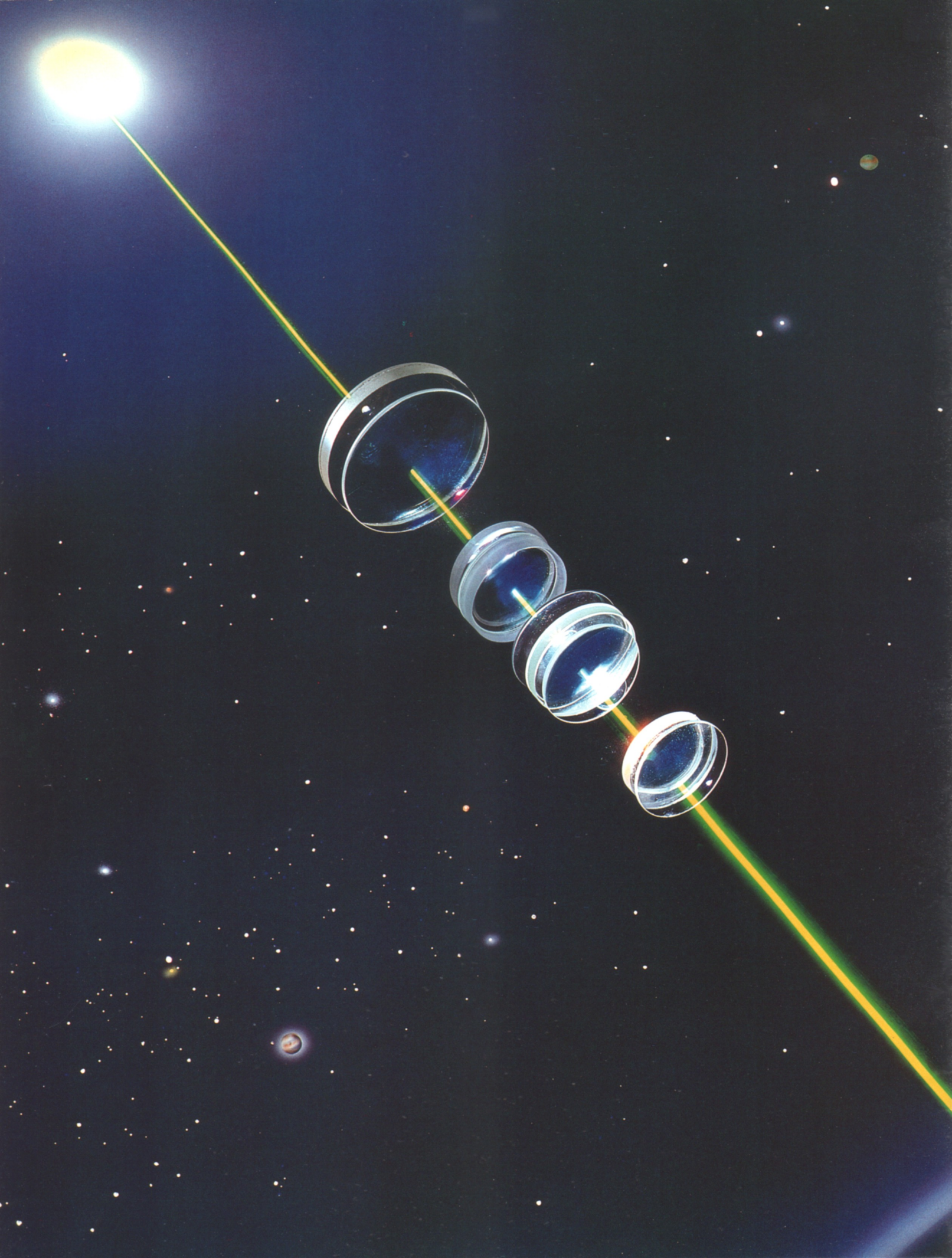
TAMRON
COMPANY GUIDE



The rapid, advanced progress of the electronics industry and information equipment is having a tremendous influence on the optical industry. This trend is necessary as society becomes increasingly information-oriented. It is especially clear that lenses and optical products for a wide variety of multiple-purpose information handling technology will expand even more rapidly than in the recent past. And, it is easy to foresee that optics combined with electronics will be used extensively in the communications fields, the highly advanced scientific fields and, of course, the photo industry.

Tamron believes that developing the best products and offering new optical equipment, incorporating the latest technology, while continuing to make the greatest efforts to meet the demands of our customers in our rapidly progressing society, will lead to our own expansion and development. This will enable us to contribute more and more to society.

新井健之

Takeyuki Arai
President

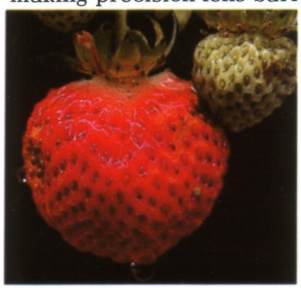
Toward A Bright Future

Tamron approaches the year 2001 in five challenging optical fields.

As a comprehensive optical equipment manufacturer, Tamron is always innovative in researching and developing new techniques, technologies and products, as well as in the design and production of new merchandise.

The days when industrial techniques and technologies advanced by month or even by day are gone. Today progress is measured by hours, or seconds. High-paced technical innovation is a part of every industrial field. Among them, the optical industry is considered a rapidly advancing, knowledge-intensive industry using precision technology. It is an industry of high efficiency in saving energy and resources.

In making an SLR camera lens and a lens-barrel unit, Tamron uses both innovative and time-proven optical theories, mechanical engineering, and highly advanced computer design techniques. Tamron creates highly advanced lens housings by means of its machine design techniques for making precision lens-barrels. The highest quality control standards for the lens and barrel unit are always maintained.



Tamron's method of carefully selecting the material for optical glass and other parts of the unit is second to none. In short, Tamron possesses the know-how and engineering capability to make highly mechanized, fine precision lenses. We are untiring in our efforts to develop new products.

The Photo Industry: Tamron makes camera and projector lenses that meet the demands of professionals and amateurs.

As electronics advance at a remarkable rate, changes in photographic systems are naturally occurring. To keep ahead of the changes, Tamron makes every effort to produce the finest products.

