



2020 IPG Photonics Sustainability Report

THE POWER TO TRANSFORM Industries for a More Sustainable World



IPG PHOTONICS **AT A GLANCE**

IPG Photonics is the world leader in fiber laser technology, enabling greater precision, higher productivity and more flexible production for industrial applications and other diverse end markets. IPG fiber laser solutions transform the products that touch your life. Our global customers include original equipment manufacturers, system integrators and end users.

IPG has developed a robust vertically integrated supply chain producing key technology components in-house, enabling the most reliable, powerful and efficient laser solutions with rapid ongoing cost reduction.

Oxford, Massachusetts is home to IPG world headquarters. We have additional manufacturing facilities and offices in more than 30 locations around the world.

[IPG Photonics.com](https://www.ipgphotonics.com)

[IPG Investor Resource](#)



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OUR OPERATIONS

- Message from our CEO
- About IPG Photonics
- Our Operations



A MESSAGE FROM **OUR CEO**



Dear Stakeholders,

For the past 30 years, IPG Photonics has pioneered the development and commercial production of fiber lasers. Our unique technologies, vertically integrated business model, and expertise in deep materials science allow IPG to produce laser solutions of the highest quality and longevity in the world's smallest form factor. Our leading-edge laser technologies are transforming the way products are created in a number of industries including transportation, electronics, renewable energy, medical, communications and entertainment, thus improving the products that we use each day.

As the world leader in laser technology, IPG is committed to running an ethical and accountable business that prioritizes the concerns of its stakeholders. We recognize that the world is facing a series of unprecedented challenges and we are striving to utilize our innovative technologies to have a positive impact on society, especially as we support the health and safety of our employees, customers and communities during the COVID-19 pandemic.

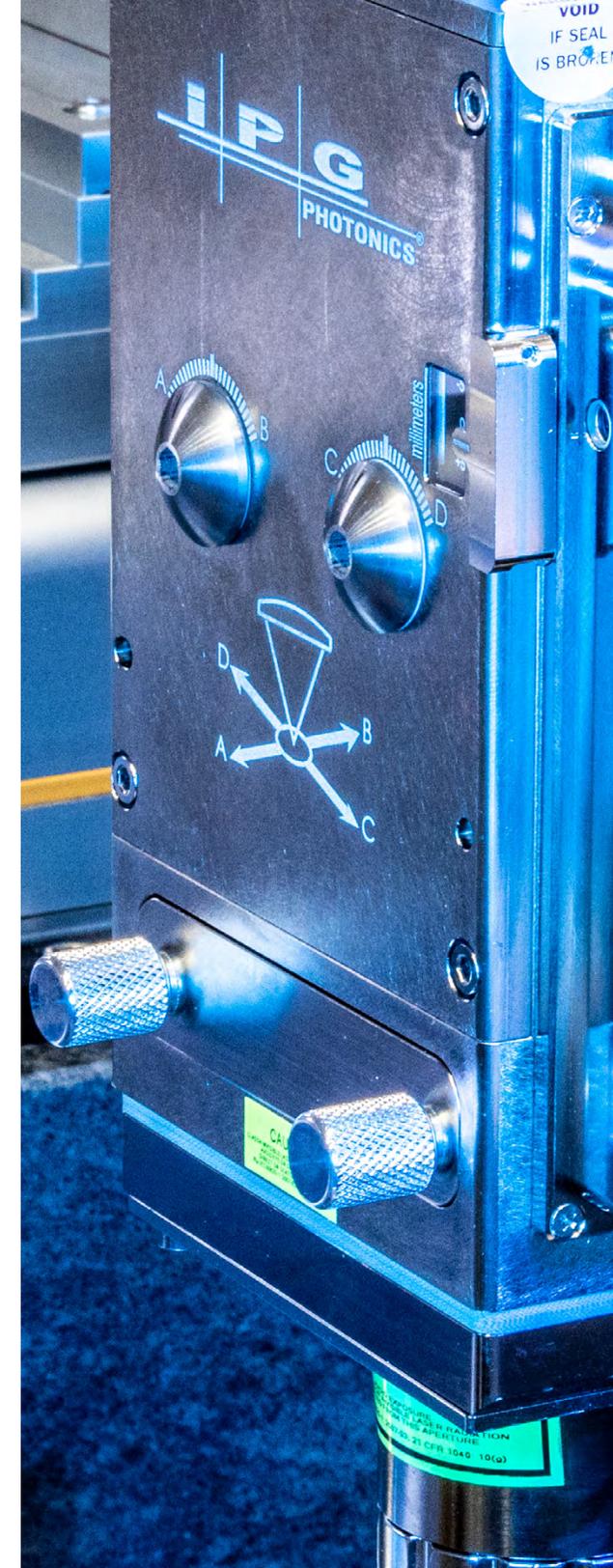
Our organization values transparency and sustainability. We strive to enhance disclosure methods to our stakeholders. Furthermore, we aim to deliver laser products to the market with greater power in smaller form factors, benefitting our customers and the planet with an ever increasing laser power to volume ratio. Our solutions support best practices, superior energy efficiency and are the longest lasting fiber lasers on the market. Moreover, IPG is actively conserving resources, reducing carbon emissions and promoting STEM education within multiple organizations.

