

# 半导体晶圆传输解决方案

## Semiconductor Wafer Transfer Solution



新松订阅号



新松服务号

沈阳新松半导体设备有限公司

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**SIASUN 新松**

 新松半导体设备有限公司  
SIASUN MICROELECTRONICS EQUIPMENT CO.,LTD.

## 公司简介 About SSME

沈阳新松半导体设备有限公司成立于2023年，是一家专注于半导体晶圆传输专用设备的研发、生产、销售与技术服务的高新技术企业。公司前身为新松机器人自动化股份有限公司半导体装备事业部，核心团队经过近20年的技术沉淀与经验积累，打造了拥有完全自主知识产权的自动化核心系列产品，技术指标达到国际同类产品先进水平。公司在北京、上海分别成立北京新松半导体有限公司和上海新松朴智半导体设备有限公司，目前拥有300余人的高水平技术研发团队，10000余平方米的洁净工厂，具有行业领先的产品开发及规模化生产交付能力。公司创新产品现已广泛运用于各种半导体工艺制程，为世界各地的半导体设备供应商提供高效和可靠的自动化解决方案。

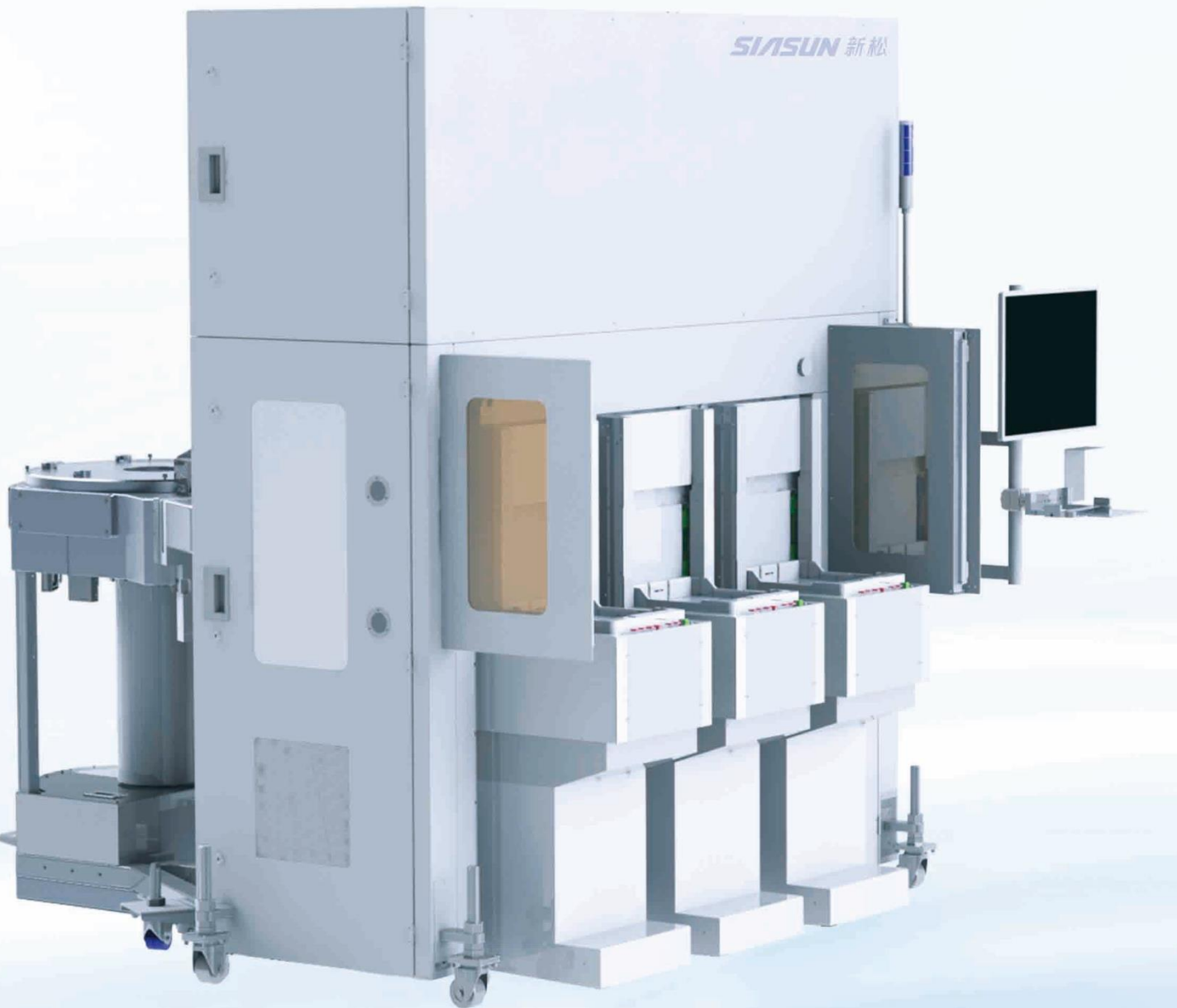
*Shenyang SIASUN Microelectronics Equipment Co.,Ltd. was founded in 2023. It is a high-tech enterprise focusing on the research and development, production, sales and technical services of complete wafer transfer solution for semi market. The company was formerly known as Semiconductor Equipment Division of SIASUN Robot & Automation CO.,Ltd. After nearly 20 years of technology and experience accumulation, the core team has created a core series of automation products with completely independent intellectual property rights, and the technical indicators have reached the advanced level of similar products in the world. The company established Beijing SIASUN Microelectronics Co., LTD and Shanghai SIASUN Puzhi Microelectronics Equipment Co., LTD in Beijing and Shanghai respectively, which has a high-level technical research and development team of more than 300 people, clean room of more than 10,000 m<sup>2</sup>, and industry-leading product development and large-scale production delivery capabilities in Shenyang. The company's innovative products are now widely used in a variety of semiconductor processes, providing efficient and reliable automation solutions for semiconductor equipment suppliers around the world.*