The Electronic Information, ENG TV Camera Lenses and Home Video Fields.

The demand for color TV cameras is said to have increased nearly 100 times during the past 20 years. It is expected to extensively influence our daily lives even more in the future. Tamron is taking all the proper steps in line with the diversification of the cameras from home use to electronic news gathering equipment (ENG).

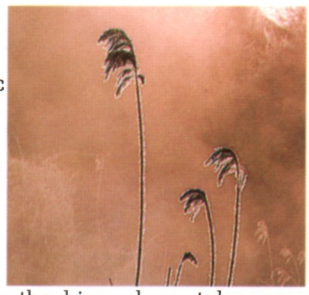
Optical Equipment for Office Machines including Copiers and Micro-readers.

Office machine electronics advances have progressed just as remarkably as photographic equipment. Tamron is cooperating with the office equipment manufacturers to develop the optics for the business needs of today. And tomorrow.

Optics for medical instruments and precision measuring apparatus for a large variety of scientific and industrial fields.

The ultra-precision optical needs in these fields are already greatly varied and diversified. But there is a great demand for more advances and for an even greater variety of functions. Tamron is doing everything possible to meet and exceed these demands.

Binoculars, telescopes and telescopic sights.



Our society requires more optical products for leisure time pursuits. Tamron offers the binoculars, telescopes and telescopic sights of the finest grade for people who want to enjoy sporting events, or any activity where the need for better optical products are needed.

Processing in Leaps And Bounds

Toward The Year 2001

Tamron advances toward the year 2001 with five management principles.

Tamron has the following five principles for its growth and energetic business activity.

1. Tamron will always give top priority to the needs of its customers by offering quality merchandise.
2. Tamron will pass a sense of assurance and reliability to its customers by means of strict quality control and thorough servicing.

3. Tamron will always make research and development the foundation of its business activities to create products both innovative and unique.
4. Tamron plans to grow steadily, but always based on sound management control.
5. Tamron will give its support to competent people inside and outside the company by offering them a chance to achieve challenging executive responsibilities.

SP lenses created through the pursuit of the highest class lenses with excellent optical theories and advanced design techniques.

A new age is beginning in lens design and Tamron SP (Super Performance) lenses are leading the industry.

In its 30 years of manufacturing a vast range of precision optical products—including interchangeable lenses for single-lens reflex cameras, optical systems for industrial and research laboratory uses, video equipment, and optical devices for application to a wide range of scientific endeavors—Tamron has gained the confidence of cameramen worldwide who require the optimum in lens performance.

For the development of the SP lenses, each of Tamron's optical design engineers started by asking "What is a really good lens?" They wanted to develop lenses with outstanding features, not only in terms of optical performance (contrast, distortion and color reproduction) but also in respect to mechanical qualities (compactness, lightness, and mechanical maneuverability). To accomplish this they forgot the old conceptions about lenses and adopted new ones for every aspect of the field in an uncompromising technical pursuit of newer, better lenses. Their innovative optical theories and numerous new mechanical design techniques led to the development of the SP lenses. SP lenses meet the strictest demands of photo professionals for high performance interchangeable lenses, but they do even more. They are the lens group whose performance goes beyond the limitations of conventional lens performance to endlessly expand the photographic domain.

Hold The World of Interchangeable Lenses in Your Hand

The Adaptall-2 Lens Series with outstanding performance and functions, as well as excellent cost performance.

The Adaptall-2 Lenses are the successors to the Adaptall Lenses, which won great admiration among the world's camera fans for high-quality interchangeability (first introduced to the public in the early 1970's). The new series was developed by improving the reliability and functional performance of the Adaptall Lenses. It adopts the compact, lightweight characteristics and excellent cost performance of the Adaptall Lenses, but makes abundant additions by introducing the new optical theories and advanced technology developed at the same time as the SP lenses. The Adaptall-2 Lenses achieve excellent cost performance combined with high-level optical performance and many advanced characteristics that complement today's automatic cameras.

Tamron TV camera lenses meet the world's needs because of Tamron's flourishing technical developments.

The color TV camera world is an example of striking technical innovations. In the business of VTR color cameras for home-use, furious competition is spreading through the market. Under such conditions, Tamron, which started producing lenses for CCTV cameras in 1966, has steadily made progress in technical and commercial areas. This is based on its excellent original optical techniques, and Tamron's ability to meet strict demands and thorough quality control.

Tamron makes high-magnification zoom lenses used by TV stations, news recording ENG camera zoom lenses, home video camera zoom lenses, and CCTV camera lenses for industrial production line checking, security systems in public places and crime prevention. The merchandise related to VTR cameras offered by Tamron includes remote control equipment, flexible units, automatic-control electronic servo equipment, and auto-iris systems for VTR cameras.

Use of projected TV images as a general method of communicating daily life is expanding soon to become the leading method of giving information, even superseding motion picture film.

Endlessly Pursuing Unlimited

Projected Image Information

Tamron Reflection Information Equipment Lenses are contributing to information transmission with their fine resolution capabilities.

The role of reflection information equipment is in transmitting one piece of information to many persons in a short time. In this field, Tamron is producing the lenses for electronic copiers, micro-readers, and AV educational equipment.

Electronic copier lenses are required to have highly-efficient, flat resolving power to an extent not imagined for ordinary lenses. To faithfully reproduce a manuscript, they must be capable of reproducing the details of the original. That is, the ability to sharply resolve the peripheral areas of the manuscript and to reproduce delicate shades and contrasts in the manuscript. Tamron offers its customers lenses meeting these critical requirements. And Tamron has the technical ability to promptly meet new demands for lens performance as they evolve.