Across the globe, IPG is dedicated to fostering a working environment that supports diversity and inclusion. Our employees are our most valuable asset and our finest innovations are a direct result of their collaboration and unique backgrounds. IPG has been a strong supporter of environmental, social and corporate governance practices since its inception. This communication is the first in a series of comprehensive reports documenting our sustainability efforts.

We at IPG appreciate all of our stakeholders and are committed to enhancing our sustainability initiatives. We are making great strides towards a more sustainable future through our focus on innovation and energy efficient technologies that continue to enable revolutionary new products that benefit society and the environment.

Valentin P. Gapontsev PhD

CEO and Chairman
December 2020



OUR PURPOSE

IPG Photonics is revolutionizing the laser industry as the pioneering developer and world's leading producer of fiber lasers and amplifiers. Our mission is to make fiber laser technology the tool of choice in mass production. Our products have displaced traditional technologies and are creating new laser applications every day. Our vertical integration approach to product manufacturing means that we produce most of the critical components and many others that go into our lasers, enabling IPG to better meet customer requirements, accelerate product development, drive down costs and dramatically lower our carbon footprint.

IPG products are disrupting the market by empowering tomorrow's applications today.

OUR VALUES

IPG operates around our three central pillars of corporate ethics: environment, governance and communities. IPG values our diverse and highly talented employees who allow us to develop new solutions and provide the best possible service to our global customer base. We are committed to providing our customers with laser solutions that are industry-leading in their performance, quality and efficiency. IPG is committed to being accountable and transparent when interacting with our customers, employees, suppliers and stockholders. We are dedicated to supporting local organizations and conducting business with the highest integrity.

2019 SNAPSHOT



1990
FOUNDED



Oxford, MA
HEADQUARTERS



NASDAQ
IPGP
STOCK TICKER



\$1.3
Billion
REVENUE



~6,000
EMPLOYEES



40,000
DEVICES
SHIPPED



20+
COUNTRIES



5,000+
CUSTOMERS
ACROSS 6 MAIN
INDUSTRIES

OUR OPERATIONS

DRIVING INNOVATION

Our high power fiber lasers enable greater precision, high speed processing, more flexible production methods and improved throughput. IPG fiber lasers provide superior performance and usability by combining the advantages of semiconductor diodes with high amplification and precise beam qualities delivered through our unique optical fibers.

IPG sells more than 60% of the fiber lasers purchased around the world. IPG has the broadest portfolio of fiber lasers that are industry-leading in their compactness, reliability, and low service cost. IPG has three main manufacturing facilities and more than 30 locations around the world. Our vertical integration business model, material processing expertise and 400 plus patents enable superior quality and competitive advantages.

ENVIRONMENTAL IMPACT AND RECYCLING

IPG pioneered high power fiber lasers for industrial applications. Fiber lasers are 5 to 20 times more energy efficient than other laser technologies such as CO₂ or Nd:YAG lasers and can often improve process speeds which multiplies customer energy savings. IPG supports the modern industrial era by manufacturing energy-efficient products that require less power from fossil fuels. Unlike gas and crystal lasers, the entirely solid-state optical architectures of our novel fiber lasers do not require consumables, such as gases, lamps and optical components. We warrant most lasers for three years. As industrial equipment, the useful lives of our products are longer than the warranty, in many cases up to ten years. We also provide service and maintenance to extend the lives of our products and prevent them from going to landfills due to our recycling programs.

