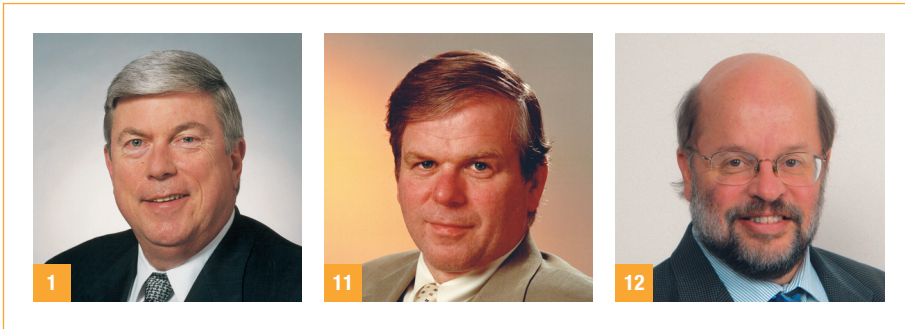


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# Chapter 4 1994 | 1998

# 1994 | 1998 Board of Management



## 1994

**6. Willem Maris** President and Chief Executive Officer, Chairman of the Board of Management

**2. Dr. Steef Wittekoek** Chief Executive Scientist

**3. Arie Ouwerkerk** VP Manufacturing

**4. Ton Willekens** VP Corporate Logistics

**5. Douglas Marsh** VP Worldwide Sales

**7. Evert Polak** VP Marketing

**8. Nico Hermans** VP Research & Development

**9. Gerard Verdonschot** VP Finance / Administration and Chief Financial Officer

**10. Joop van Kessel** VP Service & Quality

## 1995

**Willem Maris** President and Chief Executive Officer, Chairman of Board of Management

**Gerard Verdonschot** VP Finance / Administration and Chief Financial Officer

**Nico Hermans** Vice President Customer Support

**Martin van den Brink** Vice President Research and Development

**Douglas Marsh** Vice President Worldwide Sales

**Arie Ouwerkerk** Vice President Manufacturing

**Evert Polak** Vice President Marketing

**Ton Willekens** Vice President Corporate Logistics

**Dr. Steef Wittekoek** Chief Executive Scientist

## 1996

**Willem Maris** President and Chief Executive Officer, Chairman of Board of Management

**Gerard Verdonschot** VP Finance / Administration and Chief Financial Officer

**11. Martin van den Brink** VP Technology

**Nico Hermans** VP Worldwide Customer Support

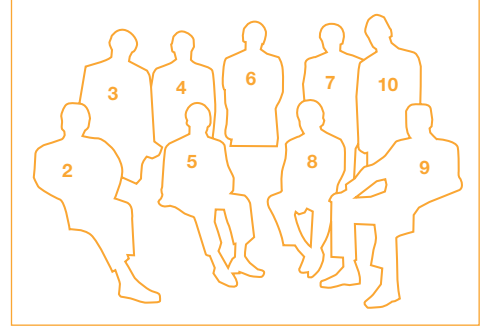
**Douglas Marsh** VP Worldwide Sales

**Arie Ouwerkerk** VP Manufacturing Operations and Quality

**Evert Polak** VP Marketing

**Ton Willekens** VP Logistics

**Dr. Steef Wittekoek** Chief Executive Scientist



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## 1997

**Willem Maris** President and Chief Executive Officer, Chairman of Board of Management

**Gerard Verdonschot** VP Finance/ Administration and Chief Financial Officer

**Martin van den Brink** VP Technology

**Nico Hermans** VP Worldwide Customer Support

**Douglas Marsh** VP Worldwide Sales

**Arie Ouwerkerk** VP Manufacturing Operations and Quality

**Evert Polak** VP Marketing

**Ton Willekens** VP Logistics

**Dr. Steef Wittekoek** Chief Executive Scientist

## 1998

**Willem Maris** President and Chief Executive Officer, Chairman of Board of Management

**Gerard Verdonschot** VP Finance/ Administration and Chief Financial Officer

**12. William Arnold** Chief Executive Scientist

**Martin van den Brink** VP Technology

**1. David Chavoustie** VP Worldwide Sales

**Nico Hermans** VP Worldwide Customer Support

**Ton Willekens** VP Corporate Logistics / IT

# Product Portfolio



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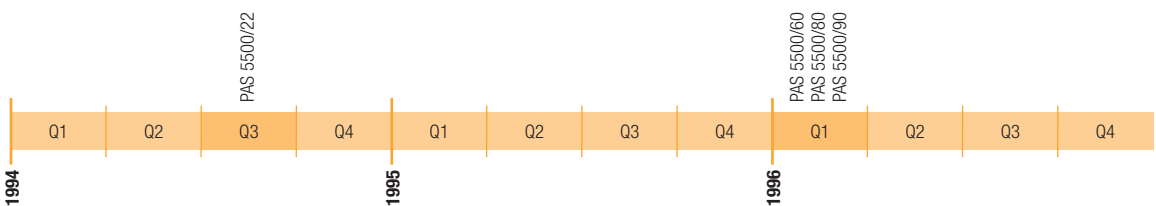
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## PAS 5500™/22 Step & Repeat i-Line System

The PAS 5500/22 system was a high-throughput i-line stepper with a standard 5x lens optimized for printing less critical IC layers in mix-and-match applications with higher-end steppers. The system has also proven to be a valuable choice for special lithography applications including analog ICs and MEMS. In total, 40 PAS 5500/22 steppers were made in a three-year period from 1994 to 1997.

## PAS 5500/100 Step & Repeat i-Line System

The PAS 5500/100 is the most successful model type built by ASML to date. Introduced as the best solution available for leading-edge i-line lithography at the 0.40-micron technology node, the tool quickly established itself as the industry workhorse for volume production applications. The /100 is still among the most popular i-line systems available on the market, well able to compete with systems brought on the market much later. An impressive 291 PAS 5500/100s have been built since the first model in 1997.





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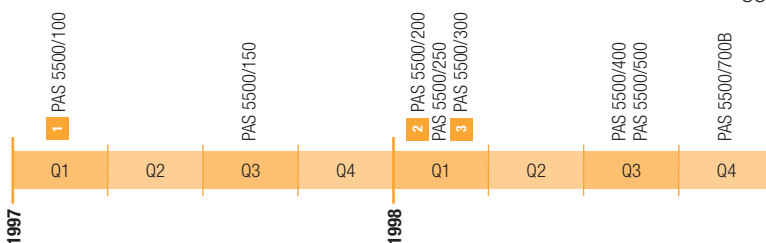
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### PAS 5500/400D Step & Scan i-Line System

One of ASML's first Step & Scan (scanner as opposed to stepper) was the PAS 5500/400D i-Line Step & Scan system. This system had a variable NA (0.48 to 0.65) 4x projection lens, which, combined with ASML's AERIAL™ Illuminator, provided 280-nm resolution. ASML's revolutionary Step & Scan stage technology enabled customers to achieve throughputs of greater than 124 200-mm wafers per hour. In its production period between 1998 and 1999, 179 /400Ds were built and sold.

