

annual report





# The company

board of directors

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**William R. Hoover**  
Chairman of the Executive Committee of Computer Sciences Corporation



**Ralph E. Reins**  
Chairman and Chief Executive Officer of Reins Enterprises



**Gary K. Willis**  
Chairman of the Board of Directors, Chief Executive Officer and President of Zygo Corporation



**Günther Braun**  
Executive Vice President, Finance and Administration, Chief Financial Officer and Treasurer of ROFIN-SINAR



**Hinrich Martinen**  
Executive Vice President, R & D/Operations, Chief Technical Officer of ROFIN-SINAR

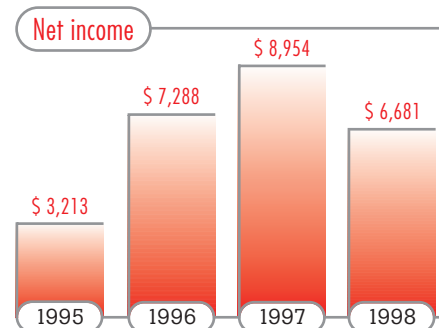
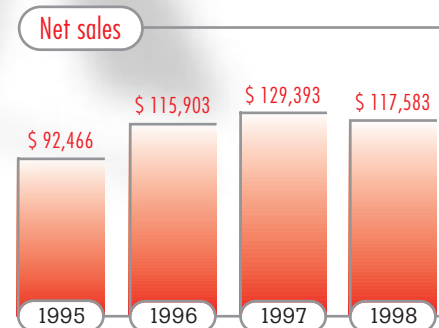


**Dr. Peter Wirth**  
Chairman of the Board of Directors, Chief Executive Officer and President of ROFIN-SINAR

*Headquartered in Plymouth, Michigan and Hamburg, Germany,*

## ROFIN-SINAR

*Technologies, Inc. designs, develops, engineers and manufactures industrial laser products for cutting, welding and marking a wide range of materials. With production facilities in the US, Germany, Japan and the UK, ROFIN-SINAR is one of the world's leading designers and manufacturers of industrial lasers, with more than 5,500 laser units installed worldwide serving more than 1,500 customers.*



## Financial Highlights

(FY ended September 30)

| Results of operations<br><small>(in thousands, except per share data and employees)</small>   | 1995      | 1996       | 1997       | 1998       |
|---|-----------|------------|------------|------------|
| <b>Net sales</b>  | \$ 92,466 | \$ 115,903 | \$ 129,393 | \$ 117,583 |
| Gross profit  | \$ 35,304 | \$ 43,807  | \$ 46,411  | \$ 43,107  |
| Income from operations  | \$ 7,912  | \$ 13,226  | \$ 13,233  | \$ 10,491  |
| <b>Net income</b>   | \$ 3,213  | \$ 7,288   | \$ 8,954   | \$ 6,681   |
| Net income per diluted share<br><small>(based on weighted average shares outstanding)</small> | \$ 0.37   | \$ 0.84    | \$ 0.77    | \$ 0.58    |
| Number of employees (as of Sept. 30)  | 407       | 453        | 500        | 552        |
| Sales per employee  | \$ 227    | \$ 256     | \$ 259     | \$ 213     |
| Order backlog   | \$ 26,500 | \$ 35,900  | \$ 29,100  | \$ 35,900  |

| Balance sheet<br><small>(in thousands)</small> | 1995      | 1996       | 1997       | 1998       |
|--|-----------|------------|------------|------------|
| Total assets                                   | \$ 90,995 | \$ 133,147 | \$ 132,189 | \$ 143,742 |
| Total liabilities                              | \$ 51,322 | \$ 55,147  | \$ 50,264  | \$ 52,977  |
| Stockholders' equity                           | \$ 39,673 | \$ 78,000  | \$ 81,925  | \$ 90,765  |

## The financial year

ended September 30<sup>th</sup>, 1998, completed our second year as a public company.

The year was a challenging one as the global economy, and in certain areas the laser market, was hurt by the financial crisis in the Far East and the down-turn in the semiconductor industry.

Whereas our marking business achieved a growth of 9% in sales to \$39 million and 8% in units shipped, the cutting & welding sector decreased by 16% in sales to \$79 million. The stronger US-dollar had a negative impact of \$5.7 million on total sales.

For ROFIN-SINAR the year saw our resources focused on a number of major development projects, some of which have already resulted in new product launches.

To our

Shareholders ...