IPG provides incentives for customers to return non-functioning pump modules, which contain packaged laser diodes and other optical components in a metal housing. We repair, refurbish or recycle pump modules depending upon their age and condition. IPG developed an extensive metal recovery program to reclaim a variety of materials and precious metals. Every year, IPG saves thousands of tons of materials including aluminum, copper, steel and mixed brass.

VERTICAL INTEGRATION REDUCING ENVIRONMENTAL IMPACTS

At IPG, we manufacture most principal components of our products in-house. These include advanced opto-electronic items ranging from semiconductor diodes, specialty optical fiber and components, fiber blocks, optical delivery cables, beam switches, process heads and circuit boards, to mechanical parts such as metal cabinets and heat sinks for our pump modules and electrical items like power supplies.

Our vertical integration produces substantial environmental benefits because our in-house supply chain reduces packaging usage and related waste as well as transportation emissions as compared to most other companies which source a substantial majority of components from remote third-party suppliers.



OUR PLANET

- Sustainability Vision
- Stakeholder Engagement
- Our Sustainability Team
- Sustainability Agenda
- Fiber Lasers & Electrical Efficiency
- Combating Climate Change
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- Architectural Efforts Toward Conservation



SUSTAINABILITY VISION

IPG Photonics values innovation, accountability and transparency, which is why we continually strive to advance our sustainability strategy to align with the fundamental principles of our stakeholders and local communities.

We integrate safety, reliability and sustainability fundamentals within our operations and product development initiatives. It is our responsibility to utilize our unique innovation capabilities in response to societal and environmental challenges.



IPG Photonics is a proud supporter of the United Nation's Sustainable Development Goals. The 17 Sustainable Development Goals (SDGs) were adopted by our global leaders in 2015 to act as a blueprint to help the world create a most sustainable future. IPG is excited to adhere to these international principles and is advancing our sustainability vision to align with the SDGs.



18 million metric tons less CO₂ emissions when operating IPG lasers compared to traditional lasers 2011-2019



35 terawatts hours of electricity savings since 2011



IPG fiber lasers are **>45%** energy efficient with efficiency and compactness improving each year



Charitable giving of **~\$1 million** since 2018



IPG recycled **1,100 metric tons** of metals since 2010

STAKEHOLDER ENGAGEMENT

IPG engages with key stakeholders to communicate our efforts to protect the planet and to secure a safe working environment. We also continue to evaluate the primary concerns of our employees, customers and stockholders to ensure that our sustainability strategy is consistently updated to prioritize industry-specific and global material issues.

Our executive management team and our Board of Directors are engaged in our sustainability strategy and influence the direction of our agenda. IPG recognizes the value of transparency and accountability to our various stakeholders. Our strategy was developed by working with the disclosure recommendations and guidelines of third-party frameworks which include the following:

- Global Reporting Initiative (GRI)
- Sustainable Development Goals (SDGs)

KEY STAKEHOLDERS

CUSTOMERS

IPG is dedicated to helping our customers grow their businesses through our innovative laser technology platform. Our history of providing record power-to-volume ratios across our portfolio increases customer flexibility while lowering the bar for adoption of environmentally-friendly laser solutions and helps us support their sustainability efforts.

EMPLOYEES

As an organization, we focus on attracting and retaining talent from diverse backgrounds and experiences. IPG is committed to conducting business with integrity and complying with laws and regulations in the locations where we operate.

STOCKHOLDERS

Our sustainability activities are inspired by the ideals and values of our stockholders. IPG promotes sustainable business practices to reduce operational risks, attract creative talent and advance our global strategy.

OUR SUSTAINABILITY TEAM

IPG employs a cross-functional team to manage our global sustainability program that analyzes economic, environmental and social topics. The team defines sustainability focus areas, organizes and standardizes our environmental, social and governance efforts, as well as conducts annual measurements and reports on key sustainability metrics.