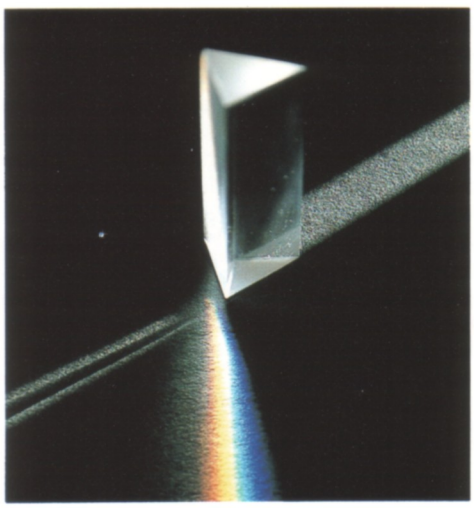
Slide projectors are used extensively by business, professionals and educational institutions. Obviously, the lenses of the projectors must perform well in reproducing the original. They must also adapt to various projection conditions, including the projection distance, degree of darkness of the projection room, and type of projection screen. Tamron has developed a series of exceptional projector lenses under the brand name Protamron. They precisely meet the excellent resolution capabilities required. The Protamron series is a natural outgrowth of Tamron's wealth of experience and technical know-how in the manufacture of interchangeable lenses for 35mm single-lens-reflex cameras and TV camera lenses. They are universally appreciated for their high quality.

Ultra-Precision Optical Equipment Parts, the "heart" of advanced scientific equipment.

Tamron's product profile includes ultra-high precision polished lens products and thin film optical products. These high-technology instruments are produced through multiple-film-layer coating techniques. Tamron is one of a very few manufacturers in the world of ultra-high precision polished lenses.

There are many kinds of ultra-high precision polished lenses. They include *corner cubes* (the heart of equipment using laser beams), various types of prisms, and lens-polishing prototypes which are the standard for lens curvature and plane accuracy in subsequent lens polishing. In addition, Tamron produces polish-working standard prototypes used for making the lens polishing prototypes. Each of these products has severe tolerance and accuracy requirements. Ultra-high precision lenses and prisms are used principally for high precision measuring instruments, electronic equipment, and medical instruments.

For the production of thin film products, Tamron has the rights (acquired in 1972) to use the production techniques of the Spectraphysic company in the USA. Tamron also applies a wealth of techniques accumulated in the development and production of interchangeable camera lenses. The thin film products which are based on this strong technical foundation have multi-purpose applications. They include laser mirrors, which reflect only laser rays; half mirrors used as beam splitters, which can efficiently divide rays into two parts; dichroic mirrors, which are used as color separation filters for color video cameras; and wide wave-length area reflection prevention film (BBAR coating), which can efficiently limit surface reflection in optical glasses to increase the quantity of light they can transmit.



The Challenge of High Precision and Future Engineering

Tamron's highly-rated, high-performance Binoculars and Spotting-Scopes with 30-year history.

Tamron has made very highly rated binoculars and spotting-scopes. In this field, the measures of high performances are bright and wide vision, easy maneuverability, easy portability, and great durability.

The tendency to return to nature to fill leisure hours has grown stronger and has made bird watching and the observation of animal life more and more popular hobbies. For this reason, and as the opportunities for hunting, spectator sports and attending stage performances increase, the usefulness of binoculars is growing rapidly. In addition, zoom spotting-scopes are used for such activities as target observation in shooting matches.

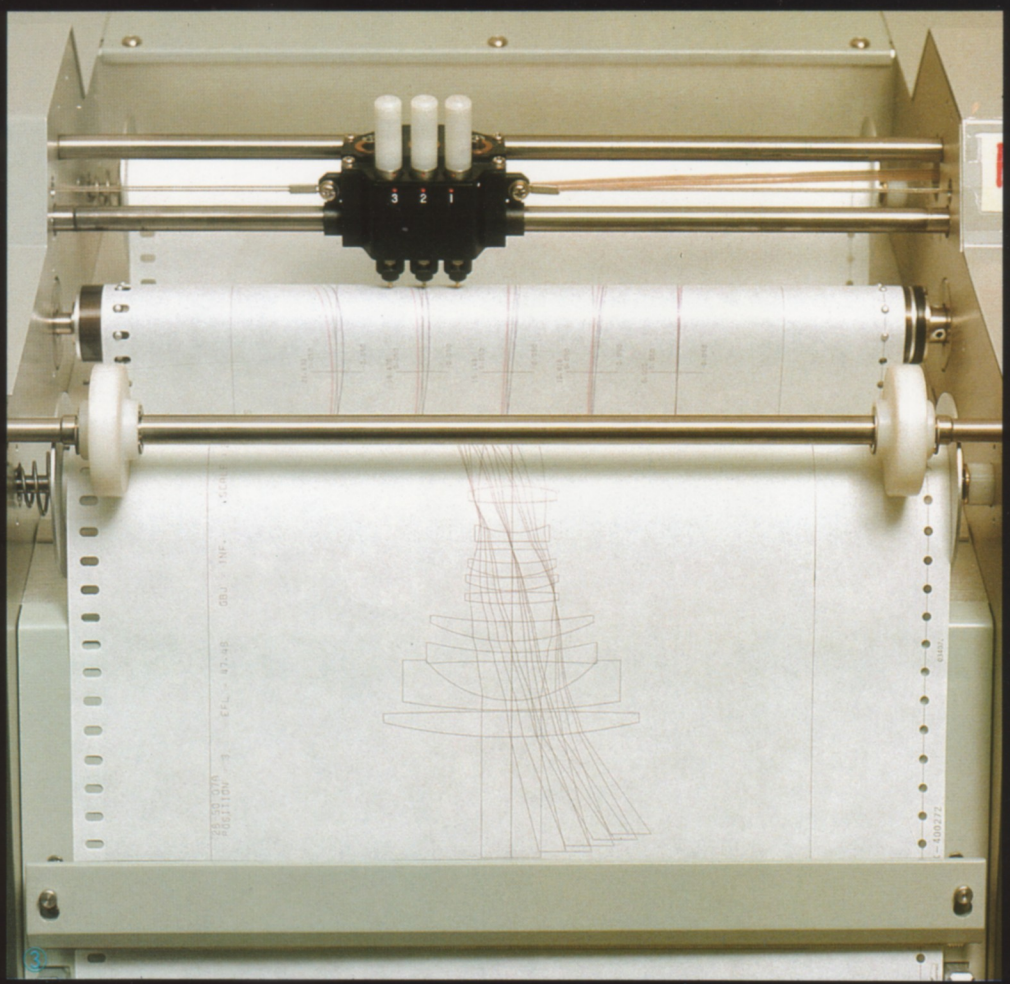
Tamron started making binoculars at the time of its founding. We have given our binoculars enough fine performance characteristics and high quality to have won the first and second places in the merchandise evaluation of the American magazine "Consumer Report" in 1962. Our high- quality binoculars were regarded in Japan and internationally.

