



半导体硅片  
Semiconductor Silicon Wafer

**FerroTec**

上海申和热磁电子有限公司  
Shanghai Shenhe Thermo-Magnetics Electronics Co., Ltd.

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# FerroTec (中国)

Ferrotec Corporation (日本磁性流体技术株式会社) 是一家产品涉及半导体、太阳能、电子材料和精密机械等行业的日本企业, 自1992年进入中国以来, 相继在杭州、上海、银川成立了多家子公司。

Ferrotec Corporation is a Japanese company specializing in semiconductor, PV, electronic material, machinery, etc. Ferrotec Corporation has established multiple subsidiaries in Hangzhou, Shanghai, and Yinchuan in succession since entering Chinese market in 1992.

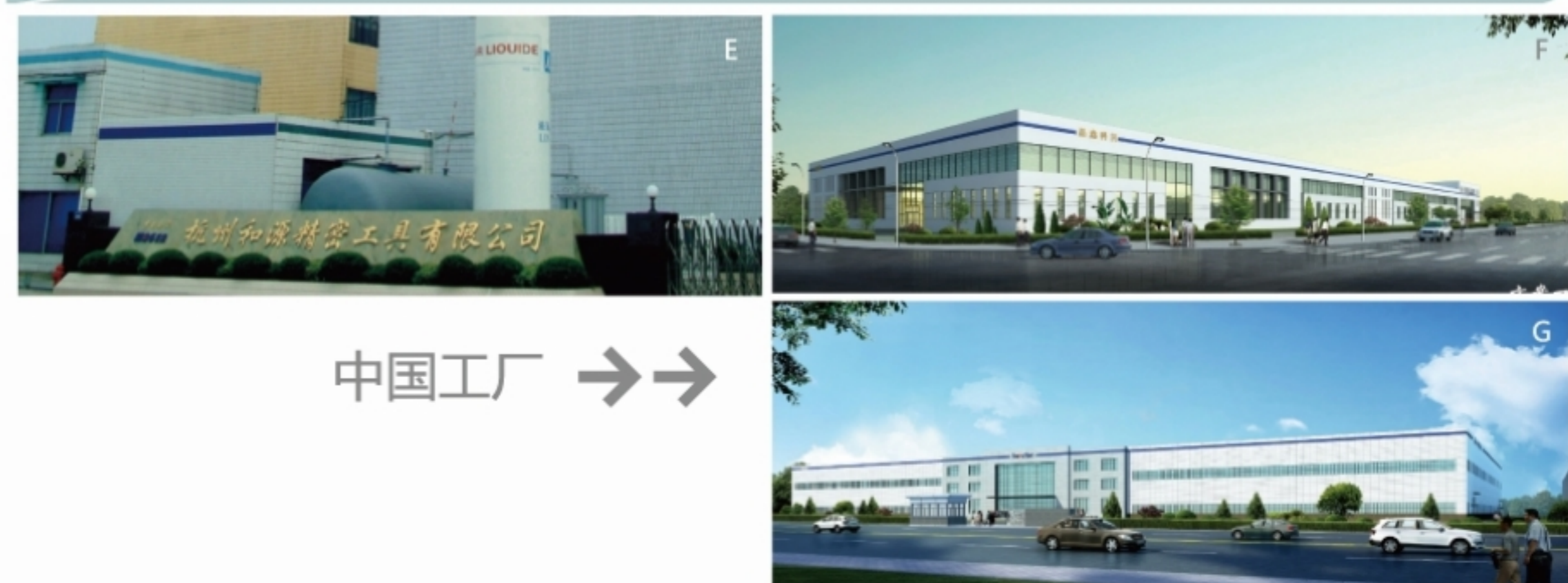
## 全球分布图 Ferrotec Global



## 中国工厂

- A 上海申和热磁电子有限公司  
Shanghai Shenhe Thermo-Magnetics Electronics Co., Ltd.
- B 上海汉虹精密机械有限公司  
Shanghai Hanhong Precision Machinery Co., Ltd.
- C 杭州大和热磁电子有限公司 (一工厂)  
Hangzhou Dahe Thermo-Magnetics Co., Ltd.(The first factory)
- D 杭州大和热磁电子有限公司 (二工厂)  
Hangzhou Dahe Thermo-Magnetics Co., Ltd.(The second factory)
- E 杭州和源精密工具有限公司  
Hangzhou Wagen Precision Tooling Co., Ltd.
- F 杭州晶鑫科技有限公司  
Hangzhou Solartech Co., Ltd.
- G 宁夏银和新能源科技有限公司  
宁夏富乐德石英材料有限公司