OBJECTIVES

Develop our sustainability strategy and future sustainability goals

Disclose our sustainability metrics through third-party frameworks

Publish a sustainability report and integrate the values of our various stakeholders into our business strategy

TEAM MEMBERS

OUR SUSTAINABILITY TEAM CONSISTS OF:

- General Counsel
- Investor Relations
- Safety Specialists
- Manufacturing Managers
- Facilities Manager and Architects
- VP of HR
- Controllers
- Quality Assurance Manager
- Directors of Procurement
- Financial Analyst

FUTURE ACTIONS

Implement sustainability goals across our enterprise

Conduct a materiality assessment to identify risks and topics of concern from our customers, employees and stockholders

Investigate other organizations and disclosure frameworks

Identify and address opportunities to advance our sustainability agenda

SUSTAINABILITY **AGENDA**

IPG Photonics is focused on expanding our energy efficiency strategy across our enterprise. IPG is committed to decreasing our energy consumption, reducing our environmental footprint and supporting our customers' sustainability goals.

ENERGY

- IPG has continually reduced the energy consumption per kilowatt of laser power sold over the last ten years
- We invest in co- and tri-generation equipment, variable frequency drives, additional insulation, LED lighting and other technologies to update the efficiency and infrastructure of our manufacturing facilities
- IPG is investigating installing solar panels at a planned new building which could provide IPG with 1 MW of clean power every year

WASTE

- We continue to divert resources from landfills by increasing our recycling practices
- IPG is committed to investigating new opportunities to conserve resources and reuse materials

WATER

- IPG constructs its buildings with the most efficient plumbing equipment available to conserve water consumption
- IPG is committed to looking for ways to decrease water consumption

HIGHLIGHTS FROM **2019**



**Approximately
6 million
metric tons
of CO₂ saved**



**224 metric tons
of recycled metals**



**Water usage
decreased
from 2017 to
168,000m³ despite
expanded output**

FIBER LASERS & ELECTRICAL EFFICIENCY

The evolution of laser sources is similar to the evolution of lighting sources. Fiber lasers pioneered and perfected by IPG are the most advanced and efficient laser type. In addition, our lasers process materials more quickly than other laser technologies in many applications. Improved efficiency and productivity helps our customers with the environmental sustainability of their operations.

ND:YAG LASER

2% EFFICIENT

Lamp-pumped Nd:YAG lasers energy efficiency is approximately 2%, comparable to a traditional filament bulb. The remaining 98% of input energy is lost as heat. In a laser setting, this means that more electricity is needed to obtain the targeted optical output and to power chillers to dissipate the enormous amount of waste heat.



CO₂ LASER

7% TO 8% EFFICIENT

Although gas CO₂ lasers are 3-5 times more efficient than lamp-pumped Nd:YAG lasers, over 90% of input energy is lost as heat, similar to a fluorescent lamp. Chillers are also required to dissipate significant heat loss.



IPG FIBER LASER

35% TO 50% EFFICIENT

IPG fiber lasers efficiencies are comparable to modern diode light sources. Highly efficient diode pumping, proprietary laser architecture and high surface-to-volume ratio of the fiber all combine to dramatically reduce electrical power consumption and the cooling costs.



COMBATING CLIMATE CHANGE

IPG Photonics recognizes the immediacy of climate change and the importance of having a positive impact on the environment.

IPG Photonics fiber lasers are much more energy efficient than competing products, resulting in savings of multiple terawatt hours of electricity and reductions of millions of tons CO₂ each year. We are determined to support industries that are propelling the transition to a more ecologically sound world.

FIBER LASERS FOR **GREEN PRODUCTS**

IPG fiber lasers are essential for manufacturing products across numerous renewable energy sectors, including the production of photovoltaic cells. Of all renewable energy solutions, solar panels are anticipated to grow the fastest within the next 30 years. Fiber lasers are vital for advancing photovoltaic cell efficiency as well as decreasing manufacturing times and increasing yields.

IPG is committed to protecting the environment by fueling the renewable energy sector on their journey to instituting a low-carbon society.

Photovoltaic manufacturers benefit from IPG's extensive application knowledge and low cost fiber lasers. IPG green wavelength fiber lasers are critical to improving the efficiency of solar cells. These lasers, along with our near-infrared and ultraviolet fiber lasers, reduce photovoltaic manufacturing costs since laser-based processes are significantly more efficient, precise and faster than conventional processes due to high energy efficiency, excellent beam quality for tight process control and fast, high repetition rate energy pulses.

Advancing the production of solar panels and is an integral component of our strategy to help society lower fossil fuel usage and transition towards a future run on renewable energy sources.