### PAS 5500/500 Step & Scan DUV System

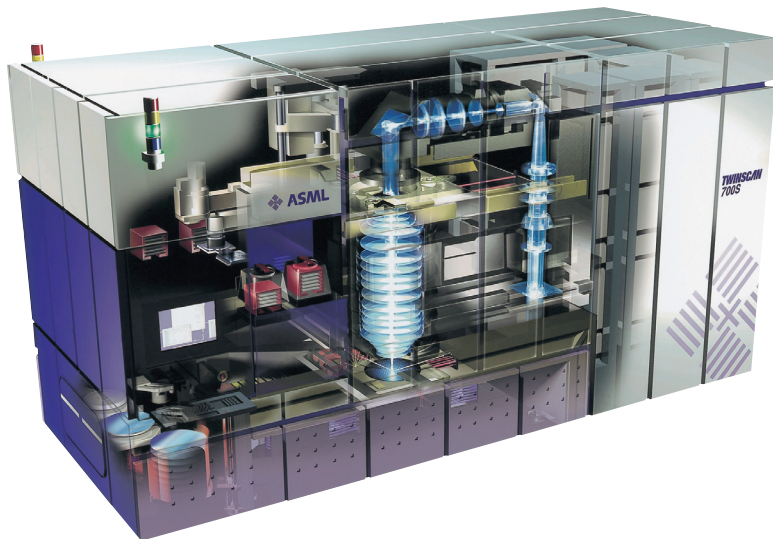
Introduced in 1998, the first DUV Step & Scan system from ASML was the PAS 5500/500. In this system, the i-line lamp illumination system was replaced by a Deep UltraViolet (DUV) laser. The PAS 5500/500 Step & Scan system's resolution and productivity ensured the lowest operating cost for advanced DUV lithography. The legacy of the /500 is still around today. Although the /500 is no longer in production, ASML continues to successfully produce advanced DUV PAS 5500 scanners to this day.



# Faster machines, larger wafers



Ten years after our initial, faltering steps into the market, we were now a respected – and growing – player. We had already moved to new sources of light and, at the same time, had succeeded in improving image resolution. But in the short term, it didn't seem likely that we could overcome the problems involved in using light of an even shorter wavelength. Instead, we turned our attention to finding other ways to improve the resolution delivered by our machines – as well as their speed, efficiency and cost.



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### AERIAL™

To take image resolution a significant notch higher, we looked to a related field in optics: microscopy. Adopting (with suitable modifications) an off-axial illumination technique used in high-resolution light microscopes, we created what we call AERIAL. This technology improves the resolution of the image projected onto the wafers by changing the angle of incidence of the light falling onto the mask. It enabled us to further reduce line width, without compromising either the excellent imaging performance or the high productivity of our machines.

### Step & Scan

The semiconductor industry must be one of the most expensive in terms of the level of investment required before even one chip leaves the premises. No wonder our customers are always looking for ways to increase throughput and cut costs. We therefore developed an improvement on the “step and repeat” system of exposure that was standard at the time. A disadvantage of the old system was that the area that could be exposed after each “step” was limited to about 22 x 22 mm, due to the difficulties

involved in making a large enough lens with sufficiently high resolution. Our new Step & Scan system overcame that problem. After stepping to a new location, it did not expose a whole area at once but rather moved progressively across the area to be exposed, scanning light through a slit as it went. In this way, a larger field could be scanned using a smaller – and therefore less costly – lens. In 1997, we combined the efficiency of Step & Scan with the power of DUV in our first Step & Scan DUV system. Working resolution was driven down still further (to between 0.22 and 0.18 microns), while processing speed was boosted to more than 96 200-mm wafers per hour.

### We responded

By the end of 1998, we had introduced the industry's first 0.15-micron system (PAS 5500/700B). We had taken productivity even higher to 104 200-mm wafers an hour, and we had delivered the first Process Development Tool capable of processing the new, larger 300-mm wafers. No one could say we hadn't listened to customers' needs – and responded. As the new millennium approached, ASML was well placed for further growth.

A photograph of a modern, multi-story office building with a white facade and large glass windows. The building is viewed from a low angle, looking up. A semi-transparent orange banner is overlaid across the middle of the image, containing the text 'ASML around the world'.

# ASML

**around the world**

Building 4 in Veldhoven





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In March 1995, ASML opened a small office in the center of Kiheung in Korea. Before this, ASML's only Korean office was in Seoul. In April 1996, the Seoul and Kiheung offices were combined under one roof in Pundang. One month later, ASML successfully delivered a PAS 5500/200 to Samsung. A large increase in shipments and customers caused ASML Korea to be established in July 1996. In 1998, Korea moved to their own purpose-built office, complete with a fully equipped training center. 1998 was also the year that ASML shipped the 100th system to Korea. This was impressive, considering that the first commercial shipment to Korea was in February 1995.

Next to the success on the Korean market, ASML was also successful on the Taiwanese market. In August 1996, ASML opened the training center in the Hermes Epitek building. Hermes Epitek has represented ASML in Taiwan, Singapore and Malaysia. In 1996, they had 170 employees in Asia, of which 23 field-service engineers were working for ASML. By 1998 Taiwan had 25% of the total worldwide installed base.

Japan, which constituted of 50% of the world market, was not yet an objective of ASML. First we needed to achieve 40% market share outside Japan and be able to better afford the high costs of penetrating their market barriers. In the early nineties, ASML took its first steps in the Japanese market by signing an agreement with the Japanese company Nissei Sangyo and associated HISCO.

At the end of 1994, the Shanghai, China office was located at the home of ASML's Rein Meijer. By the end of June 1997, a "real" office in Shanghai was used. In January 1997, a Customer Support office for sales in China, India and Australia was opened in Hong Kong.

In 1994, an extension of the facilities in Veldhoven resulted in an increased test/assembly capacity. In 1997, the first section of the new production and logistics facility, consisting of more than 9,000 m<sup>2</sup> cleanroom, was ready. In October of that same year, an office in Eindhoven and the construction of building 7 in Veldhoven had started.

## ASML around the world



Hermes Epitek in Hsinchu, Taiwan

By that time ASML had 8 buildings in Veldhoven. One year later in 1998, the extension to the cleanroom in Veldhoven's building 4 was completed, and the first employees moved into the new Corporate Technology Center in Veldhoven (now known as building 7).