- 美国**  
Ferrotec(USA) Corporation  
Ferrotec Material Solutions, Inc.
- 欧洲**  
Ferrotec GmbH(Germany)  
Ferrotec S.R.L(Italy)  
Ferrotec S.A(Spain)  
Ferrotec Ltd.(UK)  
Ferrotec SARL(France)  
SCTB NORD(Russia)
- 日本**  
Ferrotec Corporation(Tokyo)  
Ferrotec Silicon Corporation (Tokyo)
- 新加坡**  
Ferrotec Corporation  
Singapore Pte.,Ltd.
- 韩国**  
Ferrotec Korea Co., Ltd.
- 中国**  
杭州大和热磁电子有限公司  
上海申和热磁电子有限公司  
杭州先进石英材料有限公司  
杭州和源精密工具有限公司  
上海汉虹精密机械有限公司  
上海汉虹国际贸易有限公司  
上海汉虹综合装备设计咨询有限公司  
杭州晶鑫科技有限公司  
宁夏银和新能源科技有限公司  
宁夏富乐德石英材料有限公司  
台湾飞罗特股份有限公司



## 中国工厂 →→

# MAJOR PRODUCTS 主要产品

上海申和热磁电子有限公司是 Ferrotec Corporation 1995 年 5 月投资于上海宝山城市工业园区的全资公司。现投资总额 71.8 亿日圆，拥有员工 1500 人。