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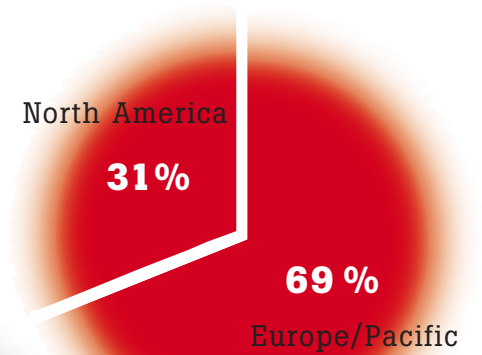
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*"The first  
3.5 kWatt  
Slab-laser  
prototypes have  
been built."*

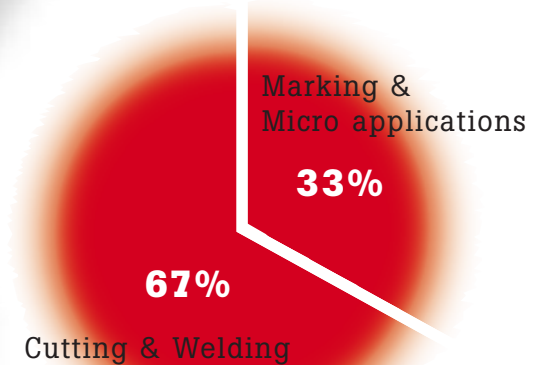
## Our marking business

was highlighted by a continued growth in units shipped to the semiconductor/electronics industry and also in shipments to the Far East. We achieved this growth despite a depressed semiconductor market through a steady increase in worldwide presence, adding local sales and service engineers to better support our customer base. A substantial increase in marking speed and product development in the diode pumped laser marker - now also available in the frequency doubled green wavelength - further strengthened ROFIN-SINAR's competitive position in the market.

## Geographical



## Business Units

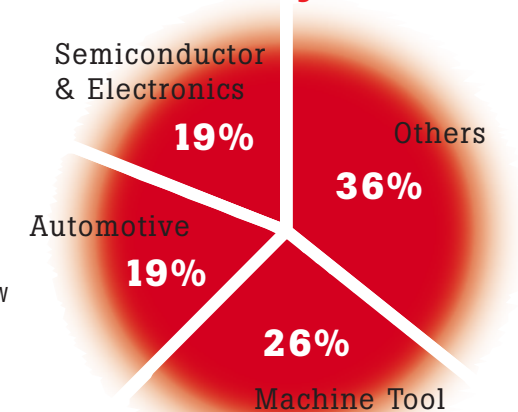


## Our cutting & welding business

experienced a sales decline of \$15 million compared to the previous year. In 1997 we delivered a major multimillion dollar order to one customer for airbag welding. The lack of a similar large multiple laser unit order during 1998, and also the fact that we had a model change in our main product line, the 2 kWatt CO<sub>2</sub>-laser - from the fast axial flow design, which we have marketed for 15 years, to the new diffusion cooled Slab-laser design - caused our temporary weakness in this market. Additional negative influence came from the economic slow down in Japan.

As our Slab-lasers became generally accepted by our customers - all OEM customers in the US and Europe switched over to this technology - our order intake rose again creating a new record backlog for this product. The successful development of higher Slab-laser powers up to 3.5 kWatt is expected to further increase the competitive advantage of this product line.

## Industry



**Our diode laser business,**

which is represented by our subsidiary DILAS Diodenlaser GmbH in Mainz, acquired in 1997, showed substantial growth created by strong demand for pump modules especially in the US. In the new market of direct diode applications we were able to install the first industrial unit for welding of thin stainless steel in a kitchenware production facility and received a multiple unit order for hardening an automotive component. We view these orders as the first industry breakthroughs for the high power diode technology in production environments.

With our investment in the laser diode business through DILAS and our ongoing development in the Slab-laser technology, on the high power as well as now on the low power side, we believe ROFIN-SINAR is well positioned for the future.

We thank you for your interest in our company. Supporting our customers, optimizing our performance and increasing the value to our shareholders will be our focus as we move forward.