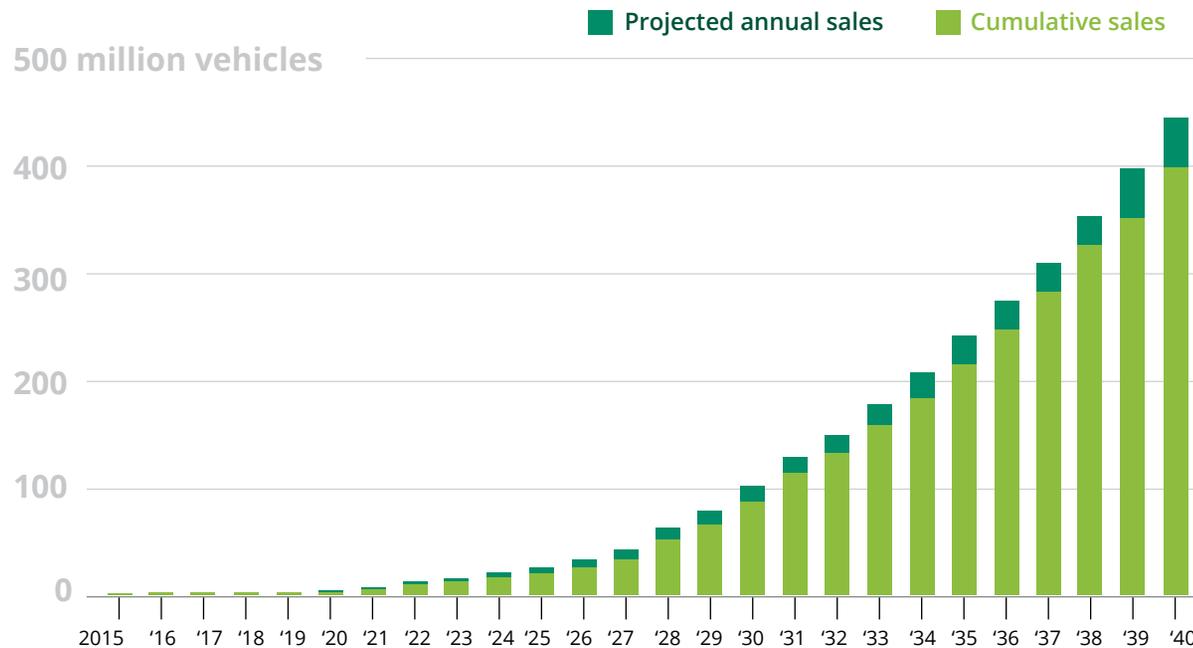


FIBER LASER FOR GREEN PRODUCTS

The biggest obstacle to worldwide mass adoption of electric vehicles (EV) is the high cost of automotive battery manufacturing. Fully automated IPG fiber laser welding solutions resolve challenges of EV battery welding quality and throughput. Fiber laser welding is more than 10x faster than traditional battery welding, forming millions of high quality welds, enabling mass production of millions of fuel cells per year at the lowest cost demanded by the consumer market.

The Rise of Electric Cars

By 2022 electric vehicles will cost the same as their internal-combustion counterparts.



Data compiled by Bloomberg New Energy Finance, Marklines

While IPG products accelerate the world's transition to electric vehicles by making EVs more affordable, IPG is also committed to promoting green living practices and use of EVs by our employees. IPG has already installed EV charging stations at our facilities and plans to expand the installation of EV charging stations to create additional areas for employee and customer use.



SCOPES OF GREENHOUSE GAS EMISSIONS

IPG is dedicated to reducing our environmental impact by tracking emissions and increasing the sustainability of our day-to-day operations. IPG consistently invests in increasing efficiency of its operations, reducing both the cost of our products to our customers and the environmental costs of manufacturing.

SCOPE 1

Emissions from IPG Photonics that are a result of manufacturing, including natural gas, fuels and oils used on site



SCOPE 2

Indirect emissions that are generated offsite and purchased by IPG including electricity



SCOPE 3

Business activities that are not related to Scope 1 and Scope 2 emissions including waste generation, travel, metal extraction, product distribution and other goods and services



PRODUCT STEWARDSHIP

IPG is committed to advancing society with our highly unique innovations and solutions. IPG fiber lasers use a fraction of the electricity required by other competing lasers and traditional laser technologies.