During this same period, new offices were opened in Italy (Agrate/Milan in 1998), France (Meylan in 1993 and Rousset in 1997) and Germany (Dresden, 1998).

By the end of 1996, there were 290 U.S. employees working in 12 U.S. locations:

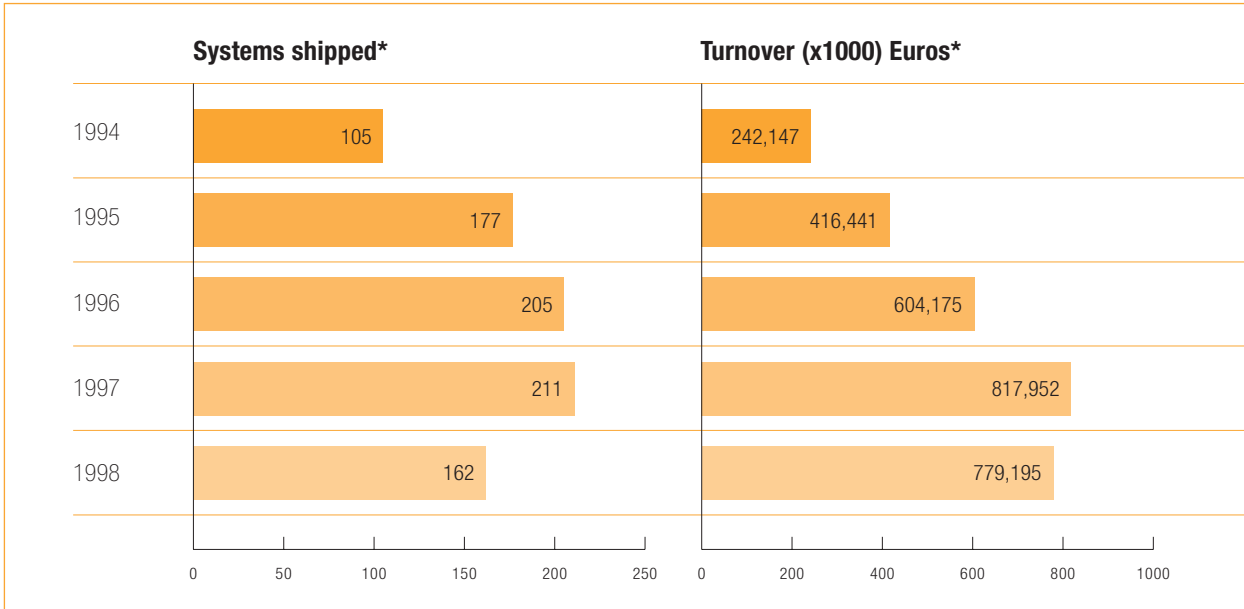
Tempe, Arizona; San Jose, California; Dallas, Texas; Austin, Texas; Boise, Idaho; Fishkill, New York; Colorado Springs, Colorado; Minnesota; Albuquerque, New Mexico; Arlington, Virginia; Hudson, New York; and Baltimore, Maryland. The new U.S. headquarters and demonstration laboratory on South River Parkway in Tempe, Arizona was opened in June 1998.



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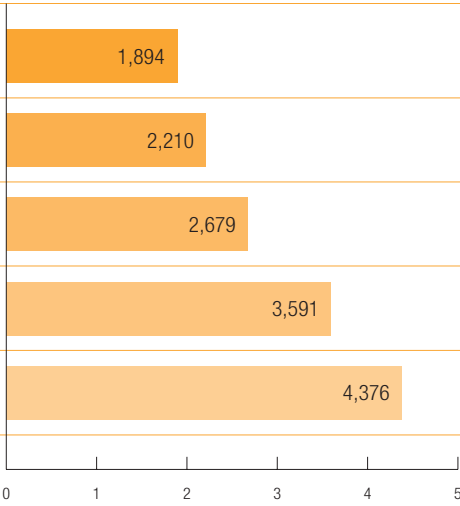
An aerial view of ASML's facilities in Veldhoven in the 90s

# 1994 | 1998 Statistics

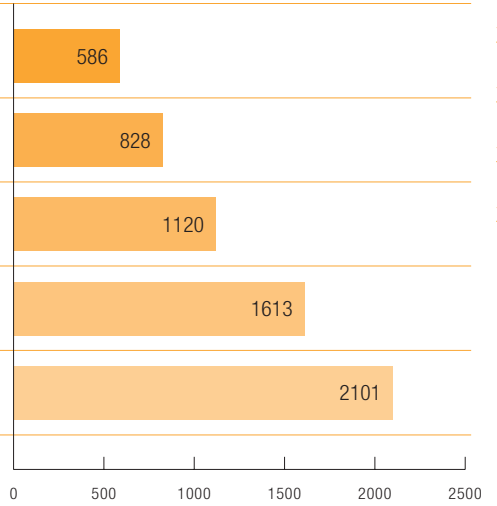


\* Source: systems shipped + turnover: ASML Finance annual report/management report

### Average Selling Price (x1000) Euros



### Head count payroll



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By 1995, when ASML became a publicly-traded company, the world semiconductor market was up 40% over the previous year and was a €150 billion business. While downturns occurred during this period, ASML's revenues grew from a half billion euros to €1.5 billion. Major companies, including Hewlett-Packard, Siemens and Samsung, became ASML customers.

# Social events



## Veldhoven

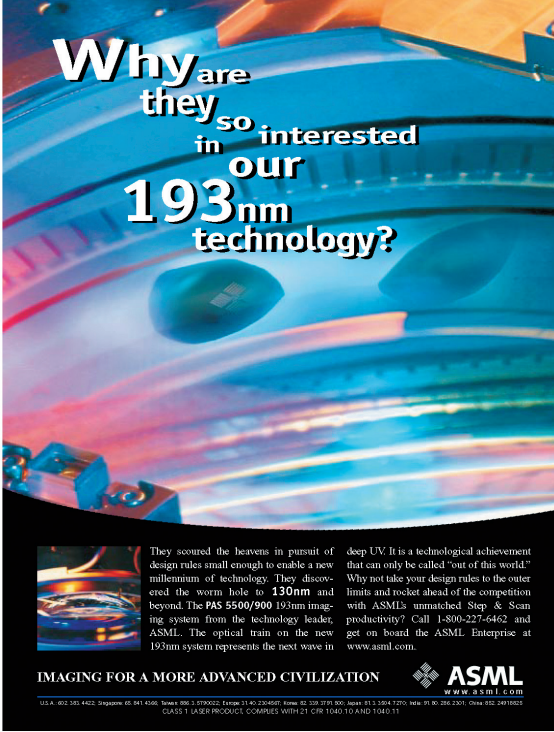
- 1 • **April 1994:** 10 year anniversary celebration where everybody got cake and an ASML T-shirt. In the evening, everybody took a bus to party center Arjan van Dijk for food, drinks and entertainment.
- 2 • **December 1994:** Trendsteppers Christmas Inn, with country and western ambiance
- **September 1995:** Veldhoven Open Day. Building 1 + 2, cleanroom visit, exhibitions, American food (hamburgers, hot dogs, doughnuts, etc). The weather was overcast and foggy, but a lot of people showed up. There was a small train between buildings 1 and 2.
- **October 1996:** 12.5 year anniversary party with food, drinks and music. In the Netherlands, 12.5 years (halfway to 25 years) is a special anniversary.
- **1997:** 10th year of the Trendsteppers. Celebrated with a grand party and graced by the ASML band "No Pain-No Gain."
- **September 1998:** "Surprise Trip" for Trendsteppers members. Everyone was transported in a double-decker bus to Pieterburen to visit the seal nursery and for a sand-bank-walk excursion.