## 发展历程 Development History

- 2005**
  - 组建洁净团队  
Building a semiconductor team
  - 首台大气机械手研发  
Development of the first atmospheric robot
- 2011**
  - 成立洁净机器人产品线  
The establishment of semiconductor robot product line
- 2018**
  - 成立半导体装备BG  
Set up semiconductor equipment BG
- 2019**
  - 真空机械手销售超1000台  
Vacuum robot sales over a thousand
- 2022**
  - EFEM销售突破1000台  
EFEM sales exceeded 1000 units
  - 真空平台及部件销量突破500套  
Sales of vacuum platform and parts exceeded 500 sets
- 2023**
  - 沈阳新松半导体设备有限公司成立  
SSME was established

## 6/8 寸晶圆传输整体解决方案 6" 8" wafer transfer solution



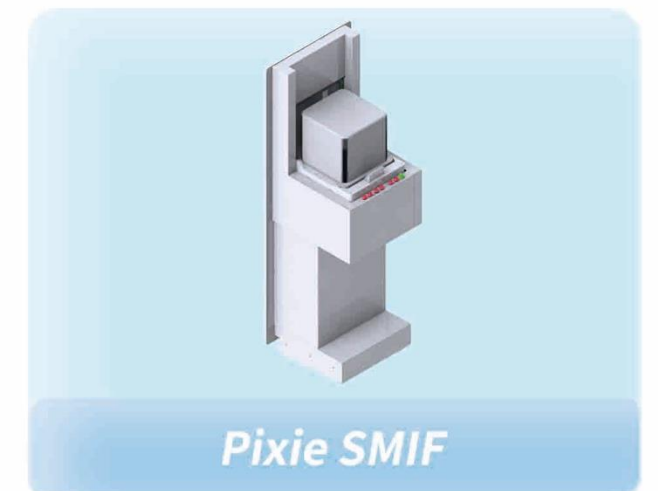
## 6/8 寸晶圆传输整体解决方案 6" 8" wafer transfer solution

