



COMPANY PROFILE

American Photonics (APC) is a family company with strong value and principal about integrity, honesty and honor. Dedicated to providing high quality solutions, bringing the best options form around the world to help customers, designing and manufacturing infrared laser optics for all industry segments.

American Photonics (APC) can design and produce optics that require soft crystals such as Zinc Selenide (ZnSe), Zinc Sulfide (ZnS), Silicon (Si), Gallium Arsenide (GaAs), Germanium (Ge) and many others. We offer a full range of products for high power, low power, military, medical and customized laser projects. Infrared optics include lenses, windows, mirrors, beam splitters, beam combiners, scan lenses, witness samples, optical assemblies, beam expanders, laser resonator optics and polarizers. APC manufactures optics and components and stocks laser nozzles and accessories which are compatible to OEM specifications as replacement parts for such OEMs as Trumpf®, AMADA®, Mitsubishi®, Mazak® and many others.

OPERATION PLANT

The facility includes a 18,000-ft. building that houses state of the art conventional and CNC optical fabrication equipment, inspection equipment, a coating lab with two high capacity 1.4-meter chambers.

PRODUCT DEVELOPMENT

APC has engineering staff on site to assist with product development. This includes improved designs to existing parts and new product development. Customers provide the demand and initial inquiry for new products and, APC will make the design changes to best meet the customer needs and requests – including reverse engineering.

COATING

APC has invested in cutting edge equipment and the most talented people. We are equipped with two very sophisticated, high volume vacuum chambers that deposit multilayer anti-reflection, reflective beam splitter, polarizer, mirror and filter coatings. Our coating performance is measured using an infrared spectrometer which we use to test a sample from each coating batch to confirm the specifications. Every surface is inspected by a highly skilled technician prior to coating and again before shipping.

American Photonics

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Executive Summary

American Photonics (APC) is a family company with strong value and principal about integrity, honesty and honor. Dedicated to providing high quality solutions, bringing the best options form around the world to help customers, designing and manufacturing infrared laser optics for all industry segments.

The goal is to deliver and outstanding crafted and cutting-edge product with quality material at an affordable and honest price.

Providing the market with an option to buy replacement parts form an 100% made in America – US manufacturer. APC provides **Solutions through technology** to OEM, distributors, optical distributors and end users. We know how to produce the highest quality precision products; we deliver our products with high performance and the right specifications to ensure customer satisfaction.

It is business as usual to APC work with very complex materials to deliver the highest precision products. Whether is it fabrication or coating, we can design and produce optics that require those materials: Zinc Selenide (ZnSe), Zinc Sulfide (ZnS), Silicon (Si) Gallium Arsenide (GaAs), Copper (Cu) and many others. We offer a full range of products segmentation for High Power, low power, military, medical and customize laser projects.

Infrared Optics including lenses, Windows, Mirrors, Beam splitters, Beam Combiners, Scan Lenses, Witness Samples, Optical Assemblies, Beam Expanders, Laser Resonator Optics, Polarizers.

We also stock replacement laser nozzles and accessories built to OEM Specification such as Trumpf, AMADA, Bystronic, Mitsubishi, Mazak and may others.

We look for the right raw material around the world to provide solutions through technology. World- class thin-film coatings include Anti-Reflections Single Band (AR), Anti-Reflection Broadband (BBAR), Anti-Reflection Thorium free, Beamsplitter, High Reflector, Partial Reflector, Beam Combiner, Polarization Sensitive and many others.

APC is a company with history and traditional Know How on manufacturing for almost 100 years. In 1940 Jack Walter Sr. started the first family manufacturing business in a small rented garage. Today this company has more than 200 employees and is still under family control. American Torch Tip is one of the 11 corporations in the Walters family this company produce over 16,000 parts – Plasma, MIG, TIG, OXY-Fuel and Laser with distribution networks over 53 countries, distinguished itself with the same family philosophy of American Photonics – MADE IN AMERICA.

We believe that we can compete in the world having a manufacturing facility in USA if we stick with our main mission and obsession: manufacturing BETTER, FASTER, CHEAPER, and providing solutions through innovations, technology and design, without affecting quality and delivers. It is possible to bring jobs back to USA if manufactures executives with tradition and history like ATTC, APC and many others incorporate this mission as an obsession in the manufacturing floor, every day, endless pursuit of excellence looking for innovation ways to improve quality and performance with profitability, increasing performance, shortening lead times and happy customers.