## Tempe

- **October 1994:** Football trip, Arizona Cardinals against the Pittsburgh Steelers
- **1994:** Trip to the Golfland Sunsplash water resort by employees and their children
- **December 1994:** Santa Claus visit to Tempe employees' children
- **December 1994:** Christmas Wish Tree project, where donations for underprivileged children in North-Arizona were collected
- **1997:** Semi-annual employee gathering for a barbecue in the parking lot
- **1997:** Volunteer event in which meals are given to the homeless
- **1998:** Thanksgiving meal and a food drive for the Fountain of Hope was held
- **1998:** A "Make-a-Wish" Christmas Tree was sponsored

# 1994 | 1998 Advertising



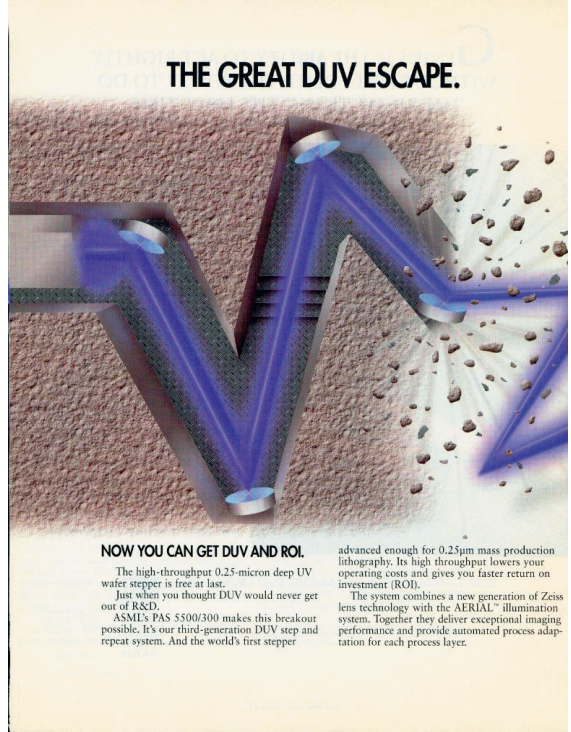
**Why are they so interested in our 193nm technology?**

They soared the heavens in pursuit of design rules small enough to enable a new millennium of technology. They discovered the worm hole to **130nm** and beyond. The **PAS 5500/900** 193nm imaging system from the technology leader, ASML. The optical train on the new 193nm system represents the next wave in deep UV. It is a technological achievement that can only be called "out of this world." Why not take your design rules to the outer limits and rocket ahead of the competition with ASML's unmatched Step & Scan productivity? Call 1-800-227-6462 and get on board the ASML Enterprise at [www.asml.com](http://www.asml.com).

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**THE GREAT DUV ESCAPE.**

**NOW YOU CAN GET DUV AND ROI.**

The high-throughput 0.25-micron deep UV wafer stepper is free at last. Just when you thought DUV would never get out of R&D.

ASML's PAS 5500/300 makes this breakout possible. It's our third-generation DUV step and repeat system. And the world's first stepper advanced enough for 0.25µm mass production lithography. Its high throughput lowers your operating costs and gives you faster return on investment (ROI).

The system combines a new generation of Zeiss lens technology with the AERIAL™ illumination system. Together they deliver exceptional imaging performance and provide automated process adaptation for each process layer.



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The 0.25 μm solution for the most demanding customers.

The most productive 0.25 μm solution is in great demand, by the most demanding customers! The new PAS 5500/550C and 550C are ASML's latest 0.25 μm deep UV and 0.3 μm i-line steppers. A powerful mix-and-match duo with a productivity punch of more than 88 wph.

Key to our 0.25 μm solution are productivity and process latitude. And with AERIAL™ illumination, complete flexibility in NA and sigma combinations are possible at the highest productivity and imaging performance. An imaging performance that extends to 0.22 μm at the highest NA.

Built with proven PAS 5500 technology these steppers are ready to help you turn sand into gold. You'll also benefit from customer support that is out of this world. Dedicated to ramp your 0.25 μm fabs fast. And turn your clean rooms into gold mines!

To make your demands known for ASML's 0.25 μm solution contact us at 1-800-227-6462. Or visit our world at [www.asml.com](http://www.asml.com)

**ASML**  
ASM Lithography

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**Technisch toptalent dat Newton van z'n voetstuk stoot.**

ASML biedt interessante mogelijkheden voor jonge technici (HTS/TU) die aan de wieg willen staan van hightech ontwikkelingen op wereldschaal.

**ASML**  
ASM Lithography

ASML, De Run 1110, 5503 LA Veldhoven, tel. (040) 230 30 00.

# 1994 | 1998 Advertising

IMAGING FOR A MORE ADVANCED CIVILIZATION



They're out there. They're looking for the most advanced imaging system on earth. Where will they show up next? Be alert. Stay tuned to this channel.



## No Limits voor Technici in 1998

ASML in Veldhoven is de Nederlandse producent van wafer steppers en wafer scanners, de uiterst complexe machines waarmee halfgeleiders worden gemaakt. Een snelgroeiende en succesvolle high-tech onderneming met inmiddels ruim 1.950 medewerkers en Sales- en Servicekantoren in de VS, Europa en het Verre Oosten. De aandelen van ASML staan genoteerd aan de effectenbeursen van Amsterdam en New York.

Ook in 1998 bieden we onglimpende kansen aan ervaren technici van TUKTS-niveau binnen de volgende vakgebieden: fysica, optica, systeem engineering, software, fysische mechanica, mechatronica en elektronica. Je kunt bij ons werken met de meest geavanceerde tools en ontwikkelmethodes. Bewijzen wat je waard bent in een multidisciplinaire omgeving. En elke dag weer opnieuw je grenzen verleggen.