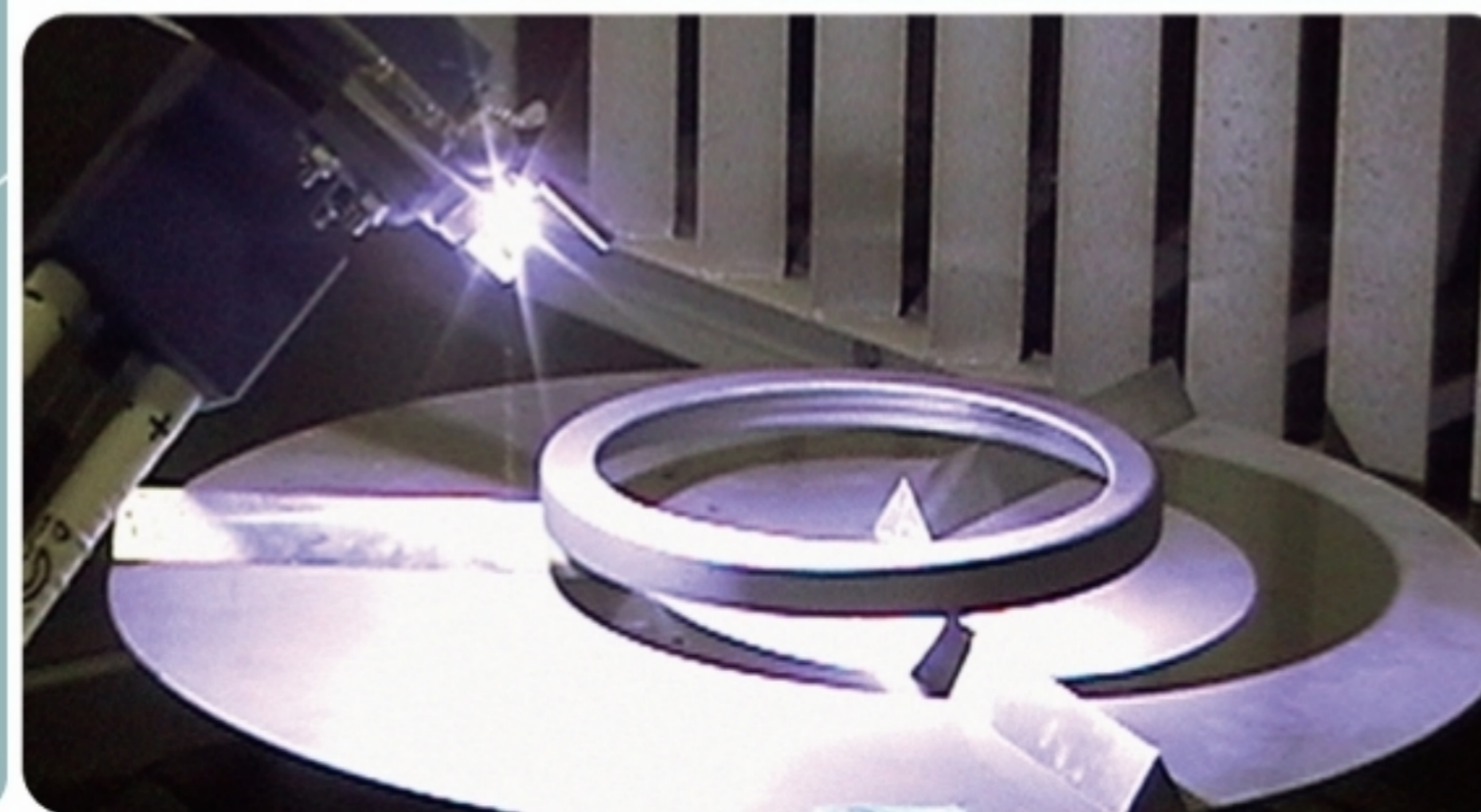
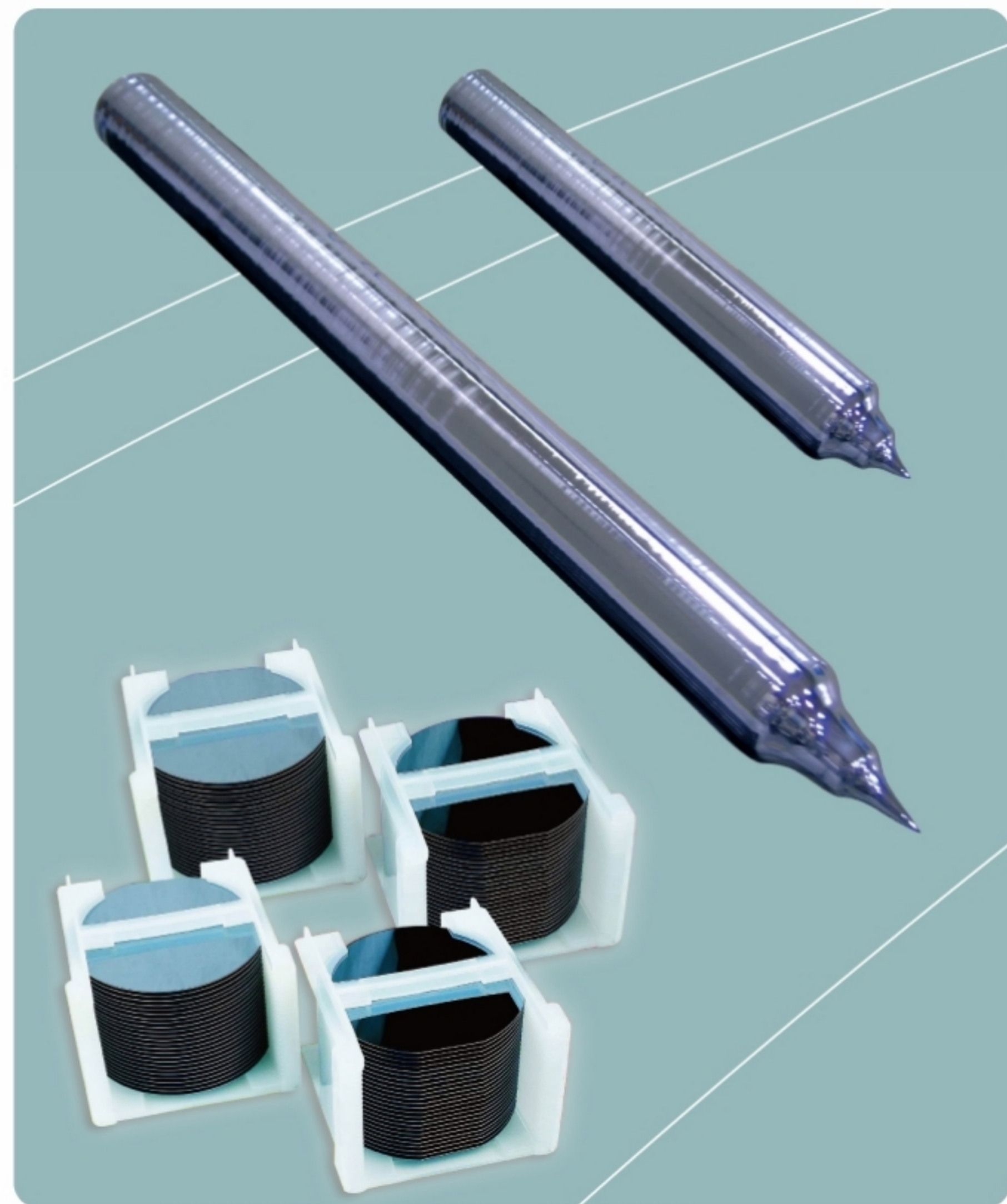