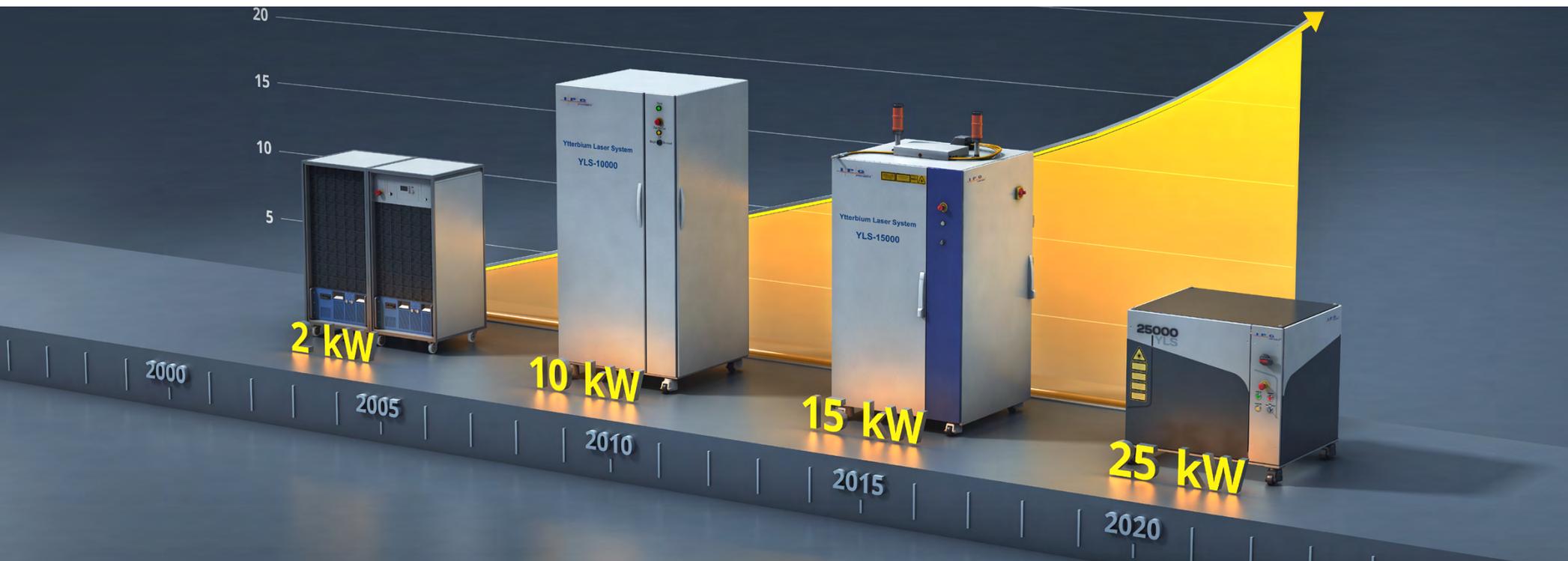
We strive to protect the planet by manufacturing generations of products that are more energy efficient, compact, lighter weight and have a long life cycle.

There is a rising demand for laser power worldwide. IPG is actively accommodating this growing demand while shrinking the form factors of our high-power lasers to conserve resources, floor space and operating costs for our customers. At the same time, we continually increase the efficiency of our lasers, which enables our customers to conserve energy and reduces the water required to cool them.

COMPARISON OF FIBER LASERS

	5 kW Fiber Laser			10 kW Fiber Laser		
	2010	2020	Improvement	2010	2020	Improvement
Electrical Efficiency	~30%	~50%	67%	~30%	~50%	67%
Weight (kG)	500	250	50%	750	550	27%
Volume (m³)	0.84	0.53	37%	1.34	0.67	50%

*2020 information from ECO-line of fiber lasers.