Interesse? Stuur je brief met c.v. naar ASML, De Run 1110, 5503 LA Veldhoven, ter attentie van Hans Strieder van de afdeling Human Resources Management. Na 4 januari kun je ook bellen voor meer informatie (040) 230 34 85. E-mail: [hsm@axel.nl](mailto:hsm@axel.nl) (attachments graag in Word).

Kijk voor een selectie van actuele vacatures in de advertenties op de volgende pagina's.

 **ASML**  
ASM Lithography

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# Supplier partnerships

We started with just a couple of suppliers during the 80s, but since ASML bought everything separately, we eventually had a huge number of suppliers.

In the early 90s, a strategic procurement policy and clear agreements with suppliers were missing. As a consequence, we suffered delays in delivery time, which had a negative effect on our business. Tightening the screws on our suppliers would have been counterproductive. To create an atmosphere of togetherness, we organized a strategic Suppliers Day once a year. We were — and still are — really devoted to our supply chain and wanted to convince them that we had to operate together. Only together — in good and bad times — we could conquer our competitors.

During the years, the purchasing process became more and more complex. ASML changed its procurement strategy and started to purchase complete modules instead of separate pieces. The most critical parts we did ourselves. All the

others were bought externally, completely tested. We introduced a special “Think Tank” to share experiences and to discuss the forecast candidly. This open outsourcing approach was very revolutionary.

## Interview **Evert Polak**

Former Marketing Director Evert Polak looks back at the role played by the newly created Marketing Department.

# Marketing for success



By 1993, ASML's marketing process needed to be made more explicit, and I was asked to found the Marketing Department. ASML was moving fast: between 1994 and 1998, we had developed relationships with key companies such as TSMC, UMC and Samsung; established a strong base in Asia; introduced the first Deep UV products; and developed the Step & Scan technology on which ASML's leading products are still based!

Marketing's role was to shape the right product strategy, as just one "wrong" product can shut you down. First, we engaged customers in a dialog to work

out what would be needed and when. Next, we used that information to shape product policy and communicate it within ASML.

This openness gained us credibility. At product policy conferences, we invited customers to give us feedback on what we had presented — the good, the bad, and the ugly! In parallel, representatives from every department, plus ASML's Executive Scientist and our lens partner Zeiss, met monthly for a day of debate, which always closed with a friendly meal and a renewed and shared understanding of our strategy. The Initial Public Offering (IPO) in '95 also gave us a taste of something totally different.

As ASML's product portfolio and staff expanded, it became vital for Marketing to improve processes, particularly the interface with R&D. At the time, Project Management resided within Marketing, so in 1998 we ultimately transferred Project Management to its more natural place within R&D.

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## Interview **Rein Meijer**

In January 1995, ASML Field Service Engineer Rein Meijer launched ASML's first Customer Support office in China – a commercial and cultural challenge indeed.

# Starting out in China



Setting up a Customer Support office in Shanghai really meant starting from square one. Technologically, our products and processes were totally new to the market, which had never worked with reticles (masks) or at a sub-micrometer scale. What's more, the whole concept of maintenance was completely foreign there. Machines were purchased as cheaply as possible and run until they failed — we had to help customers understand that a more expensive but well-maintained machine costs less over time than an inexpensive system that isn't maintained.

Working conditions were initially pretty basic: together with Kuo wei Li, a colleague

from ASML Tempe, I started working out of rented accommodation that my wife and I also lived in. We had to be incredibly entrepreneurial, while continuously liaising with ASML in Veldhoven. Sometimes my phone bill was higher than my rent!

Culturally, it was challenging too. Over two years, we took on three Chinese employees from our agent, Silicon International. Although very dedicated, they weren't used to a working culture that tolerated mistakes, so they really needed encouraging to take personal responsibility. Local bureaucracy made organizing anything, from visas to bank accounts, tremendously time-consuming, and spare parts were often held up at Customs, which could be costly.

We achieved a great deal in this period — by 1998, when I returned to Veldhoven, we were installed in a better-equipped office, with a solid maintenance and communications structure and customers not just in China, but also in India and Australia. I remember those years as a really exciting time in my career, full of possibilities and challenges.

## Interview Gerard Verdonschot

Former CFO Gerard Verdonschot describes ASML's progress after the severe industry downturn in the early 1990s.

# Growing up



By 1994, ASML had come through the fire, emerging on the other side as a stronger company with a viable future. Sales took off in 1994 and 1995 as our equipment gained credibility — we couldn't compete with Nikon on price, but the speed and quality of our technology spoke for itself. At the same time, our public share issue in 1995, followed by a second share issue in 1996, finally gave us the investment capital we so sorely needed. With such rapid growth, the informal procedures we had relied on were no longer enough, so we focused on becoming more efficient, streamlining operations and implementing Total Quality

Management. We also had to make sure our company culture didn't change too much as new employees arrived. These issues and others were addressed through comprehensive training programs.

All of us at ASML shared a real sense of adventure, and as CFO I was determined that everyone should benefit from our success. We were one of the first Dutch companies to introduce an employee stock option scheme. Success also brought us access to more sophisticated financial instruments: in April 1998, we obtained our first convertible loan, for NLG 600 million. Previously wary of us, investment banks were now calling to offer us capital! When the market turned and the Asian crisis hit in 1998, we were strong enough to retain our No. 2 position in the market. One thing was clear — times might be hard, but ASML was here to stay.

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## Interview **Doug Marsh**

**Doug Marsh, now retired but formerly Vice President of Worldwide Sales & Applications Engineering, President of U.S. Operations and spokesperson for U.S. investor relations, recalls the spectacular inroads ASML made into its competitors' customer base and the teamwork that made it possible.**

# Rocketing sales

ASML enjoyed unprecedented sales success in the mid-90s, with an average turnover per employee of NLG 1 million, and our market share soared from 18% in 1994 to 30% in 1998. Thanks to the unique way we approached the market, ASML's targeted product policy and the undeniable productivity benefits of our machines (particularly the PAS 5500/100 and later the PAS 5500/300), we were able to win over a number of our competitors' customers. This was an incredible achievement when you consider the lead these incumbent suppliers had in terms of size, reputation and financial might, and the enormous barriers faced by customers in switching suppliers, including extremely high costs and extensive retraining.

We rapidly penetrated the Asian market, with success in Singapore and in Korea, where we went from zero commercial shipments to 100, gaining all of Samsung's business and over 95% of Hyundai's! The key was delivering higher value of ownership, including ensuring that our products "hit the ground running."

When we introduced Deep UV, for instance, we trained both our engineers and those of our customers in the new processes involved.