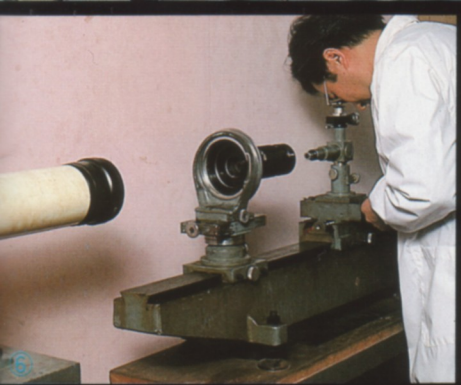
Tamron research and development yields unique and highly innovative products. This is the foundation of all our activities.

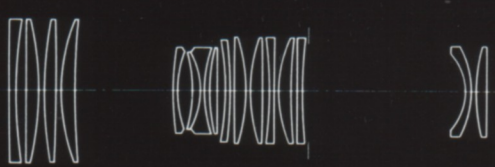
What type of products do the customers desire? What are the market conditions? What types of products will be available in the next generation? Business must constantly look ahead to see the new products the future will need. Since lenses are the product of multiple technologies and industries, the application of discoveries in various fields is indispensable. These include research into optical glass, metallurgy, plastics, electronic technology, mechanical engineering, computer science and more. At Tamron, experts in all these respective fields are undertaking development of the latest technologies on a daily basis.
Exchanging their expertise, technical data and accumulated experience and adding up-to-date computer design technology, Tamron engineers are actually developing valuable and unique products for their customers.

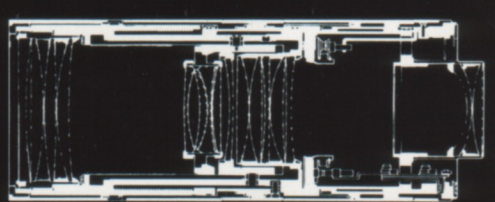
1) Computer optical design center.
2) Computer terminal equipment.
3) Tracing optical paths by computer.
4) Merchandise planning and development meeting.
5) Optical bench test.
6) Experimental products' manufacture.

Today's Efforts Make Tomorrow's Products





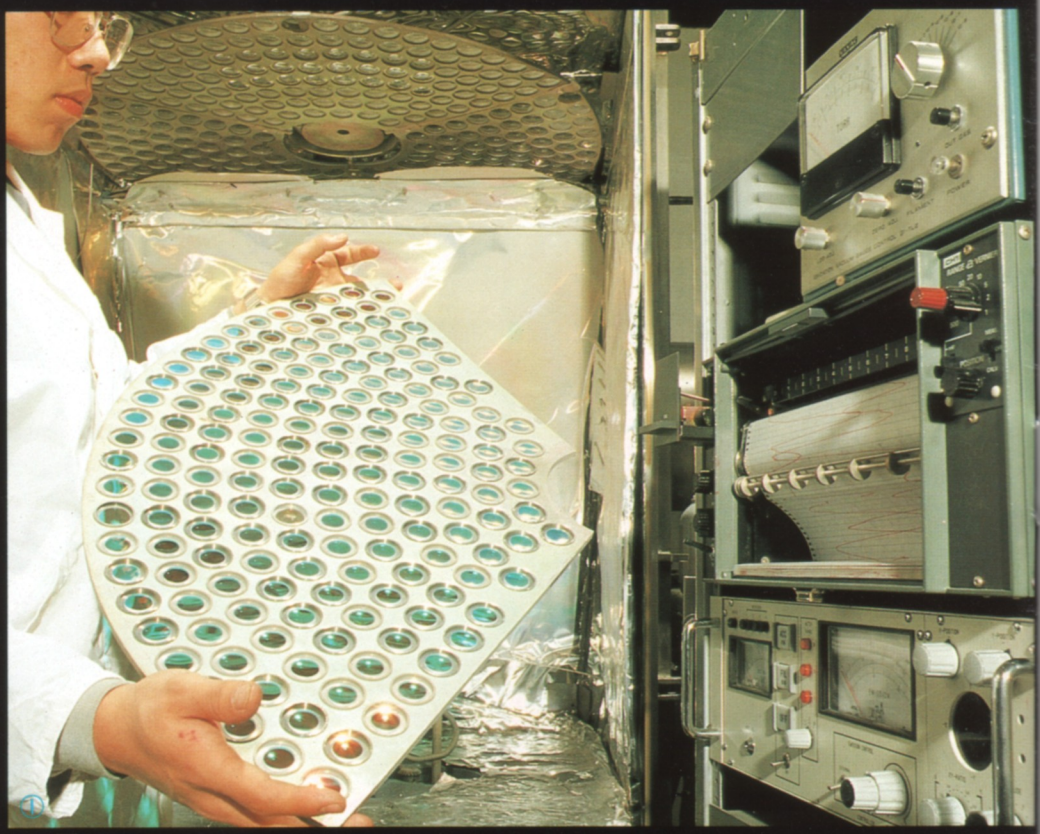


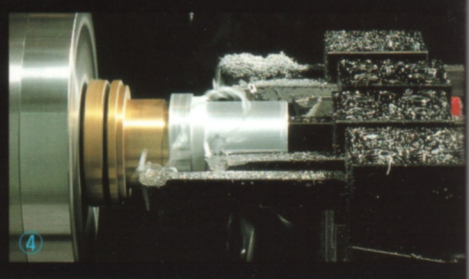


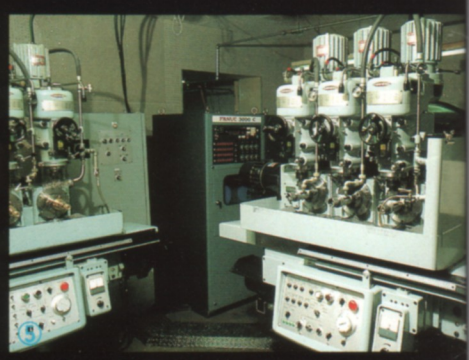
Quality products manufactured under strict quality and production control.