Sincerely,

Dr. P. Wirth  
President and CEO

*"The first diode lasers for industrial processing have been installed."*

... Customers

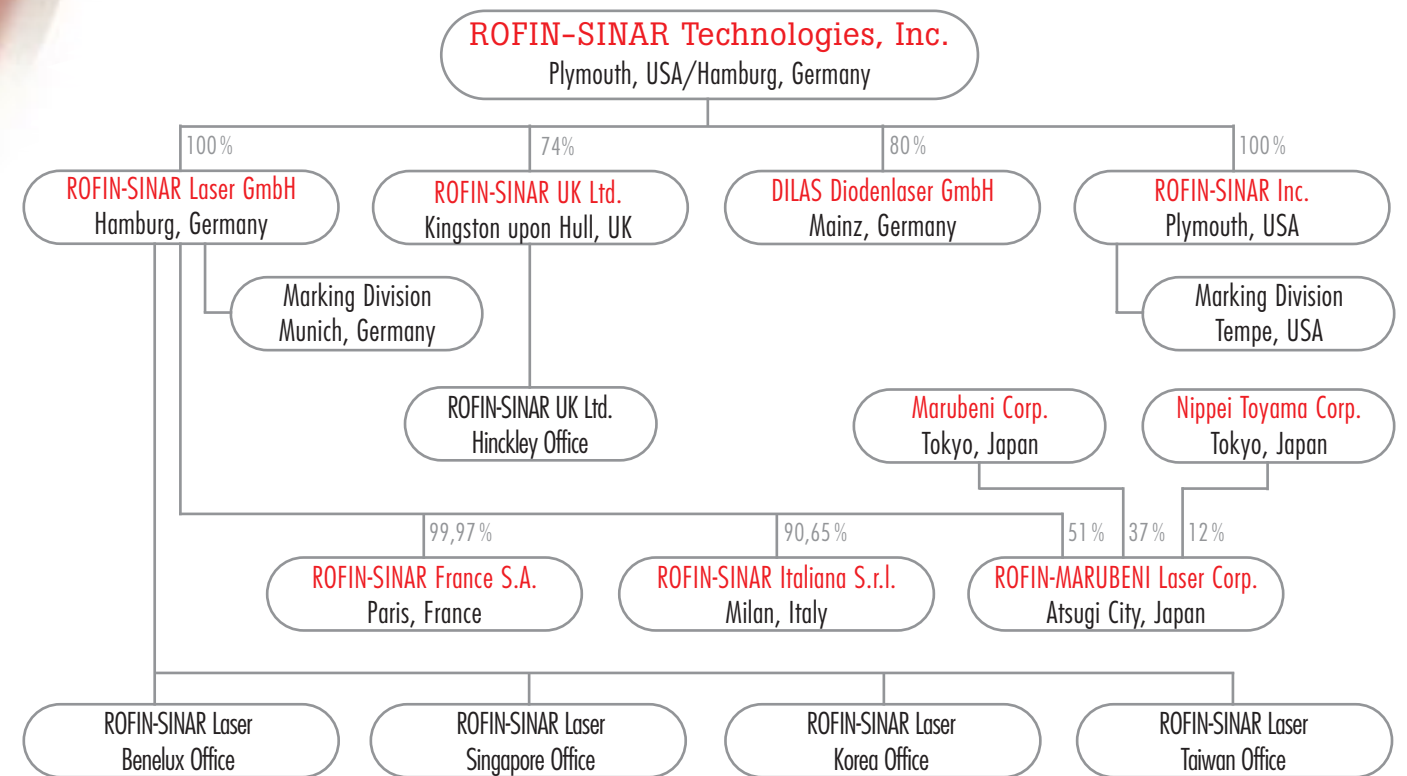
and Employees

**In our new UK facility**

in Kingston upon Hull, a company we founded in January 1998 by acquiring certain assets from Palomar Technologies Ltd., UK, we were able to initiate production of low power CO<sub>2</sub>-lasers. These lasers, which are also based on our proprietary diffusion cooled Slab-design, are in the power range of several hundred watts and are used for cutting glass, ceramics, textiles, wood and plastics. Initial units have been shipped to key customers, test results have been promising and we expect to ramp up production in 1999.

Sales of lasers for material processing are affected by the overall market for machine tools and the investment cycles of key industries. However, the laser industry's market share will continue to grow with the rapid pace of technological advances. With this movement we expect new applications to develop and a continued increase in customer base. For the future of our company it is essential to bring new products into the pipeline and our energies will continue to be focused on this task.

Laser welded kitchen sink



## New Products for the Future

The laser business is characterized by rapid technology improvements. As one of the world's leading manufacturers of high power laser beam sources, our company is dedicated to new technology developments:

Diffusion cooled Slab-technology and laser diodes are the key words for ROFIN-SINAR over the next years.

Laser diode  
modules

# Diode laser

# technology

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### Laser diodes

have been in use for many years in various consumer goods such as CD-players. It is only recently that high power diode modules in the range of up to 50 Watts became available. The specialist for assembling those diode modules within the ROFIN-SINAR group is DILAS. The key operations include mounting the tiny diode bar on a specially optimized heat sink, assembling miniature optics in front of the diodes to shape the laser beam and stacking those modules for high output powers.