I was also responsible for laying the groundwork for the IPO in the U.S., and joined forces with Willem Maris and Gerard Verdonshot to present our business around the world. In the following years, the 14 or so investor conferences I organized annually gave Sales a platform for maintaining and driving up both pricing and demand by publicizing the advantages of our equipment to potential customers.

As ASML expanded, good teamwork was increasingly critical to success, and we made sure we worked well at all levels. It was my job, as President of U.S. Operations, to play a leadership role in day-to-day operations through the administration of good business practices, policies and procedures. My primary focus was on understanding our customers' long-term planning so that we could match our product offers



“It was my job, as President of U.S. Operations, to play a leadership role in day-to-day operations”



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and deliveries to their needs. On the global level, ASML's Board held intensive one-to-one feedback sessions at our annual Management Team meetings in Tempe, as well as learning teamwork and negotiation techniques such as "Getting to Yes" and engaging experts on how to overcome cultural differences. This was essential: we needed to manage the differences between the Netherlands and the U.S., but also those we encountered as our presence in Asia grew. Overall, communication within ASML and with customers was greatly helped by our flat hierarchy, with just two secretaries for the entire U.S. sales organization and two positions between account managers and the CEO!

## Interview **Theo Fahner**

Senior Designer Theo Fahner recalls some of the issues faced by ASML's Measuring Systems Development (MSD) department.

# Learning on the go



By the mid-90s, ASML had changed radically since I had joined it from Philips a decade earlier! The company was more organized, and the Physics Group had become Measuring System Development (MED), responsible for developing vital measurement subsystems for our products. With sales now growing dramatically, the next few years were a whirlwind of technological and organizational changes.

Key technologies that MEA worked on included highly accurate focus, alignment and image sensor systems. With every new technical problem, we acquired new skills, which we applied to develop the

Level Sensor, a new ATHENA alignment system and new reflection and transmission image sensors.

As ASML strove to develop the optimal structure, there were many necessary moves and reshuffles, which could sometimes be disruptive. New processes, such as Total Quality Management, were introduced, and all staff were trained. We also recruited as fast as possible, giving presentations at the Technical University recruitment fairs. The IPO's success allowed us to attract the best and the brightest. With so much at stake, it also renewed everyone's motivation and commitment.

I put ASML's success down to a combination of talented and enthusiastic people and the right technology. Looking back to my work with Steef Wittekoek at Philips on the Silicon Repeater 2, none of us foresaw then just how far the limitations of optical lithography would be pushed back.

# hynix

**Hynix (formerly Hyundai) is the second largest memory manufacturer, after Samsung and Micron. It manufactures DRAM, SRAM and recently FLASH memory devices.**

Hynix chose ASML as a supplier in order to improve their global competitiveness. Their goals are: technology extendibility, leading-edge imaging, and achieving the no. 1 position as a memory supplier.

The first tool ASML sold to Hynix was a PAS 5500/200, which was shipped in October 1996. This tool quickly became famous within Hynix as the “Robocop” tool, because it kept running and running without interruption. Today this tool is still being used without any problems.

Through the IMEC program, key Hynix engineers became familiar with the ASML DUV stepper. From 1997, major volume orders for PAS 5500/300s were given to ASML. Hynix was our biggest customer in 1998. In 1999, after the economic crisis in Asia, the Korean government reformed the domestic industry, resulting in a major merger with LG semiconductor.

This newly merged company was called Hynix Semiconductor. This merger resulted in 11 trillion Korean Won debt just before the major downturn in the semiconductor industry.

With minimum capital spending, Hynix managed to restructure its company and bring down the debt below 4 trillion Won within 5 years. In technology, Hynix managed to extend the ASML install-base to its limits, by designing a process around the resolution enhancement capabilities of ASML tools. Through an engineering effort in a Joint Development Program with ASML, the PAS 5500/300, designed originally for 0.25 micron node, could be used at 0.15 micron in mass production. Meanwhile Hynix kept investing in leading-edge tools from ASML, with the proven promise of extending these tools to their limit.

1998  
1997  
1996  
1995  
1994



**ASML began its relationship with Infineon in 1998, with a system sale at Infineon's Richmond, Virginia office. This relationship has grown and deepened over the years with the delivery of multiple PAS systems for the production of 200-mm DRAM products.**

ASML intensified the contacts with Infineon's home in Dresden, Germany, at the end of 1999. This resulted in a Purchase Order for multiple TWINSCAN systems in August 2000. Since then, ASML has provided equipment for Infineon's 300-mm DRAM manufacturing, as well as for 200-mm leading-edge applications for 248 nm and 193 nm.

Infineon is an important customer for ASML because it is always one of the first companies to apply leading technologies in a production environment.

Infineon is a leading innovator in the international semiconductor industry. They design, develop, manufacture and market a broad range of semiconductors

and complete system solutions targeted at selected industries. The products serve applications in the wireless and wireline communications, automotive, industrial, computer, security and chip card markets. The product portfolio consists of both memory and logic products and includes digital, mixed-signal and analog integrated circuits (ICs) as well as discrete semiconductor products and system solutions.



**Samsung is one of ASML's major customers. In 1983, Samsung developed Korea's first 64K DRAM. The company rapidly developed its process technology, and quickly developed more products. This propelled Samsung from the background to a position of equal footing with Korea's leading DRAM manufacturers.**

Though the ambitions of Samsung's semiconductor business lie in the memory chip market, the company is also active in other product sectors such as micro-controllers, multimedia and audio/video devices, and is striving to achieve equal sales of memory and non-memory products.

Samsung has offices all over the world, including San Jose (California), Brentford (UK) and Tokyo, Japan. In 1998, Samsung also set up a production facility outside Korea in Austin, Texas.

In February 1995, the first ASML stepper was shipped to Samsung. It was a PAS 5500/100B system. The stepper

was used within the Samsung R&D facility for the development of their 16Mb product (the resolution was 0.26 micron).

Currently, more than 240 ASML systems, including the most advanced systems, have been shipped to Samsung's various 200-mm and 300-mm fabs. ASML has collaborated with their R&D department, but also with their mass production fabs to satisfy the requirements of better imaging performance and higher productivity. These characteristics were and still are the main drivers for Samsung to select ASML tools for development and production of their devices. At this moment, Samsung is becoming an increasingly important customer in terms of business volume (capital expenditure) and technology leadership.