Tamron products are manufactured under an integrated quality and production control system, from the careful selection of optical glass and metallic materials up to the finished lenses.
To ensure quality control, constant spot checks are conducted between the processes in accordance with the strictest specifications applicable. With the adoption of such a spot-check system, and by not conducting ordinary line checks, technicians skilled in the respective processes can carry out double and triple checks. This makes the best use of their knowledge and expertise. By being constantly alert to problems, the careful maintenance of quality is routinely achieved. There is no room for easy compromise at Tamron.
The great emphasis at Tamron is the pursuit of quality. A tour of our facilities will reveal modern state-of-the-art processes. At the same time, we have nurtured the cooperative enterprises formed to manufacture products for use at Tamron. We have cooperated with other firms in every way to help improve their productivity, to broaden and fill out our own business activities in the future, because this improves our own products.

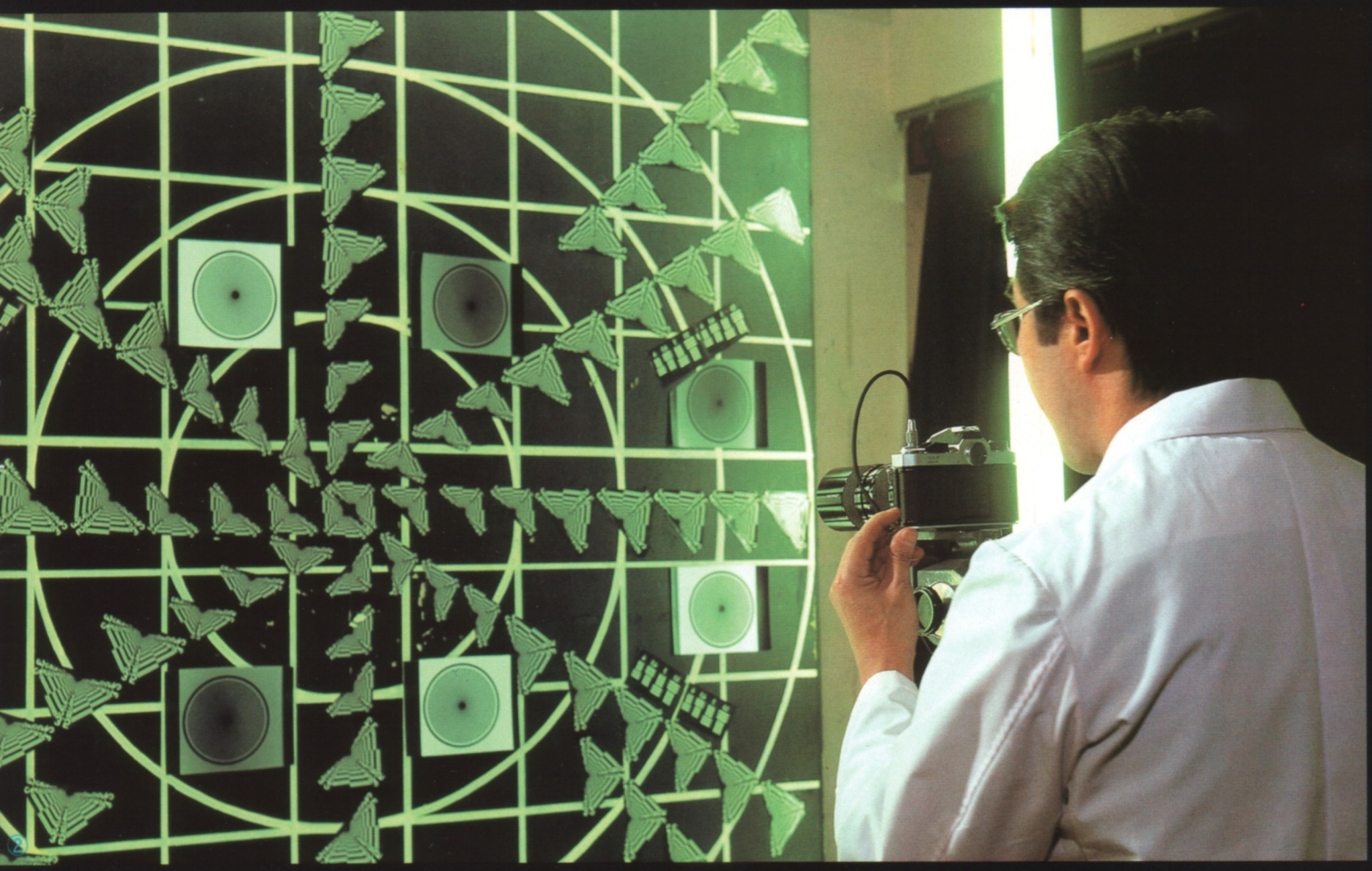
1) Vacuum vaporization of multi-layer BBAR (Broad Band Anti-Reflection) coating
2) Inspection of resolution power chart projection
3) Assembly line for lenses
4) Precision cut-processing by NC lathe
5) NC milling cutter
6) TF measuring instruments
7) Focal position adjustment by collimator

