



Global and China Automatic Optical Inspection (AOI) Industry Report, 2016-2018

Feb. 2016

STUDY GOAL AND OBJECTIVES

This report provides the industry executives with strategically significant competitor information, analysis, insight and projection on the competitive pattern and key companies in the industry, crucial to the development and implementation of effective business, marketing and R&D programs.

REPORT OBJECTIVES

- ◆ To establish a comprehensive, factual, annually updated and cost-effective information base on market size, competition patterns, market segments, goals and strategies of the leading players in the market, reviews and forecasts.
- ◆ To assist potential market entrants in evaluating prospective acquisition and joint venture candidates.
- ◆ To complement the organizations' internal competitor information gathering efforts with strategic analysis, data interpretation and insight.
- ◆ To suggest for concerned investors in line with the current development of this industry as well as the development tendency.
- ◆ To help company to succeed in a competitive market, and

METHODOLOGY

Both primary and secondary research methodologies were used in preparing this study. Initially, a comprehensive and exhaustive search of the literature on this industry was conducted. These sources included related books and journals, trade literature, marketing literature, other product/promotional literature, annual reports, security analyst reports, and other publications. Subsequently, telephone interviews or email correspondence was conducted with marketing executives etc. Other sources included related magazines, academics, and consulting companies.

INFORMATION SOURCES

The primary information sources include Company Reports, and National Bureau of Statistics of China etc.

Abstract

As electronic products develop towards miniaturization and low-energy consumption, their product components tend to be miniaturized. Thus, it is increasingly unlikely that the components are inspected through manual review, and instead they have to turn to automatic inspection equipment. On the other hand, with the growing labor cost, electronic manufacturing enterprises due to their demand for the product quality and cost control will accelerate the AOI equipment substitution for human labor. Therefore, global and Chinese automatic optic inspection (AOI) equipment will undergo rapid development in future years. In 2015, China's AOI equipment market size came to RMB7.62 billion, accounting for 20.9% of the global total, registering an estimated CAGR of 16.8% during 2014-2018.

AOI is primarily applied in PCB, FPD, semiconductor, and other industries. In nowadays China, PCB industry enjoys the widest application. In 2015, the market size of AOI applied in PCB industry reached RMB4.91 billion, accounting for 64.4% of the total; that in FPD industry came to RMB1.14 billion, occupying 15.0%; that in semiconductor industry attained RMB1.04 billion, making up 13.6% of the total AOI market; that in other industries including photovoltaic cells was RMB530 million, representing 7.0%.

Concerning the competitive landscape, prior to 2005, China's AOI equipment market was virtually monopolized by foreign branded equipment. Subsequently, some domestic manufacturers with certain R&D strength, such as ALeader, Jutze Intelligence, ekt-Tech, ZhenHuaXing Technology, Ovi Technology, and JT Automation Equipment, seized market opportunities and successfully developed China-made AOI equipment. Compared with foreign counterparts, however, these companies have less capital and weak R&D strength, hence poor technical innovation. They mainly focus on the downstream process (say, PCB), and therefore have weak capacity to respond to the market, a situation that led to a fierce competition.

At present, some international AOI equipment manufacturers like Israeli-based Orbotech, Japan-based Screen and South Korea-based KohYoung Technology occupy major market segments with a full range of product lines. Other enterprises, such as Omron, KLA-Tencor, and HB, specialize in front-end industries like semiconductor and FPD, taking up the high-end market. Meanwhile, some Taiwanese companies e.g. TRI, Utechzone, and MACHVISION by virtue of their original electronics industry supply relationship have extended their presence to mainland Chinese market and have formed another new competition force.

Major AOI Applications in China, 2015

Downstream Market	Future Demand	Main Detection Categories	Market Size (RMB bn)
PCB	If all the SMT production lines are equipped with AOI equipment, the demand for AOI equipment in China will hit at least 35,000 units in the next 5-8 years.	Inner and outer layer circuit detection	4.91
FPD	The application overseas is relatively mature while that in China is still at the initial stage.	Mura defect detection Color Filter detection Chromaticity, film thickness, and optical density detection PI detection LCD detection	1.14
Semiconductor	Mainly relying on imports, with higher unit price. The products are mainly used by foreign and large enterprises.	2D and 3D detection Appearance detection Bumping detection	1.04
Others	Mainly used in solar energy testing industry	Micro Crack detection	0.53

Source: ResearchInChina

The report highlights the followings:

- Overview of AOI industry, including definition, classification, composition and structure, advantages, related technologies, industrial chain, market characteristics, operation model, etc.;
- Global AOI market, including market status, market size, competitive landscape, development trend, etc.;
- China's AOI market, including industry policy, market status, market size, market demand, competitive landscape, development prospects, etc.;
- Downstream sectors of AOI industry, including market size and market demand of PCB, FPD industry, IC, etc.;
- 11 global AOI enterprises such as Orbotech, Camtek, Omron, Screen, HB Technology, KohYoung Technology, KLA - Tencor, TRI, Utechzone, Mirtec, and SAKI (including their profile, operation, revenue structure, R&D costs, AOI business, development strategy, and business in China);
- 10 Chinese AOI enterprises such as ALeader, Jutze Intelligence, Ekt-Tech, ZhenHuaXing Technology, Ovi Technology, JT Automation Equipment, 3i Systems, and Xieli Electronic (including their profile, operation, revenue structure, R&D costs, AOI business, and development strategy).

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