*"The main features of diode modules are their extremely small size and high efficiency."*

Diode laser  
2.5 kW



### ROFIN-SINAR/DILAS

is operating mainly in two areas:

- Diode modules used for pumping other laser media, for measurement, medical and scientific applications. This is mainly a component market, where standard catalogue devices are sold.
- Diode lasers, ranging from 30 Watts to several kilowatts, used for direct material processing applications such as soldering, welding of steel and plastic and surface treatment.

The advantages of diode modules are their extremely small size and high efficiency, which reaches values above 30%.

Markets still have to be developed for the new high power diode lasers. Growth can be expected as soon as successful applications are established. In our opinion these semiconductor based lasers will play a key role in laser development over the next ten years and will gain market share and open up new areas. The German government is funding a multimillion dollar research program with the goal of improving the beam characteristics and finding new applications. DILAS and ROFIN-SINAR Laser GmbH are key participants in this program.

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## Using the diode technology from DILAS

and our own experience in designing and manufacturing solid state lasers, ROFIN-SINAR is introducing the first multikilowatt diode pumped Nd:YAG laser to the market. The advantage of this new type of solid state laser is its approximately 3 times higher efficiency coupled with much improved beam characteristics. This allows the laser beam to be focused into smaller fiber diameters, thereby decreasing the focus spot size and generally increasing application speeds. First sales in the multikilowatt power range are expected in 1999. The key advantage of the diodes is their long life (in the range of 10,000 hours), whereas the conventional flash lamp pumped units require service intervals as low as 500 hours.

Laser cavity



Low-loss fiber system

# Diode pumped

# solid state laser technology

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*"The key advantage of the diodes is their long life"*

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## With the introduction of this new laser series

ROFIN-SINAR also introduced a modern control platform on the basis of an industrial personal computer. This software allows monitoring of all relevant laser parameters and functions, enabling the user as well as the supplier to monitor and record laser performance. This information can be used to optimize production and service requirements.

## During the last 20 years

CO<sub>2</sub>-laser designs moved from so-called slow flow technology towards fast axial or transversal flow systems, where the laser gas is circulated around through the discharge with high speed. The step to the fast flow design enabled higher laser powers in the multikilowatt range and fairly compact mechanical solutions, but added complexity and cost to the CO<sub>2</sub>-laser.

## The latest state-of-the-art

design, however, is the diffusion cooled CO<sub>2</sub>-laser; a revolutionary new solution, developed by ROFIN-SINAR in cooperation with the DLR and based on a patent by Prof. Tulip. This design not only makes forced gas circulation unnecessary, it also creates a laser beam with excellent focusability, opening up new opportunities for laser material processing. Based on another revolutionary new design, the use of a diamond window as the transmissive component, which separates the vacuum from the atmosphere, ROFIN-SINAR was able to increase the output power of the Slab-laser up to 3.5 kWatt.

## ROFIN-SINAR's latest products,

the new low power CO<sub>2</sub>-lasers with 100 and 200 Watt output power, are based on the same Slab-laser principle. Built as sealed-off units (gas life time >20,000 hours), these lasers are perfect tools for cutting glass, textile, wood, plastics and ceramics. Additionally, the same lasers will be used for marking applications.

An increase in output power is planned for the next year, which will further enhance the capability of this laser type to enable cutting with higher speeds and also metal cutting.

# Diffusion cooled Slab-laser

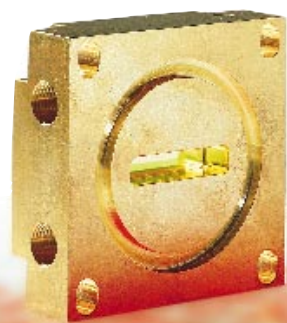
# technology

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The advantages are clear:

- no moving parts means low maintenance and low cost of ownership for the laser user
- compact, small laser heads, which also can be moved easily as a whole for applications where larger working area is required
- very low gas consumption so that the gas supply can be integrated into the laser itself and expensive laser gas installations are no longer required
- the optimal mode structure which also can be maintained at high output power enables new and faster applications in cutting and welding

And all these advantages can be transferred into economical advantages for the customer.



Diamond window

*"We strongly believe that this design is the one which will dominate the future of the CO<sub>2</sub>-laser technology."*

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### Since its participation in a research project

founded by the Bavarian Government, our marking division has played a key role in the development of diode pumped solid state lasers in the 30 to 80 Watt range. These lasers have demonstrated superior performance in marking speed and contrast for some materials, especially where marking with the frequency doubled green wavelength is preferred - a fact which led to a successful introduction of marking a new generation of semiconductor packages.