### 方案优势 / Program advantage

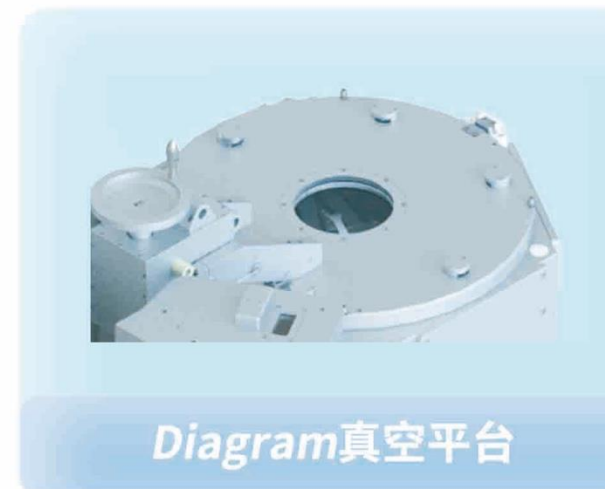
- ✓ 新松全自研解决方案  
SIASUN fully self-developed technology
- ✓ 模块化传输方案设计  
Modular transmission scheme design
- ✓ 符合行业要求和规范  
Comply with industry requirements and specifications
- ✓ 已通过半导体制造厂验证  
Verified by fab