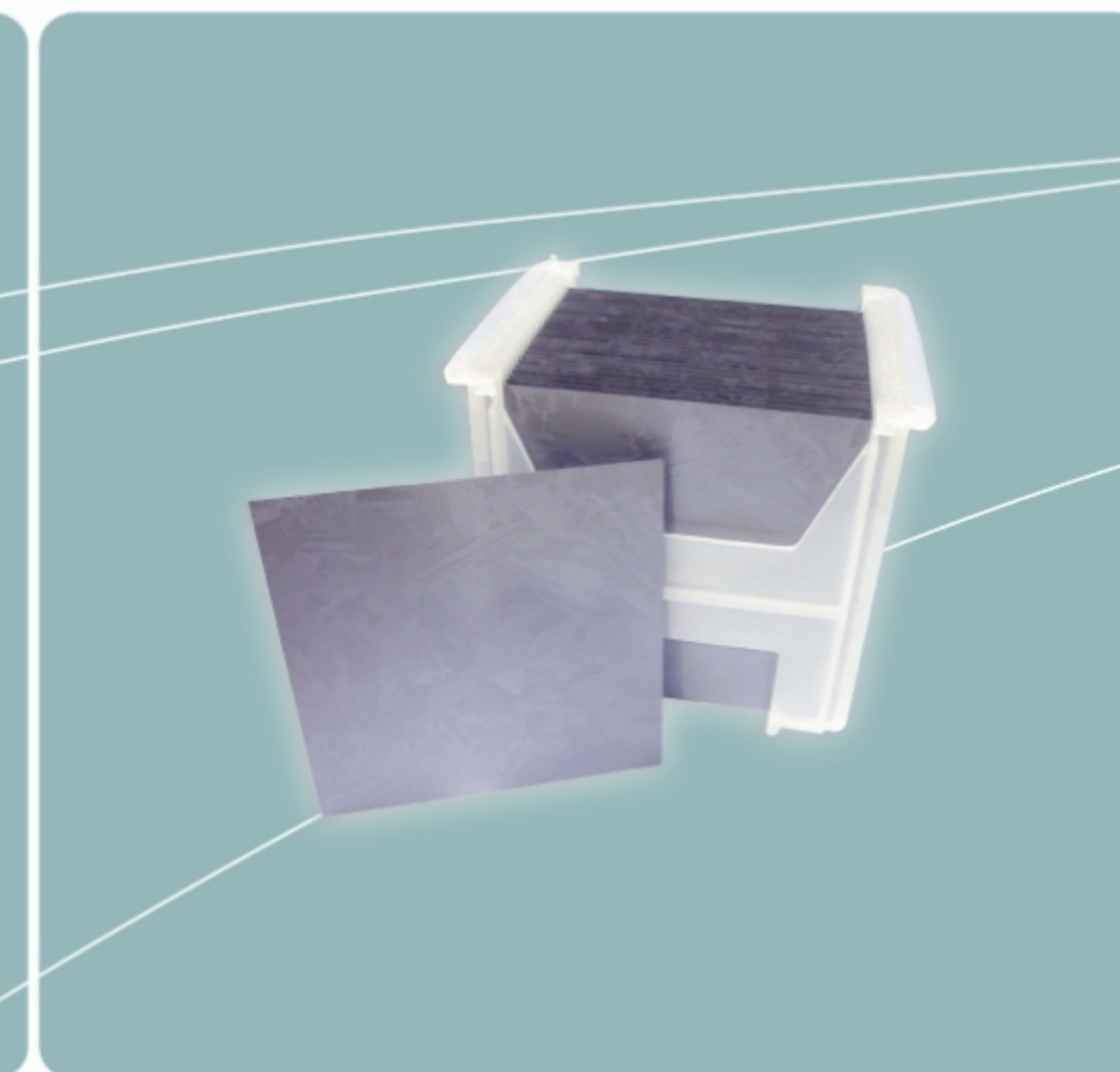
产品涉及电子、半导体、太阳能发电等产业领域，受到国内外客户的认可好评。