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General Company Description

Corporate Culture:

American Photonics (APC) is dedicated to providing high quality solutions, bringing the best options from around the world to help local customers, designing and manufacturing infrared laser optics for both all industry segments. The goal is to deliver an outstanding crafted and cutting-edge product with quality material at an affordable price.

Vision Statement:

Building upon our core values and the talents of our employees, we will seek continual improvement in all aspects of the company, proactively promote responsible growth, and become the respected “company of choice.”

Mission statement:

American Photonics is focused on producing American made precision infrared optics and coatings. Whether it is standard or custom optics, **APC** will work closely with every client to design and produce optics to your specifications.

APC provides our customers with the best material, best quality and best choice for custom designed optics. Our goal is to always exceed customer expectations from request to reality with affordable products using innovative technology and production processes, current business models and experienced talent.

Our Purpose and Values:

Our purpose is to apply our collective expertise for the benefit of others. To do this, we embrace the following:

- **Integrity** - We expect honesty and integrity to occur without thought. Living this value will produce enduring relationships with co-workers and customers alike.
- **Reputation** - Our goal is to be recognized for our excellence on delivering on our promises and gaining customer loyalty based on our expertise, performance and capacity to innovate.
- **Employee Focused Environment** – Employees are the greatest assets of our company. We are committed to providing opportunities for career development and maintaining the flexibility to balance work and personal lives.
- **Customer Care/Service** – Developing, nurturing, and sustaining customer relationships are essential. We will understand our customers’ business, make the best use of our and their resources, seek innovative solutions, and be there when they need us.
- **Teamwork** – Through a spirit of cooperation, we can accomplish more collectively than we can individually. It is only through mutual respect and cooperative efforts that we can achieve our goals.

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- **Accountability** – We hold each other mutually accountable for our personal and professional performance, and ultimately for the company’s success.
- **Financial Strength** – Financial strength is fundamental to our success. By being financially strong and financially responsible, we can grow, reward our employees, perpetuate the company and invest in our future.

Markets / Industry

Our target markets are CO₂ laser cutting and marking optics, as well as optics for medical, scientific and military needs.

Products and Services

APC manufactures precision laser optics for the CO₂ laser industry. APC is the ONLY optics company to manufacture 100% of all products in the US. APC buys raw material for ZnSe lenses from quality suppliers around the world. APC offers CO₂ laser consumables manufactured by ATTC; also a US company; to end users and distributors as a convenience.

The products are segmented into the following categories 2015:

High Power CO ₂ Optics	Primarily used in Sheet Metal Cutting Systems running at 1000 watts and up; defined by APC as optics measuring 1.5” and up in outer diameter	44.4% of total sales ¹
Low Power CO ₂ Optics	Primarily used in Laser Marking/Engraving systems running at less than 1000 watts; defined by APC as optics measuring less than 1.5” in outer diameter	34.5% of total sales ¹
Infrared Optics	Defined by APC as IR grade material, uncoated parts and parts or coating service not at the 10.6µm wavelength	10.9% of total sales ¹
Custom CO ₂ Optics	Defined by APC as those not fitting into the above categories or parts made to customer specifications (prints)	8.95% of total sales ¹

Besides being all US made, APC has set itself apart from the competitors by holding tighter tolerances, complete 100% inspection on all optics and perfecting the standard AR coating to perform as well as the competitors’ Low Absorption Coatings.

The current size of APC allows for prompt and thorough evaluation of customer concerns, response to errors and product complaints.

Current pricing is competitive at all levels (end user, distributor, OEM) against the major competitors in the market.

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Marketing Plan

Analysis of Markets

Market research indicates a growth in the optics industry. While diode appears to have the highest percentage of revenue, reports show that CO₂ is still a large factor in the industry. In the largest revenue-producing category, Macro Material Processing (processing thick grade metals with higher power laser and with higher selling prices), CO₂ represents 47% of the revenue and a total 36% of total laser revenue. In this category particularly, CO₂ lasers are feeling the influence of the fiber laser which has caused a 7% decline in CO₂ lasers revenue. Despite the growth of the fiber laser in the market, CO₂ is forecasted to increase its share in the market. Analyst forecast the global CO₂ laser market would grow at a “Combined Annual Growth Rate (CAGR) of 5.9% over the next four years” (<http://beforeitsnews.com/business/2014/07/2018-global-co2-laser-market-drivers-leading-countries-growth-analysis-2640748.html>) Overall, manufacturers have an optimistic attitude for the growth of the industry over the next two to four years.