# 1994 | 1998 Facts

## 1994

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- The success that started in 1993 continued in 1994
- Still third largest stepper manufacturer, with 18% of the global market
- During 1994, Philips stepped out of ASML by selling the majority of its shares to the public. For the first time, ASML was operating as an independent company.
- The ability to deliver additional steppers in 1993 and 1994 was limited by the capacity of Zeiss to provide lenses and optical components, due to the larger than expected increase in demand.
- Named the largest European-headquartered company in the semiconductor equipment industry
- April 1, 1994: 10th anniversary
- Sold our 100th PAS 5500 system

## 1995

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- Greatly expanded building 3 in Veldhoven, effectively doubling the production capacity
- Broke into the Korean market by adding Samsung Electronics, the world's largest manufacturer of memory chips, to our customer base
- Launched the Initial Public Offering (IPO) of ASML at the Amsterdam Stock Exchange and with NASDAQ in New York

## 1996

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- Growth in 1996 (45%) less than average growth in the four preceding years (60%)
- Market share since 1992 relatively stable (17%-19%), as turnover grew annually with approximately 60%.
- Extended success in the Korean and Taiwanese markets
- Chose the business system SAP as replacement for XBMS and Ardelion
- Appeared for the first time at SEMICON Taiwan
- Selected as the main supplier for the new Samsung fab, including orders for their first production Deep UV steppers
- Internet site born ([www.asml.com](http://www.asml.com))

## 1997

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- Shipped the first PAS 5500/500 Step & Scan machines
- Started development of TWINSCAN system [working title: ATLAS] and also the PAS 5500/400
- Included in the world's top 1000 list of companies by turnover (number 995)
- Achieved more than 50% of the revenues from the Asian customer base
- Faced the economic crisis in Asia, which started in the fourth quarter

## 1998

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- In the second half on 1998, shifted products to Step & Scan systems
- Increased market share to around 30%
- Strengthened our financial position by a convertible bond issue, which was fully underwritten in one day, in spring 1998
- Introduced Windows NT and ASML NetScanner at our worldwide offices
- Shipped the 100th system to Korea. This was impressive, considering that the first commercial shipment was three years earlier.
- Launched "Only talent pays off" campaign: quoted as one of the ten best advertising campaigns in the Netherlands
- Automated the warehouse in Veldhoven
- Started the PGP (Product Generation Process)
- Semiconductor researcher Dataquest names ASML no. 2 in wafer stepper revenues, surpassing Canon in photo lithography equipment sales.

## ASM Lithography

*(A company incorporated under the laws of The Netherlands and established at Eindhoven, The Netherlands)*

### 11,000,000 Ordinary Shares (nominal value NLG 0.50)

*This offering is part of a combined offering (the "Combined Offering") of 11,000,000 of the Ordinary Shares, nominal value NLG 0.50 per share (the "Shares") of ASM Lithography Holding NV ("ASM Lithography"), consisting of 4,600,000 Shares being offered outside the United States and Canada by the International Managers (the "International Offering") and 6,400,000 Shares being offered in the United States and Canada by the U.S. Underwriters (the "U.S. Offering"). Of the 11,000,000 Shares being offered in the Combined Offering, 3,000,000 Shares are being offered by ASM Lithography and 8,000,000 Shares are being offered by Philips Electronics N.V. ("Philips"). See "Selling Shareholder." Upon completion of the Combined Offering, Philips will own approximately 61.78% (58.78% if the Underwriters exercise their over-allotment option in full) of the Ordinary Shares then outstanding. ASM Lithography will not receive any of the proceeds from the sale of Shares being offered by Philips in the Combined Offering.*

*Prior to the Combined Offering there has been no public market for the Ordinary Shares. For information relating to the factors considered in determining the initial public offering price, see "Underwriting."*

*Application has been made for the listing of the Ordinary Shares in bearer form on the Official Market of the Amsterdam Stock Exchange under the symbol ASML. The Ordinary Shares of New York Registry have been approved for listing on the Nasdaq National Market ("NASDAQ") under the symbol ASMLF, subject to notice of issuance. See "Share Certificates and Transfer."*

**See "Risk Factors" for a discussion of certain factors that should be considered in connection with an investment in the Shares offered hereby.**

	Price to Public	Underwriting Discount <sup>(1)</sup>	Proceeds to ASM Lithography <sup>(2)</sup>	Proceeds to Philips <sup>(3)(4)</sup>
Per Share .....	NLG 28.54	NLG 1.65	NLG 26.89	NLG 26.89
Total (4) .....	NLG 313,940,000	NLG 18,150,000	NLG 80,670,000	NLG 215,120,000

- (1) ASM Lithography and Philips have agreed to indemnify the several Managers against certain liabilities, including certain liabilities under the Securities Act of 1933 as amended. See "Underwriting."
- (2) Before deducting expenses of the Combined Offering estimated at approximately NLG 3,806,000, of which approximately NLG 1,666,000, including approximately NLG 856,200 of Netherlands issue taxes, is payable by ASM Lithography and approximately NLG 814,723 is payable by Philips. See "Underwriting."
- (3) Philips has granted to the Underwriters a 30-day option to purchase up to an aggregate of 1,650,000 additional Shares solely to cover over-allotments, if any. If such option is exercised in full, the total Price to Public, Underwriting Discount, Proceeds to ASM Lithography and Proceeds to Philips will be NLG 361,031,000, NLG 20,872,500, NLG 80,670,000 and NLG 239,488,500 respectively. See "Underwriting."
- (4) Includes all Shares being offered in the Combined Offering, including the 6,600,000 Shares to be offered in the U.S. Offering.

Global Coordinator

CS First Boston

*The International Shares are offered by the International Managers when, as and if delivered to and accepted by the International Managers and subject to their right to reject orders in whole or in part. It is expected that the International Shares will be ready for delivery on or about March 22, 1995.*

CS First Boston

ABN AMRO Hoare Govett

Morgan Stanley & Co.  
(Incorporated)

James Capel & Co.

Dresdner Bank  
(Incorporated)

Paribas Capital Markets

UBS Limited

*The date of this Prospectus is March 15, 1995*



Part of the IPO team: Willem Maris, Sophia Loozen, Loppan Struing, Gerard Verdonschot



# ASML

## goes public

In March 1995, ASML made an Initial Public Offering (IPO) of 12.6 million shares on the Amsterdam and NASDAQ stock exchanges. Gerard Verdonshot explains the reasons for the IPO and the excitement and opportunities it generated.

By 1994, although the tide had turned for ASML, our financial dependence on Philips and on subsidies and loans made us extremely vulnerable. In this industry, you have to invest during downturns so you're ready to make the most of the next upswing. That requires cash, and an IPO seemed the best way to obtain it. We weren't sure it would work — ASML didn't have the solid three-year track record the market traditionally requires. After lengthy and tough negotiations with bankers, lawyers, and of course Philips, we went ahead.

To our amazement, it was a roaring success, and the share price soared over the next few months. Most shares were sold in the U.S., where analysts were much quicker to see ASML's potential

than the Dutch, who couldn't quite believe a Dutch technology company could compete with the Japanese!