## ▶ 覆铜陶瓷基板

DBC Substrate

## ▼ 半导体硅片

Semiconductor Silicon Wafer



## ◀ 表面处理

Surface Treatment

## 太阳能硅片 ▲

Solar Grade Wafer



Shanghai Shenhe Thermo-Magnetics Electronics Co., Ltd.(Ferrotec Shanghai) located in Shanghai Baoshan Urban Industrial Park, was fully invested by Ferrotec Corporation in May, 1995.The current total investment is 7.18 billion yen, with approximately 1500 employees.

Our products,wich covers a wide range in electronics,semiconductor and solar generation industries and have gained recognition and reputation from customers both at home and abroad.

# INTRODUCTION OF THE SILICON WAFER BUSINESS AND PRODUCTION CAPACITY 事业部及生产能力介绍



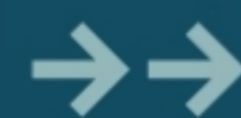
半导体硅片事业部2002年由日本东芝陶瓷（现更名为Covalent），三井物产株式会社和Ferrotec集团联合投资兴建，是专业的半导体硅片的生产商。

半导体硅片事业部拥有自己的技术团队，采用日本先进的生产工艺技术和生产管理模式，生产 4-6吋半导体硅片。具有年产500万片生产能力，产业规模和产品质量水平位居中国前列。

事业部人员风采  
Our Team



生产场景  
Plant View



Semiconductor Wafer Division was invested by Toshiba Ceramics(now renamed as Covalent), Mitsui & Co., Ltd. and Ferrotec Group in 2002. It is a specialized manufacturer of semiconductor wafer.

Our division has our own technical team, adopting the Japan advanced producing technology and production management system to produce 4 ~ 6 inches semiconductor silicon wafer. The maximum production capacity reaches 5 million pieces per year, which enable Ferrotec to be the leading company of this field.



