取、分拣、装箱、搬运、加工等操作。主要应用于乳品、食品、药品和电子产品等行业，具有重量轻、体积小、速度快、定位精、成本低、效率高等特点。

Delta robot also known as parallel connection robot with Three spatial degrees of freedom and one rotary degree of freedom, It could capture target object through either teaching program or visual system. Fix the the spatial position of the center gripper(TCP) by three parallel servo axis,which realize the rapid pick up on object sorting, packing, handling, processing and so on.this machine mainly applied in the field of dairy, food, pharmaceutical and electronics industries, which is characteristic of light weight, small volume, high speed, precise positioning,low cost and high efficiency Etc.

### Delta 机器人特点：

Delta 机器人是典型的三自由度并联机构，整体结构精密、紧凑，驱动部分均布于固定平台，这些特点使它具有如下特性：

- 承载能力强、刚度大、自重负荷比小、动态性能好；
- 并行三自由度机械臂结构，重复定位精度高；
- 超高速拾取物品，一秒钟多个节拍。

### Delta Robot features:

Delta robot are typical spatial three-DOF parallel mechanism, the overall structure is precise and compact. Drive parts are distributed in a fixed platform, it is of the following characteristics.

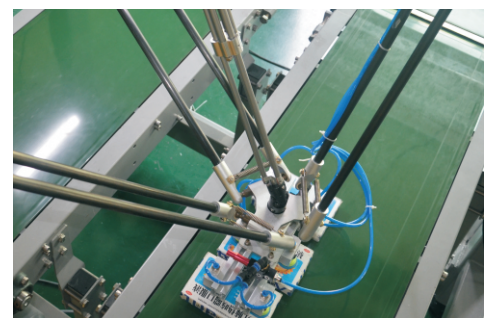
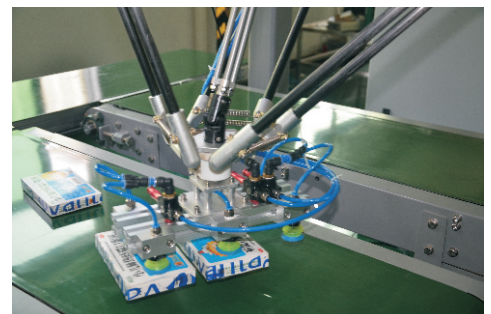
- 1.High carrying capacity and rigidity,small self-loading ratio,good dynamic performance;
- 2.DOF parallel manipulator structure, high accuracy of repeated positioning ;
- 3.Ultra-high speed pick up items, one second multiple cycles.

### Delta 机器人应用系统：

Delta 机器人应用系统主要由三个部分组成：机器人、输送线及机器人安装框架。机器人由基板、电机罩、旋转轴、主机械臂、副机械臂、抓具中心等组成。

### Delta robot applications:

Delata robot application system mainly consists of three parts: robot, conveyor and robot mounting frame. Robot is compsed of board, motor cover,rotary axis, main manipulator,vice manipulator, catch composition.



### 工作范围：

Delta 机器人的工作范围由主机械臂及副机械臂的长度、动平台与静平台半径，以及主动臂活动角度范围这几个参数来确定。以负载为3公斤的Delta 机器人工作范围为例，如右图所示。

### Scope of work:

Delta robot operating scope is determined by the length of the main and sub robotic manipulator, the radius of the moving platform and static platforms, as well as the active arm angle range of these parameters. Take example of the three kg load Delta robots working range,as showed below.

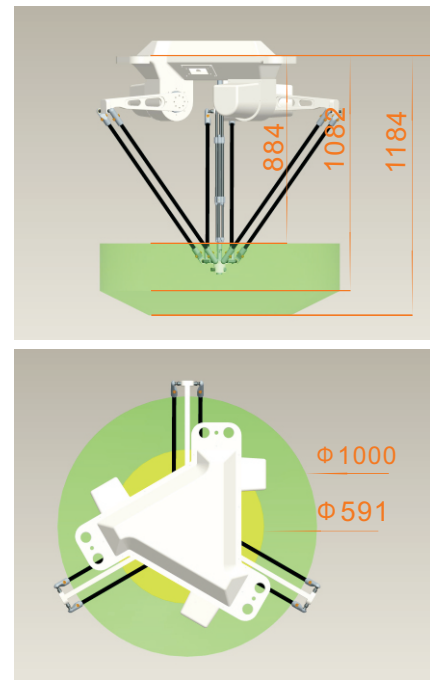
颜色标记区域=实际工作范围

圆柱内最大工作空间。工作空间可按x-y-z坐标缩小

Color tag area=the actual work scope

Maximum working space inside the clinder.

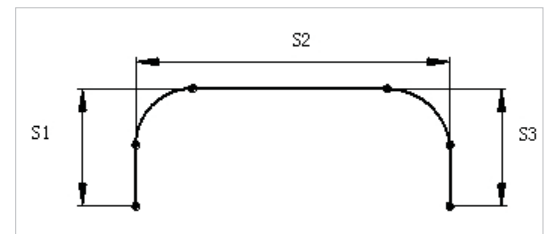
Work spaceCan be reduced according to X-Y-Z coordinate



### 运动轨迹：

Delta 机器人基本的运动轨迹如下图，由S1、S2、S3构成门字形的三部分轨迹组成，分别为拾取、平移、放置三个阶段。

Delta 机器人进行抓取目标工件时主要以走门字形运动轨迹，也可根据不同的应用要求，规划不同的运动轨迹。



### Movement:

Delta robot basic motion trajectory as showed below, it is composed by S1, S2, S3 the three parts of the door glyph of trajectory, which called pick up, moving, placing three stages respectively.

While grabbing target Delta robot mainly moving in door glyph of trajectory, could also design different trajectory according to different application requirements.

### 技术参数 Technical parameters：

型号 Model	负载 Load	工作范围 Work scope	轴数 axles	Z向工作高度 Z axles working height	重复定位精度 Repeat positioning accuracy	25-305-25 循环时间 25-305-25 Cycle time	最大速度 Maximum speed	最大加速度 Maximum acceleration	整机重量 Machine weight	主要应用 Main application	视觉系统 Visual system
Sp30	1-3kg	1000mm	4	300mm	0.1mm	0.6s\0.8s\1s	10m/s	10g	≤80kg	拾取 分拣 包装 搬运 Pick up material Sorting Handling Packaging Assemble	选配 Optional