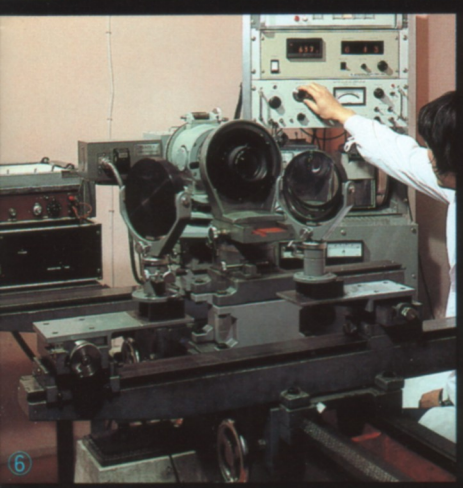






The Accumulation of Daily Activities Builds Confidence in Future Achievements

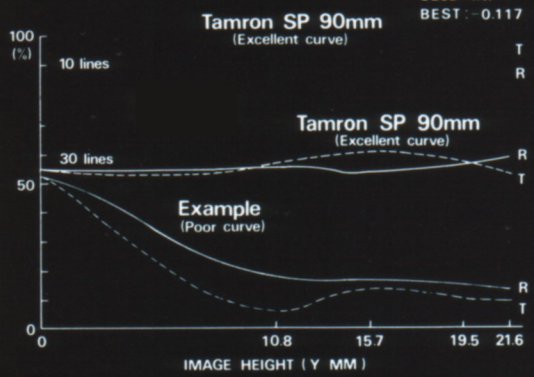




OTF Chart

Tamron SP 90mm

EFL : 87.8
FNO : 2.5
OBJD : INF
BEST : -0.117



A Glimpse of the Company

Corporation: Tamron Co., Ltd.
¥503,125,000
(As of April, 1982)
Employees: 887
Sales: ¥15,500 million
(Fiscal year 1981)

Head Office:
Tamron Building, 17-11, Takinogawa 7 chome, Kita-ku, Tokyo, 114
Telephone: (03) 916-0131 (Key number)
Telex: 272-2220

Commercial Dept. Tokyo Business Office:
19-7, Takinogawa 7 chome, Kita-ku, Tokyo, 114
Telephone: (03) 916-0136 (Key number)

Osaka Business Office:
4th Fl., Miki Bldg. 4-1, Shiomachi-dori 2-chome, Minami-Ku, Osaka, 542
Telephone: (06) 271-4281 (Key number)

Fukuoka Business Office:
4th Fl., Hakata Bldg. 8-36, Hakataeki Chuogai, Hakata-ku, Fukuoka, 812
Telephone: (092) 473-8771 (Key number)

Nagoya Business Office:
7th Fl., Hokushin Bldg. 13-19, Nishiki 1 chome, Naka-ku, Nagoya, 460
Telephone: (052) 201-5941 (Key number)

Sendai Business Office:
4th Fl., Daigo Ohta Bldg., 10-7, Chuo 2 chome, Sendai 980
Telephone: (0222) 23-4903

Sapporo Business Office:
5th Fl., Nichigeki Bldg., Minami Ichijo Nishi 1 chome, Chuo-ku, Sapporo 060
Telephone (011) 251-0636

Okayama Branch Office:
3rd Fl., Sasano Bldg. 38, Tenjinmachi 6 chome Okayama, 700
Telephone: (0862) 33-6306

Omiya Plant:
1385, O-aza Hasunuma, Omiya, Saitama-ken 330
Telephone: (0486) 84-9111 (Key number)

Hirosaki Plant:
3-3, O-aza Shimizu 3 chome, Hirosaki, Aomori-ken, 036
Telephone: (0172) 34-1144 (Key number)
Telex: 8182-40

Tamron Industries Inc.
24 Valley Road, Port Washington, N.Y. 11050 U.S.A.

The Substance of Business

As a comprehensive manufacturer of optical products, Tamron produces the precision optical parts and lenses required in various fields and sells them in Japan and abroad.

Photographic Lenses: Accessory lenses for 35mm single-lens-reflex cameras, interchangeable mounts and associated accessories for various cameras, and projection lenses for 35mm slide projectors.

Television Equipment Lenses: CCTV, VTR, ENG for color cameras, various zoom lenses for telecasting, various zoom lenses for still cameras, single focal lenses and converter lenses and a wide range of products for a variety of systems, such as flexible units and servo units.

Lenses for Office Equipment: Lenses for copy machines, various mirror-type and through type lenses.

Micro Lenses: Various lenses for micro cameras and micro readers.

Super-precision Optical Parts: Super accurate grinding products, various prisms, corner cubes, primary standards for manufacturing lenses, aspherical lenses, and optical parts such as polyhedra prisms.
Thin membrane items and various products made with multi-layer coating technology, laser mirrors, cold mirrors, dichroic mirrors, and BBAR multi-layer coated items.

Telescopes and Binoculars: High-efficiency zoom spotting scopes and zoom reflection telescopes and a variety of high-efficiency binocular.

History

1950 • Organized Taisei Optical Equipment Manufacturing Works at Kamikizaki, Urawa, Saitama-ken (Capital: ¥500,000). • Commenced processing of camera and binocular lens elements.

1952 • Organized Taisei Optical Industries Co., Ltd. (Capital: ¥2,500,000). • Established design department and commenced development of new optical products.

1953 • Established Tokyo Branch Office and a plant at Shimomachi, Kita-ku, Tokyo.

1957 • Developed interchangeable "T" mount system, the first such system in the world for single-lens-reflex cameras.

1958 • Constructed Main Office and Main Plant at O-aza Hasunuma, Omiya, Saitama-ken and consolidated Urawa plant and Tokyo plants. • Registered "Tamron" as a trademark in Japan.

1959 • Takeyuki Arai assumed the post of President • Commenced registration of the brand "Tamron" in other countries.

1961 • Mass-produced and sold 95-205mm F/6.3 telescopic zoom lens for 35mm cameras, a popular type, the first in the industry. This triggered the subsequent zoom-lens boom. • Increased capital to ¥10,000,000.

1962 • The company's binoculars monopolized 1st and 2nd places in the merchandise contest for 1962 organized by "Consumer Report", a major U.S. magazine.

1963 • The company's camera zoom lenses were introduced in the U.S. magazine, "Popular Photography," and won great acclaim.

1964 • Along with the inauguration of a recognition system for enterprises contributing exports, the company was awarded the Ministry of International Trade and Industries prize as a leading export contributor. This prize was also awarded to Tamron in the subsequent eight consecutive years. • Increased capital to ¥50,000,000.

1965 • Commenced direct export of interchangeable lenses to 40 countries under the company brand name "TAMRON."