生产场景  
Plant View



**TECHNICAL SPECIFICATIONS OF THE PRODUCTS**

**系列产品技术参数**



依托于先进的生产管理和技术，专业的生产团队，半导体硅片事业部可以为客户提供多种规格的半导体硅片。

**应用领域：** 半导体集成电路、分立器件、MEMS领域等。

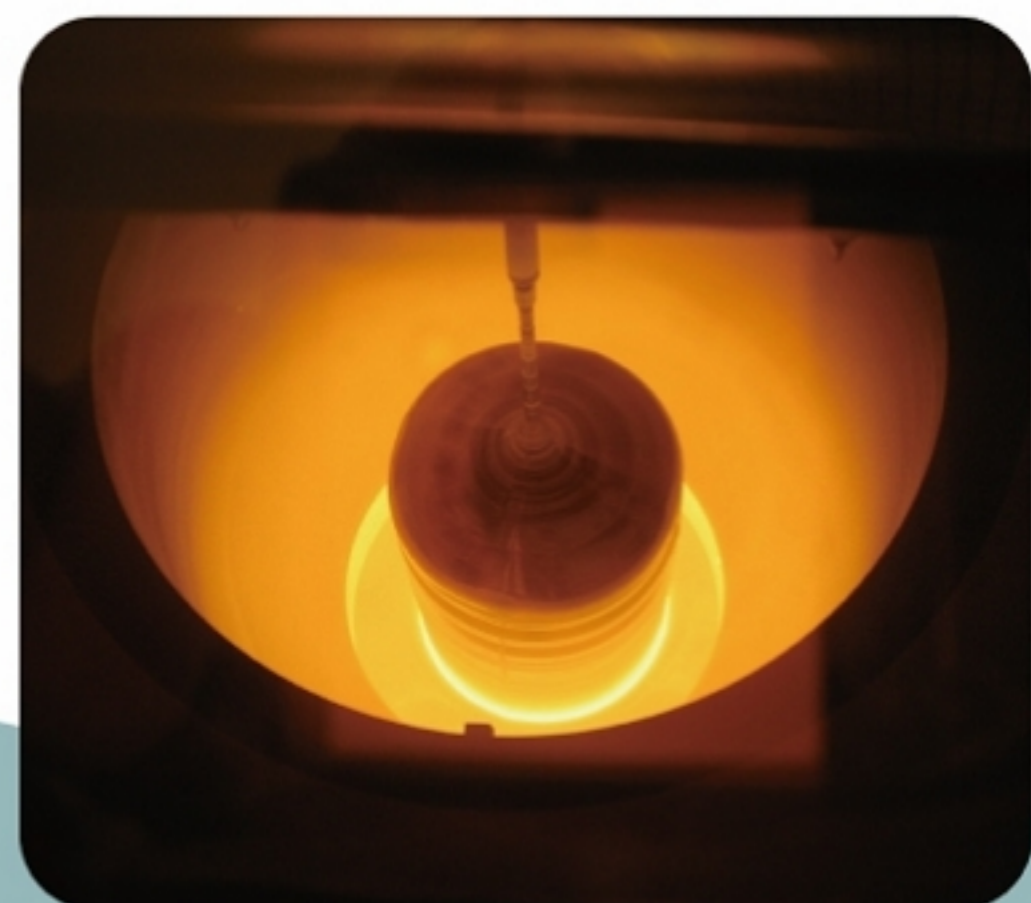
**主要品种：** N型重掺砷As、锑Sb、硼B以及P型轻掺硼B单晶，4、5、6英寸抛光片。

Taking advantage of the advanced production management system, technology, and the professional production team, Semiconductor Wafer Division can provide the semiconductor wafer of multiple specifications for the customers.

**Application fields:** Discrete devices, IC device, MEMS field, etc.

**Main types:** 4~6 inches monocrystalline polishing wafer of N-type (As,Sb doped) and P type(B doped).

Items	General specifications of semiconductor wafer								
	4inch			5inch			6inch		
Resistivity(Ω.cm)	Boron P++,P+,P- As,Sb N++,N+								
Diameter tolerance (mm)	±0.2								
Orientation	<100>, <111>								
Orientation tolerance	±0.15°								
Edge Profile	T/R								
Edge Condition	11/22 Ground			11/22 Ground			11/22 Ground/Polished		
Thickness (μm)	300-650			400-650			550-750		
Thickness tolerance (μm)	±15								
Backside Treatment	Etch	Poly	SiO2	Etch	Poly	SiO2	Etch	Poly	SiO2
Bow (μm)	±25			±25			±25		
Warp (μm)	≤25			≤30			≤30		
TTV(GBIR) (μm)	SSP≤4.0, DSP≤2.0			SSP≤5.0, DSP≤3.0			SSP≤5.0, DSP≤3.0		
FPD(GF3D) (μm)	≤1.2			≤1.2			≤2.0		
TIR(GFLR) (μm)	≤1.5			≤1.5			≤2.5		
Options	Laser marking、Poly-back、SiO2 seal、Back side damage								



**加工能力 MACHINING CAPACITY**

作为知名半导体硅片生产商，我们拥有世界领先的半导体硅片生产设备，为高品质的半导体硅片产品提供了有力保障。

As a leading semiconductor manufacturer, we have the world advanced semiconductor wafer production equipments, which provides guarantee for the high quality of the semiconductor wafer.



- A.线切割机 Wire Saw
- B.研磨机 Lapping Machine
- C.AP-CVD装置 AP-CVD Machine
- D.倒角抛光装置 Edge Polishing
- E.倒角装置 Edge Rounding
- F.RCA 清洗机 RCA cleaning