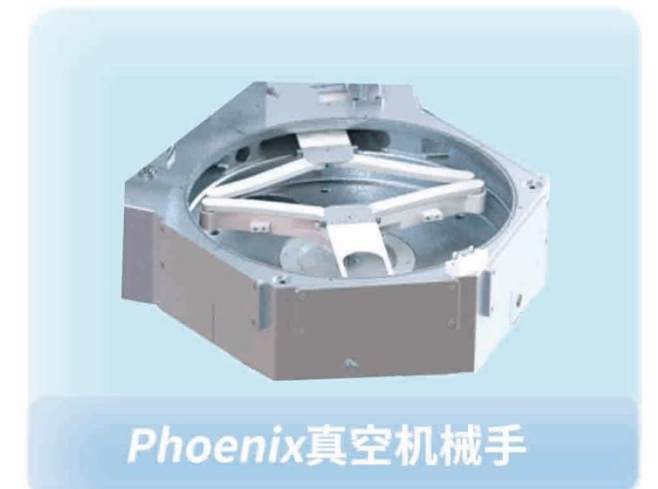
EFEM



Pixie SMIF

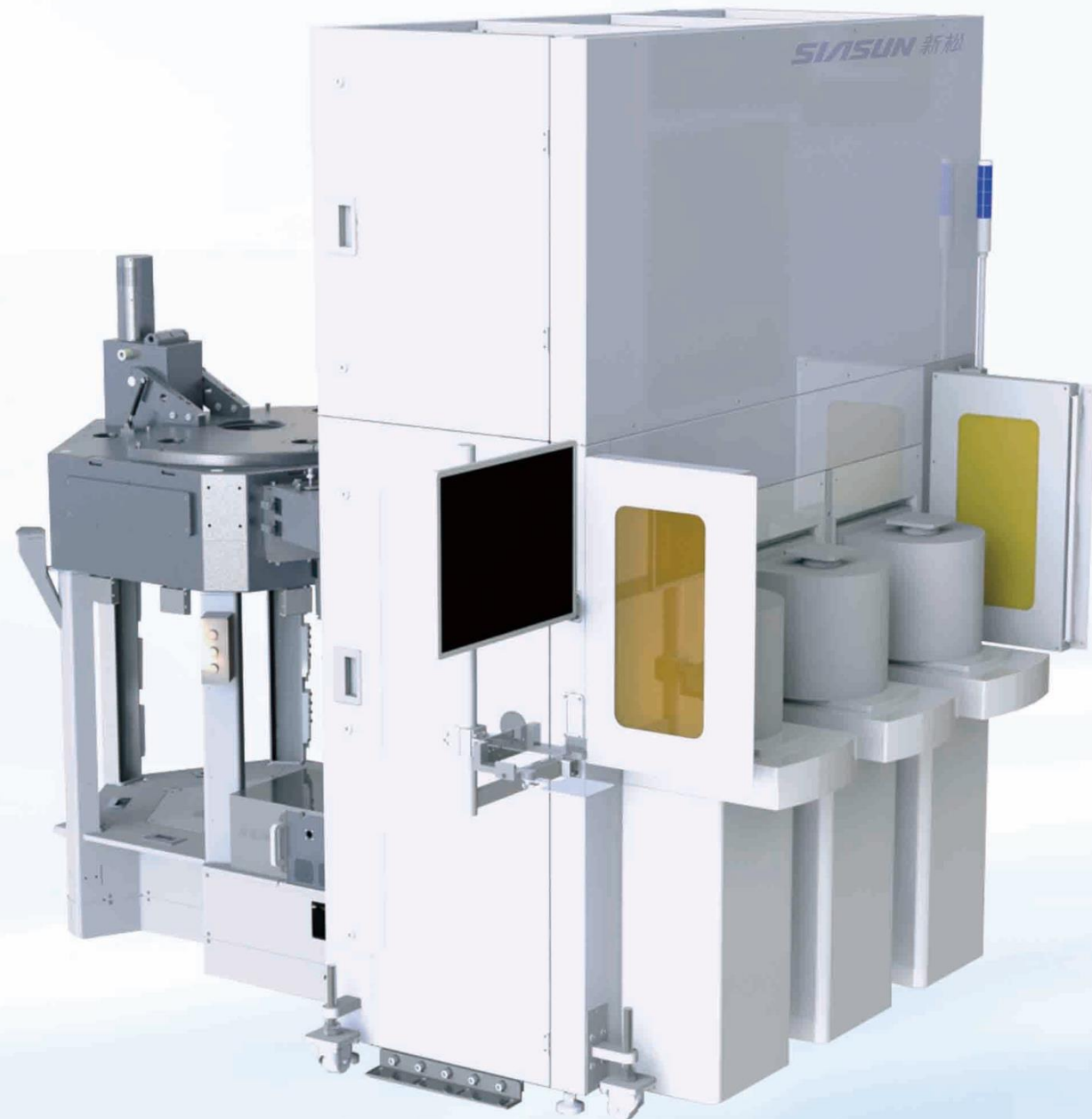


Diagram真空平台



Phoenix真空机械手

# 12寸晶圆传输整体解决方案 12" wafer transfer solution



# 12寸晶圆传输整体解决方案 12" wafer transfer solution

## 方案优势 / Program advantage

- ✔ 新松全自研解决方案  
SIASUN fully self-developed technology
- ✔ 模块化传输方案设计  
Modular transmission scheme design
- ✔ 符合行业要求和规范  
Comply with industry requirements and specifications
- ✔ 已通过半导体制造厂验证  
Verified by fab



EFEM



Pixie Loadport



Diagram真空平台



Archer真空机械手

## 设备前端模块 EFEM Equipment Front End Module

### 产品优势 / Product advantage

- ✓ 有包括 TSS 系列的 EFEM 与 Sorter 产品, 有 1-4 工位多种产品  
There are a variety of products including the TSS series of EFEM and Sorter products, with 1-4 stations
- ✓ 全自研解决方案  
Fully self-developed technology
- ✓ 兼容符合 SEMI 标准的晶圆传送盒  
Compatible with SEMI compliant wafer transfer boxes
- ✓ 提供定制化传输解决方案  
Provide customized transmission solutions
- ✓ TSS 系列已通过 SEMI S2 F47 认证  
TSS series through the SEMI S2 F47 certification



△ TSS 系列四工位 EFEM / TSS4000E



△ TSS 系列二工位 EFEM / TSS2000E

### 技术参数 / Technical parameter

平均故障间隔时间	Mean time between failure	≥ 8000 hours
晶圆尺寸	Wafer size	3" 4" 6" 8" 12"
Loadport 数量	Number of LP	1 / 2 / 3 / 4
机械手重复精度	Robot repeat accuracy	≤ ± 0.1mm
Aligner 精度	Orientation	≤ ± 0.2°
Aligner 精度	Centering	≤ ± 0.1mm
晶圆传输量	WPH	≥ 200

## 大气机械手 Atmosphere Robot

### 产品优势 / Product advantage

- ✓ 高洁净等级, 高速传片, 碰撞保护  
High cleanliness, high speed film transfer, collision protection
- ✓ 全自研解决方案  
Fully self-developed technology
- ✓ 迎合个性化设计末端执行器及接口用户可定制  
Cater to personalized design end effector and interface users can customize
- ✓ Blade 系列大气机械手已通过 SEMI 认证  
Blade series atmosphere robot through the SEMI certification