Globally, the laser market is increasing but is slowing down in the USA. Competing against II-VI is difficult due to their good reputation, consistent quality and flexible commercial policy. These factors have resulted in very loyal customers, employees and distributors. II IV very aggressive pricing around the world to protect market share are destroying the competition and taking the priority out of Co2 business on companies like Ophir or MKS.

CO₂ lasers, although the “grandfather” of the laser markets is still alive but becoming the second choice for manufacturers. Laser OEMs are introducing new high-power laser cutting systems each year; with Fiber laser becoming a popular choice due to lower resource needs from the manufacturers (end users)

The greatest opportunity now in the market is to be a full-service company, with high quality raw material, custom fabrication and product diversification through partnerships with vendors on parts the company cannot manufacture.

Market Segmentation

The publication *Before Its News*, projected that the market for CO₂ lasers will grow 5.9% (CAGR) in the next four years. CO₂ laser are used in macro (metal) processing, micro processing, marking and engraving, and other applications. Below are the percentages for each of the markets and for each type of laser as recently as 2011. It should be noted that the fiber laser and the solid state have both damaged the growth of the CO₂ laser. Recent reports show that the CO₂ laser has actually decreased by 3% in the year 2013 because of the popularity of the fiber laser.

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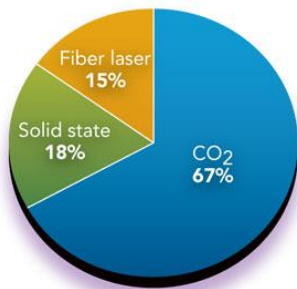
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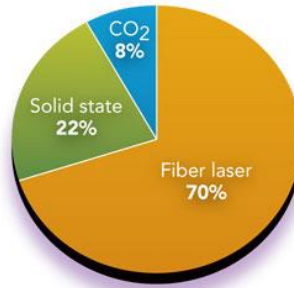
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FIGURE 3.
Lasers for metal processing



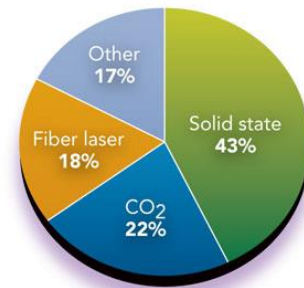
2011 Total: \$1.358 billion

FIGURE 5.
Lasers for marking and engraving



2011 Total: \$332 million

FIGURE 6.
Lasers for other applications



2011 Total: \$119 million

Metal processing includes lasers for welding, cutting and surface treatment applications. Marking lasers are mostly low power fiber lasers, and lasers used in micro processing include high brightness fiber and solid-state (ultrafast pulse) lasers. Lasers used in the ‘other’ category are direct diode, excimer and fiber.

Target Market Segment Strategy

Outlined in the table below there are seven different market segments that have continued to grow despite economic recessions. Each sector offers good to excellent growth opportunities for industrial lasers. These markets have been essentially recession-proof or that have recovered more rapidly from economic depressions. These are current and near-term markets that offer several years of solid growth for laser applications.

Industry \ Region	North America	South America	Western Europe	Eastern Europe	Japan	China	SE Asia	India	ROW
Energy	Hot	Hot	Cool	Hot	Hot	Hot	Cool	Cool	Hot
Transportation	Cool	Cool	Cool	Cool	Cold	Hot	Cold	Cool	Cold
Agricultural	Hot	Hot	Cool	Cool	Cool	Hot	Hot	Hot	Hot
Aerospace	Hot	Hot	Hot	Cold	Cool	Hot	Hot	Cold	Cold
Communications	Cool	Cold	Cool	Cold	Hot	Hot	Hot	Cool	Cold
Metal fab	Cool	Cool	Hot	Cold	Hot	Hot	Cool	Cool	Hot
Medical devices	Hot	Cold	Cold	Cold	Cool	Cool	Cool	Cold	Cold

■ Hot ■ Cool ■ Cold

Fig. 3: International Markets for Industrial Lasers – 2013

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