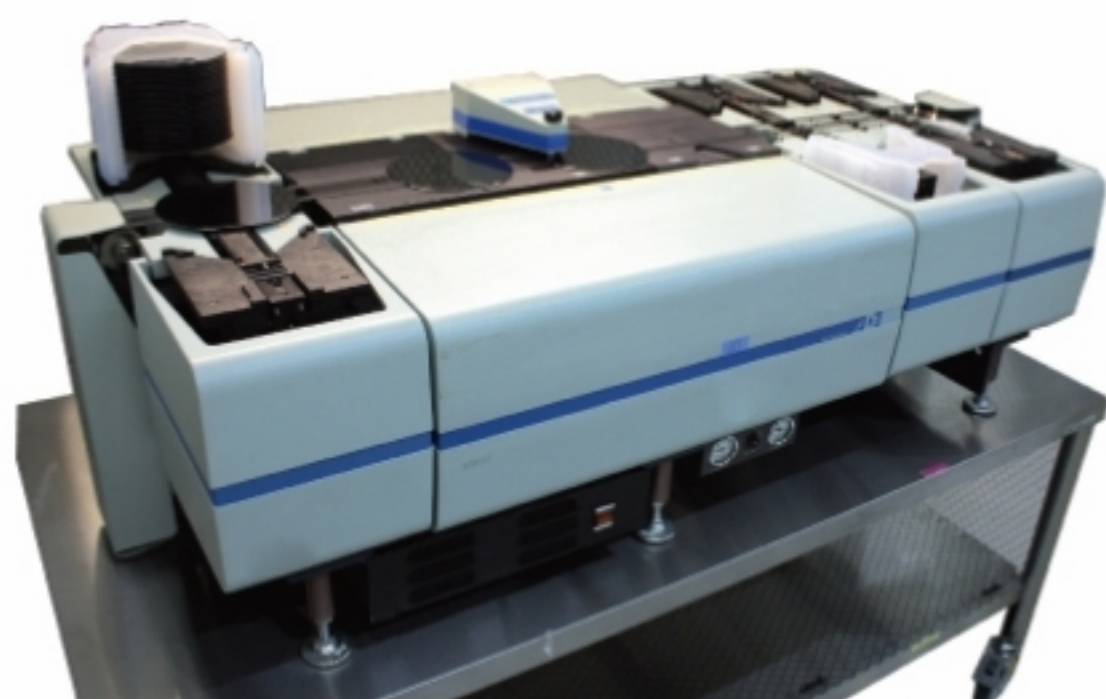
# INTRODUCTION OF THE QUALITY CONTROL AND THE SERVICE SYSTEM

## 品质管理及服务体系



企业发展靠质量，注重产品质量的品质管理贯穿于产品制造的每个环节。公司并先后通过了ISO9001：2008、ISO14001：2004、ISO/TS16949：2002认证。

Quality is primary in the development of a company. Therefore, we focus on the quality control in every process of the production. And the company has passed ISO9001：2008、ISO14001：2004、ISO/TS16949：2002 in succession.



▲ A 平坦度测定装置 ADE  
Flatness measuring ADE



▲ B 电阻率、厚度测定装置 p-t sorter  
Resistivity、Thickness measuring p-t sorter



▲ C 重金属、寿命测定装置 SPV  
Heavy metal、Life time testing SPV



▲ D 颗粒测定装置 CR80、CR81  
Particle scanning CR80、CR81

## 专业的服务团队

## PROFESSIONAL SERVICE TEAM



同时，我们拥有一支专业的服务团队，凭借Ferrotec遍及全球的销售网络，为您提供专业高效的品质服务。

Our professional service team and Ferrotec' s sales network all around the world will also provide high level quality service for you.



### Quality Measuring System

Items	Equipments	Items	Equipments
[Oii]/[Cs]/[ORG]	FTIR	Life time	μ -PCD/SPV
All Oxygen	GFA	Particle/LPD	CR80/CR81/LS600
Resistivity/RRV	p -t sort/4PP	Flatness (THK/TTV/TIR/FPD/LTV/ STIR/SFPD/Warp/Bow)	ADE
OISF/SLIP/TWIN/ SWRL/EPD/BMD	Furnace/Hood/OM	GOI (TZDB/TDDB)	Capacitance- voltage
BSD density	Furnace/Hood/OM	Surface metal	TREX
Surface/Flat/ Orientation	X-ray	Heavy metal	SPV
Edge profile	EPRO 212	Surface/Backside defects	Visual inspection
Film Thickness	Nano spec	Micro Roughness	ZYGO



ISO 9001 : 2008



ISO 14001 : 2004



ISO/TS 16949 : 2009



ISO 9001 : 2008