1966 • In the area of camera lenses and associated products, successfully developed the "Tamron Adaptmatic" lens series, an epoch-making interchangeable mount lens, and established the basis for specialized lens manufacture. • In the area of industrial lenses and associated products, commenced manufacture of lenses for ITV's, VTR's and telecasting. Sale of these lenses in Japan and abroad began. Organized Wako Koki Co., Ltd., at Omiya, Saitama-ken. • Increased capital to ¥60,000,000.

1968 • The first phase of construction of a lens manufacturing plant at Hirosaki, Aomori-ken was begun. Started operation at the same time in a temporary plant. • Increased capital to ¥80,000,000.

1969 • Completed the first phase of construction of the Hirosaki Plant, provided with the most up-to-date production equipment and highly advanced technology and started manufacture of TV lenses and lenses for copy machines. • Established a resident representative office in New York City, U.S.A.

1970 • Acquired a U.S. patent for the Tamron Adaptmatic System for 35mm single-lens-reflex cameras. • Changed the company's name to Tamron Co., Ltd. and increased capital to ¥100,000,000.

1971 • Increased capital to ¥120,000,000. • Established Tokyo Main Office in Tamron Building, Kita-ku, Tokyo to consolidate export/import and domestic sale operations. Simultaneously consolidated the administration department of the Tamron Group.

1972 • Led the industry by entering into a technical cooperation agreement with Spectrophysic Inc., of the U.S. for multi-layer anti-reflection technology.

1973 • In line with the trend toward EE and TTL, improved the Adaptmatic System. Developed the Adaptall lens series, incorporating the new optical systems and made a new departure in interchangeable lenses. (A multi-layer coating is applied to these lenses to improve their performance.)

1974 • Tamron lenses and Interchangeable Mount Systems won great acclaim in the U.S. magazine, "Modern Photography."

Uninterrupted Enterprising Efforts Create The Future

1975 • Established Materials Center at Azusawa, Itabashi-ku, Tokyo to keep up with the expansion of products and coordinate operation thereof.

1976 • Transferred Main Office to Takinogawa, Kita-ku, Tokyo. • Developed QZ-210M photo lens (Adaptall 85-210mm F/4.5 with macro). Adopted Tamron's unique quick-focus system which is lightweight and equipped with a macro mechanism. Achieved tremendous acclaim for our best-selling tele-zoom lenses.

1977 • Commenced sale of QZ-35M (Adaptall 35-80mm F/3.5). Achieved the greatest downsizing in this class. • Increased capital to ¥195,000,000.

1978 • Developed SP (Super Performance) lenses and Adaptall-2 lenses. Pursuing compactness, lightness and the extremity of high performance, created a great sensation in Photokina (in Koln, Germany).

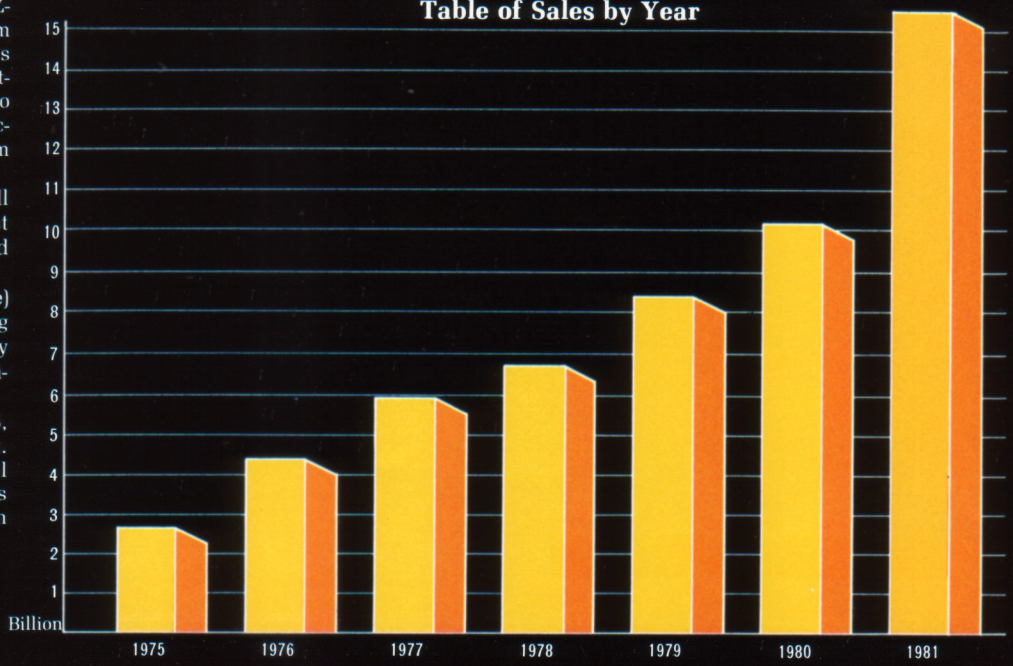
1979 • Organized TAMRON INDUSTRIES, INC., as a sales base in the U.S. market. Commenced direct sale of industrial lenses. • Commenced the sale of 2 lenses in the SP and Adaptall-2 range and won acclaim throughout the market.

1980 • Increased capital to ¥250,000,000. (March)
• Increased capital to ¥310,000,000. (November)

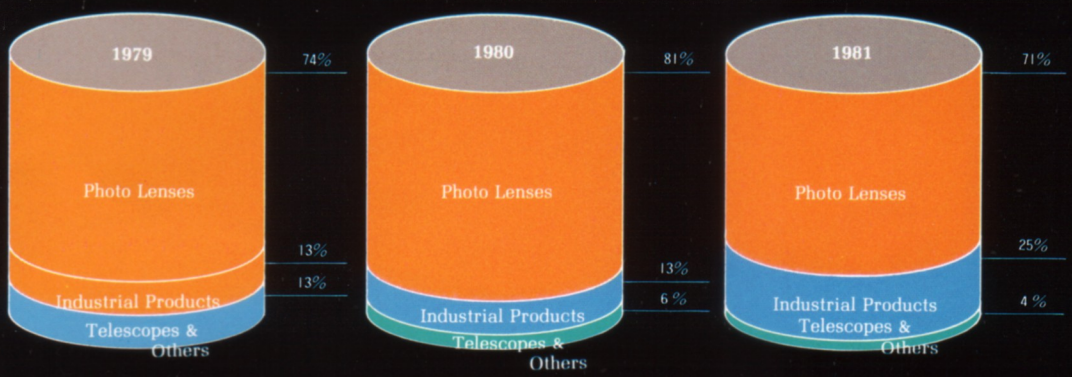
1981 • Increased capital to ¥350,000,000. (April)
• Completed the second phase of construction of the Hirosaki Plant. Incorporated the most up-to-date equipment and trippled production capacity. • Increased capital to ¥402,500,000. (September)