△ Blade D 系列大气机械手 / Series Blade-D



△ Blade S 系列大气机械手 / Series Blade-S

### 技术参数 / Technical parameter

机械手重复精度	Robot repeat accuracy	≤ ± 0.1mm
晶圆尺寸	Wafer size	3" 4" 6" 8" 12"

## 大气部件 Atmospheric Component

### 晶圆装载装置 / LOADPORT & SMIF



△ Pixie B / LOADPORT

适用于8寸和12寸晶圆盒  
Suitable for 8 "and 12 " wafer foup



△ Pixie A / SMIF

适用于6寸和8寸晶圆盒  
Suitable for 6 "and 8 " SMIF Pod

兼容标准EFEM接口

Compatible with standard EFEM interface

高洁净性能

High cleanliness

高速度、高稳定性

Fast speed and good stability

### 晶圆预对准装置 / Aligner

- 全自研解决方案  
Fully self-developed technology
- 精准识别晶圆的位移与角度偏差  
Accurately identify wafer displacement and angular deviation
- 配合新松机械手进行纠偏  
Cooperate with Siasun robot to correct deviation

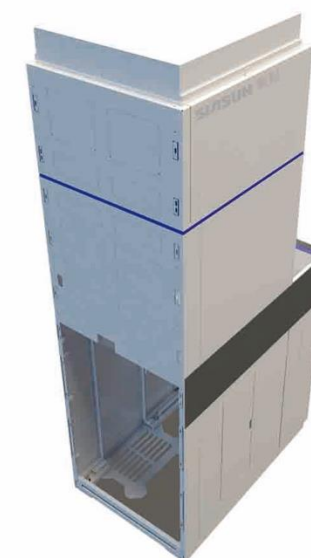


△ 大气晶圆预对准装置 / Compass

## 立式炉Mini STK Mini STK Of Furnace

### 产品优势 / Product advantage

- 全自研解决方案  
Fully self-developed technology
- 整机一体成型设计  
Whole machine integrated molding design
- 自主研发FTR机械手，适配多类型300mm FOUP  
Self-developed FTR robot, adapted to multiple types of 300mm FOUP
- 后端搭载双口开盒器（FIMS），实现Front N2 purge  
Backend carry FIMS and realize the Front N2 purge
- 可选配Shelf N2 purge  
Optional Shelf N2 purge



△ 立式炉Mini STK / Castle 300D

### 技术参数 / Technical parameter

设备尺寸	Size	1745*1100*3500
工位数	Station	18
负载	Load	≤ 10kg
振动	Vibration	≤ 0.3g

## 真空机械手 Vacuum Robot

### 产品优势 / Product advantage

- ✓ 全自研解决方案  
Fully self-developed technology
- ✓ 新松自研真空机械手已通过SEMI认证  
SIASUN self-developed vacuum robot through the SEMI certification
- ✓ 可定制的传片空间与距离  
Customizable space and distance
- ✓ 支持多种材质、透明度的晶圆传输  
Supports wafer transmission of various materials and transparency
- ✓ 高运动稳定性、高传输效率  
High movement stability, high transmission efficiency
- ✓ 晶圆尺寸：6 - 12 英寸  
Wafer size : 6 - 12 "

### 直驱手Phoenix系列 / Phoenix Series



△ Phoenix B 系列 / Phoenix B



△ Phoenix S 系列 / Phoenix S

### 技术参数 / Technical parameter

手臂类型	Arm type	Dual EE. Frog Arm / Single SCARA
重复定位精度	Repeatability	± 0.05mm
真空度	Vacuum level	3x10 <sup>-8</sup> Torr
漏率	Leak Rate	1.0×10 <sup>-9</sup> std.cc/s He
AWC精度	AWC accuracy	± 0.1 mm