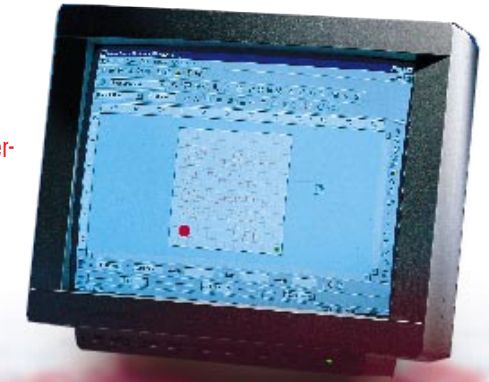
### With a new galvo deflection system

we were able to achieve marking speeds in excess of 1,000 characters per second in the double head configuration.

First tests with a galvo head equipped with a CCD-camera for checking on-line the part position or the marking content showed promising results. This feature may make commonly used additional inspection stations unnecessary.

In addition, a new system design was successfully tested which allows vector marking "on-the-fly". The system is complementary to the new laser coding product, developed by ROFIN-SINAR UK Ltd.. The technology allows us to mark products, mainly packages in the pharmaceutical and food industries, which are in high speed motion. This will enable ROFIN-SINAR to move into the area of marking consumer goods.

VisualLaserMarker-Software



Our software group concentrated on developing a new Windows-NT® based marking software to prepare for conversion from the OS/2®-operating system.

First test versions of the new VisualLaserMarker-Software will be installed at key customers and we plan a complete change to Windows-NT® over the next 12 months.

# Laser Marking



# technology

*"A new system configuration allows vector marking 'on-the-fly'."*

With the diffusion cooled Slab-laser technology, for which ROFIN-SINAR has worldwide patents and exclusive license rights in the power range above 500 Watts, and with the laser diode technology, which can be used for direct applications and for pumping solid state lasers, ROFIN-SINAR is the front-runner in high power industrial development. This technological leadership combined with our focus on markets and customers is the basis for future growth.

PREPARED FOR THE FUTURE

Laser marked µBGA

# ROFIN-SINAR's industrial lasers



**ROFIN DC 025**



**ROFIN DY 026**



**ROFIN CW 025**

**Series**

**CO<sub>2</sub> Laser:**

|          |               |
|----------|---------------|
| ROFIN SC | 100-200 W     |
| ROFIN DC | 1000-3500 W   |
| ROFIN HF | 4000-8000 W   |
| ROFIN SR | 12000-20000 W |

**Nd:YAG Laser:**

|                  |             |
|------------------|-------------|
| ROFIN Spotwelder | 50 W        |
| ROFIN P/CW       | 150-300 W   |
| ROFIN P          | 50-1000 W   |
| ROFIN CW         | 1200-2500 W |
| ROFIN DY         | 650-2600 W  |

**Diode Laser:**

|          |           |
|----------|-----------|
| ROFIN DF | 30-60 W   |
| ROFIN DL | 10-4000 W |

**Marking Products:**

|                   |  |
|-------------------|--|
| ROFIN DP Marker   | 3-50 W                                 |
| ROFIN S-Line      | 75 W                                   |
| ROFIN Power Line  | 25-130 W                               |
| ROFIN Combi Line  | Marking System                         |
| ROFIN IC Marker   | Customized system<br>for IC-Marking    |
| ROFIN Label Laser | Customized system<br>for Label-Marking |

PRODUCT OVERVIEW



**ROFIN DL 025**



**ROFIN DP Marker**



**ROFIN HF 880**

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## Board of directors:

**Dr. Peter Wirth**  
Chairman of the Board  
Chief Executive Officer  
President

**Hinrich Martinen**  
Executive Vice President  
Chief Technical Officer

**Günther Braun**  
Executive Vice President  
Chief Financial Officer

**Ralph E. Reins**  
Chairman and Chief Executive  
Officer of Reins Enterprises

**William R. Hoover**  
Chairman of the Executive Committee  
of Computer Sciences Corporation

**Gary K. Willis**  
Chairman, President, Chief Executive  
Officer and Director of Zygo Corporation  
Member of the Board of Directors of  
Benthos Corporation

## Auditors

**KPMG Peat Marwick LLP**  
Detroit, Michigan

## Transfer agent and registrar

**The Bank of New York**  
New York, NY

## Common stock

**ROFIN-SINAR Technologies, Inc.**  
trades on NASDAQ's National Market  
System under the Symbol "RSTI"