The IPO changed ASML dramatically. Almost overnight, we went from being an unknown to a star performer, and we immediately had to learn how best to communicate with journalists and analysts. Above all, the flotation gave us the breathing space we needed, allowing us to invest substantially in development and in expanding the business. For all of us, the IPO was an exhilarating high point in ASML's roller coaster history!

1998

1997

1996

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1994

# ASML

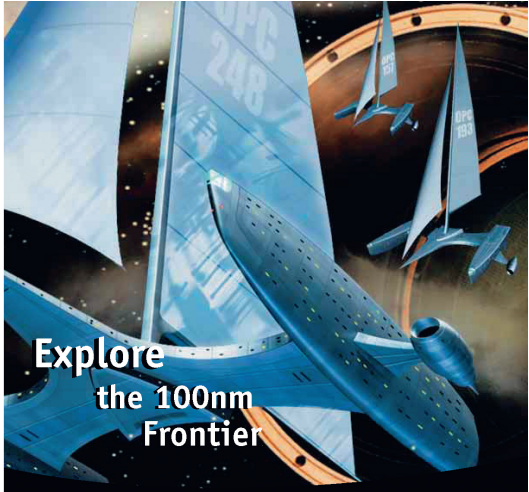
## MaskTools

ASML made its first-ever acquisition through its purchase of MaskTools in June 1999. At that time, MaskTools was a division of MicroUnity, a chip manufacturer based in Santa Clara, California (Silicon Valley).

Since then, MaskTools has grown in size from 4 employees to 27 employees. Its employees are recognized across the industry for their unique expertise in optics, lithography, mask making and software development. Through the innovative spirit of its employees, MaskTools has pioneered the development of advanced mask technologies and software products that are gaining increasing recognition in this new era of sub-wavelength lithography (low  $k_1$  imaging). It has also developed a rich patent portfolio that encompasses the mask, imaging, and software domains. With the acquisition of MaskTools, ASML became the only lithography supplier that can provide the most complete and tightly integrated solution for the advanced technology nodes.

The solutions offered by ASML MaskTools help further differentiate and add value to the ASML scanner. MaskTools' products increase the functionality of the mask and improve the capabilities of the imaging system such that features printed on wafers have the required resolution and critical dimension (CD) control. They significantly improve depth-of-focus (DOF), and enlarge the lithography process windows, thereby contributing to higher yields for production chip manufacturing.

ASML MaskTools is headquartered in Santa Clara, California with offices in Arizona, Massachusetts, Rhode Island, and Taiwan.




**Explore the 100nm Frontier**

If you are pushing the outer limits of resolution, it's time to explore new frontiers with ASML MaskTools optical extension technologies. MaskTools CATSRigger can dramatically increase wafer yields and widen process margins. CATSRigger makes the application of Optical Proximity Corrections to your IC designs seamless, and brings the power of OPC to manufacturing.

Extending process latitude gives you the ability to implement deep submicron designs and extend the life of your lithography tools. Want to explore the market's outer limits with your IC products? Get on board ASML MaskTools CATSRigger. Call 480-855-0500 and sail into a new productivity dimension. See us on the web at [www.masktools.com](http://www.masktools.com).

**IMAGING THE WAVEFRONT**

 **MaskTools**  
An ASML Company



**Finish First**  
LithoCruiser™ lets you outrun the competition

beyond 100nm  
beyond 100nm  
beyond 100nm  
beyond 100nm  
beyond 100nm

**k<sub>1</sub> = .30**

**LithoCruiser**, an integrated lithography process exploration and optimization system, literally lets you outrun your competition. Simulations are done at supersonic speed, enabling you to see the results almost instantaneously. Plus, LithoCruiser comes in a highly integrated, highly automated package with a state-of-the-art GUI that allows for intuitive set up and drive. An extensive body of lithography intelligence and mask making understanding makes it readily applicable in a real world fab environment. This package is available on a dedicated high-end engineering workstation, which further enhances user experience. If your objective is to "get there first", then run with LithoCruiser from MaskTools, the OE Technology Leader. Call us at 408.855.0500 or visit us on the web at [masktools.com](http://masktools.com).

 **MaskTools**  
An ASML Company

# ASML

## Special Applications

The birth of the business division "ASML Special Applications" in 1998 was the result of the need to adapt to changes in the IC industry. ASML realized that it needed a dedicated group to bring new technology to customers with special requirements and explore market opportunities outside of the main markets. ASML Special Applications was set up with the objective of bringing customer value to the new and existing application markets.

While serving the application markets on one end, Special Applications has also developed the expertise to customize and relaunch pre-owned ASML equipment into the market place. The development of the certification and remarketing program has been welcomed by our customers, and has resulted in a steadily increasing number of previously owned systems as part of ASML's annual output.

Six years down the line, we can be proud of the results achieved so far. ASML Special Applications sales represent a substantial part of all ASML unit shipments,

and we are a recognized market leader in the application markets.

Today we see our lithography systems being applied in diverse markets like Thin Film Head (TFH), compound semiconductors, image sensors, optical ICs and MEMS. Looking forward, we see an exciting future as application markets diversify and expand into new markets.

# Introducing the Brightest Idea in the Litho Universe

**ASML Special Applications.**  
Offering the most productive  
custom solutions on Earth.

In a time when emerging technologies require special attention to solve specific imaging needs, ASML presents its Special Applications division (SA). Our objective is to apply industry-leading technology to thin-film heads, compound semiconductors, and silicon applications such as power, linear, discrete and mixed signal devices. SA is also focused on increasing value of ownership by extending viable life cycle of installed systems through performance upgrades, technology options, certification programs, and fab consultancy.

By offering application specific solutions tailored to customers' individual imaging requirements, ASML SA provides the most productive custom litho systems on Earth. Discover a new world of litho opportunities. Call 408-719-6376, and visit us on the web at [www.asml.com/sa](http://www.asml.com/sa).



**IMAGING FOR SPECIAL APPLICATIONS**

ASML toll free: 800.223.6442 U.S.A. 408.719.6376  
Europe: 31.40.2340000 Asia: 832.2293.5166



The installed Base Solutions (IBS) team from ASML Special Applications can work with you to conduct fab performance analyses based on your application and objectives. We will detail improvement scenarios that blend system upgrades, throughput enhancement packages and machine conversions. Then we will provide the productivity-boosting tools you need to put new muscle into your operation. IBS from ASML Special Applications will not only make you more competitive, it will shape up your value of ownership. To maximize the potential of your current fab equipment, go to [asml.com/sa](http://asml.com/sa).

## PUMP UP PERFORMANCE WITH ASML INSTALLED BASE SOLUTIONS.



Tools That Build The Future 

[asml.com/sa](http://asml.com/sa)