## 真空机械手 Vacuum Robot

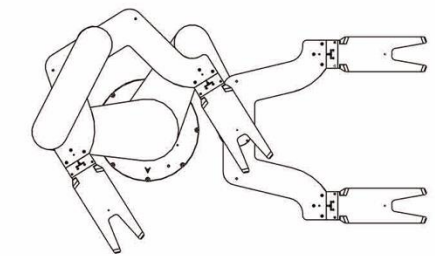
### 直驱手Archer系列 / Archer Series



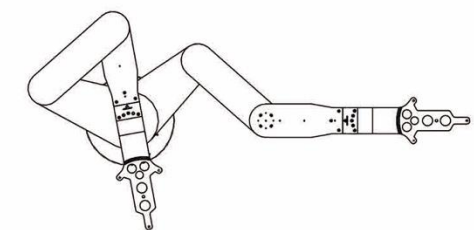
△ Archer Q 系列 / Archer Q



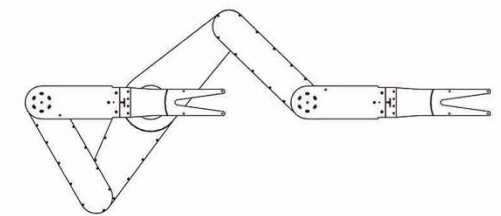
△ Archer S/R 系列 / Archer S / R



△ Archer Q 系列 / Archer Q



△ Archer R 系列 / Archer R



△ Archer S 系列 / Archer S

### 技术参数 / Technical parameter

手臂类型	Arm type	Dual arm, Scara type
重复定位精度	Repeatability	± 0.05 mm
真空度	Vacuum level	3x10 <sup>-8</sup> Torr
漏率	Leak Rate	1.0×10 <sup>-9</sup> std.cc/s He
AWC精度	AWC accuracy	± 0.1 mm

## 真空传输平台 Vacuum Transfer Platform

### 产品优势 / Product advantage

- ✓ 全自研解决方案  
Fully self-developed technology
- ✓ 定制化真空平台设计  
Custom vacuum platform design
- ✓ 模块化控制系统  
Modular control system
- ✓ 标准尺寸门阀接口  
Standard size gate valve interface
- ✓ 高真空度、高洁净度、高传输效率  
High vacuum degree, high cleanliness, high transmission efficiency
- ✓ 提供整套晶圆硅片的真空传输系统解决方案  
Provide a complete set of wafer vacuum transmission system solutions

### 真空平台Diagram系列 / Diagram Series



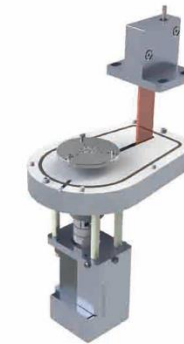
△ 真空平台400A / Diagram 400A



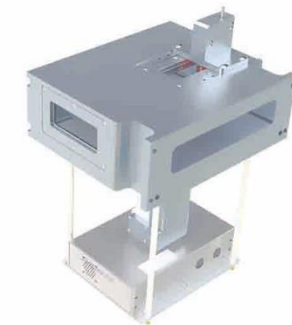
△ 真空平台600A / Diagram 600A

## 真空平台部件 Vacuum Platform

### 晶圆预对准装置Compass / Compass Series



△ Compass A 系列 / Compass A series

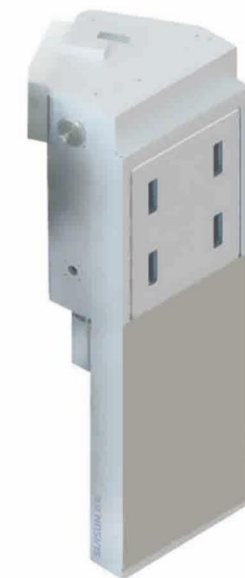


△ Compass B 系列 / Compass B series

### 真空上料平台VPH / VPH Series



△ VPH-R01 / VPH-R01



△ VPH-C01 / VPH-C01

### 技术参数 / Technical parameter

晶圆类型	Wafer type	Si Sic GaN etc
晶圆尺寸	Wafer size	4" 6" 6.3" 8"
重复定位精度	Repeated positioning accuracy	≤ ± 0.1mm
漏率	Leak rate	0.1 mTorr/min