1982 • Increased capital to ¥503,125,000 (March)

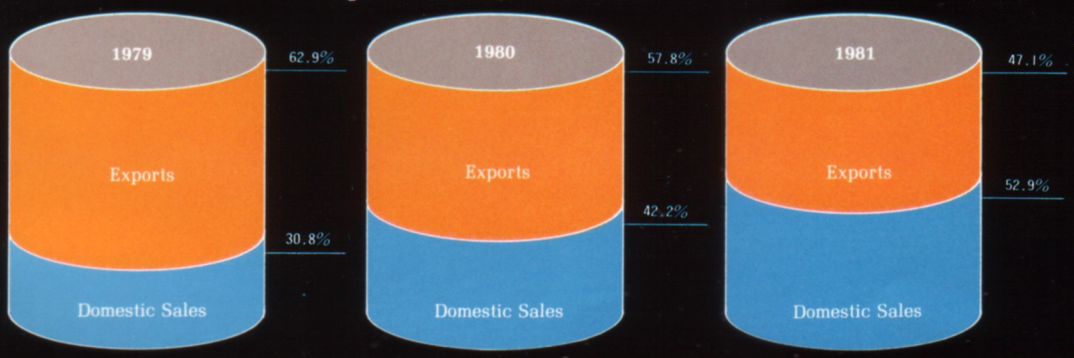
Table of Sales by Year



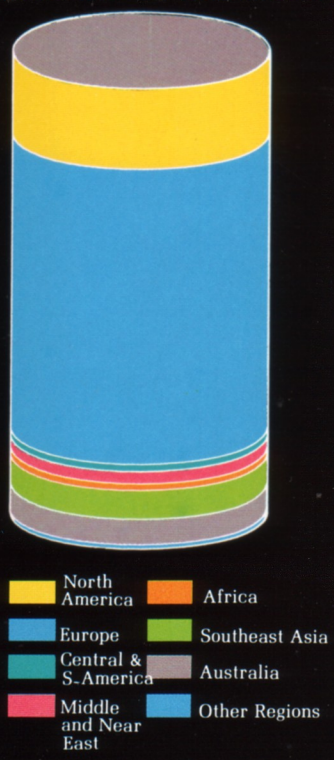
Sales Ratio by Product



Export/Domestic Sales Ratio



Export Ratio by Destination



Sales in Japan are steadily increasing as our dynamic sales campaign succeeds against severe competition.

In the area of domestic sales, Tamron has a Commercial Department (4 business offices and 3 branch offices) specializing in the sale of photo lenses, and an Industrial Product Sales Department, concentrating on the sales of lenses for industries such as the television industry.

The Commercial Department supplies Tamron's interchangeable lenses for single-lens-reflex cameras to retailers, wholesalers, and special agents through a positive, specifically tailored sales effort. Even though there is severe competition with other lens makers in the market, as is readily apparent from the popularity of single-lens-reflex cameras in Japan, Tamron lens experts are steadily expanding our share by selling only high performance and high quality products, as well as through dynamic sales activities.

The industrial Products Sales Department is positively deploying its sales efforts, concentrating on lenses for VTR cameras. Although TV and VTR equipment from Japan is winning worldwide acclaim, the requirements for the lenses which equip such VTR cameras are always extremely strict. Tamron has been working to meet these requirements. As is clear from our sales records, we are succeeding.

Tamron brand products are sold in more than 52 countries in the world.

Tamron brand products are both available and desired by photo fans in all areas of the world from North America to Europe, Africa, South America, the Middle and Near East, Southeast Asia and the Pacific. For the sale of our products abroad, we have established a superior distribution network through which we deploy integrated advertising and sales campaigns. Together with our network we are penetrating these markets even further.

In particular, in November 1979 we organized Tamron Industries, inc. in New York as a corporation under U.S. law, as a base for our sales activities in the United States. This is a very important market and to serve it we have established as powerful salesforce through direct sales to the dealers.

With the addition of the U.S. organization, Tamron's overseas sales network has been dramatically strengthened.

Service network spreading throughout the world—Tamron delivers confidence and peace of mind to both customers and retailers.

Whether in Japan or around the world, Tamron's service is excellent. Inquiries about Tamron products are handled by the Tamron service network in Japan and the Tamron service stations abroad. Among the facilities for service are:

• Tamron Industries, Inc.

• Tamron Head Office

• Tamron Omiya Plant

• Tamron Commercial Department

• Tamron Hirosaki Plant

TAMRON Products Available Worldwide

Europe
U.K., Finland, Sweden, Norway, Denmark, West Germany, Holland, Belgium, France, Austria, Switzerland, Italy, Spain, Portugal and Greece.

North America
U.S.A., Canada

Central and South America
Mexico, Jamaica, Colombia, Bermuda, Argentina.

Middle East
Bahrain, Israel, Kuwait, Saudi Arabia, United Arab Emirates, South Africa, Central African Republic, Djibouti, Canary Islands, Kenya, Mauritius.

Southeast Asia
Hong Kong, Singapore, Malaysia

Oceania
Australia, New Zealand, Fiji Islands, Norfork Islands

TAMRON CO., LTD.

Tokyo Main Office
Tamron Bldg., 17-11, 7-chome, Takinogawa,
Kita-ku, Tokyo, Japan
Tel: (03) 916-0131
Telex: J23977, TAMRON
Cable: "TAMRONTAISEI TOKYO"

Printed in Japan