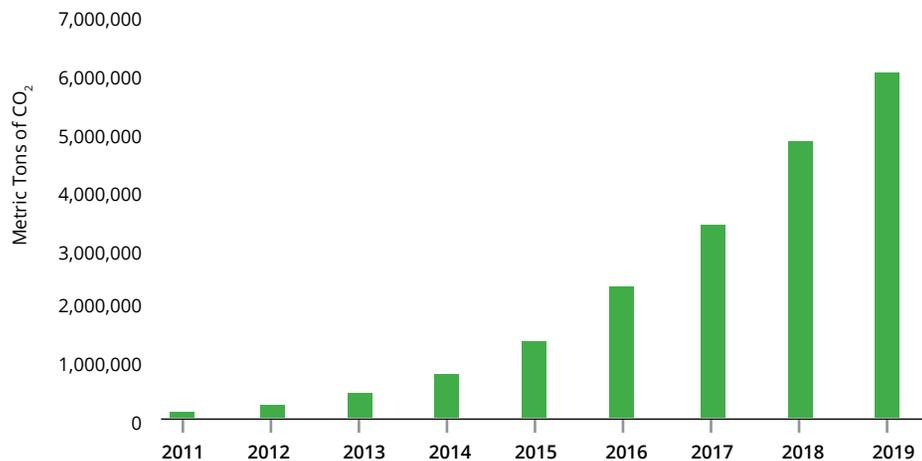
GREENHOUSE GAS EMISSIONS

Core to our mission is improving the efficiency of our products and our manufacturing operations. This translates into two types of emission improvements – reducing the carbon footprint of our customers and our own.

Customer GHG Emissions

IPG invented high power fiber lasers then successfully commercialized them. Our novel fiber laser technology is substantially more electrically efficient than traditional laser technologies enabling our customers to substantially reduce their greenhouse gas emissions and achieve their sustainability targets. We estimate that IPG lasers saved our customers over 18 million metric tons of CO₂ emissions cumulatively from 2011-2019 as compared to use of traditional laser technologies.

CO₂ Savings From IPG Fiber Lasers Sold Since 2011



Use of IPG lasers saved approximately **18,000,000 metric tons** of emissions

That is **35 terawatts** of electricity saved since 2011

- Electricity savings calculation based on IPG total megawatts of power sold, and assumes IPG fiber lasers are replacing lamp-pumped and diode-pumped Nd:YAG, CO₂ and disk lasers
- According to the World Bank, ~2/3rds of world energy is produced from oil, gas and coal
- According to the US Energy Information Administration, typical oil, gas and coal power plants produce ~1.9, ~0.9 and ~2.2 pounds of CO₂ for every kilowatt hour of electricity

GREENHOUSE GAS EMISSIONS

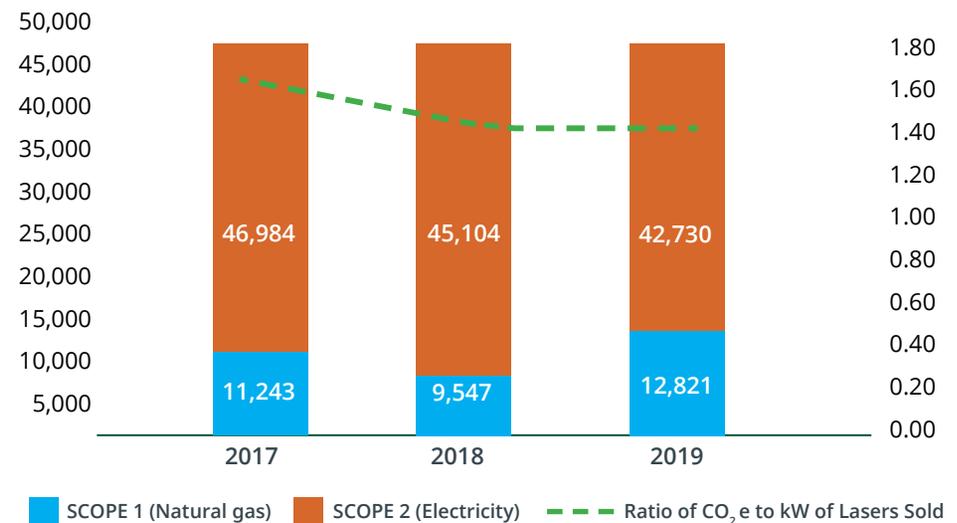
IPG GHG Emissions

IPG makes electronic equipment for competitive markets where the average selling prices for products can decrease significantly each year. Because of this, IPG must produce more units to generate the same revenue. For example, we increased laser production by about 11,000 units from 2017 to 2019 with the optical power of our output growing 12%. Despite the increase in production of lasers and optical power, IPG decreased our energy intensity, as measured by CO₂ emission per kilowatt of laser power, by 15% which demonstrates IPG's commitment to energy conservation and innovation.

We **decreased our emissions 5%** from 2017 to 2019

Our energy intensity **decreased 15%**

GREENHOUSE GAS EMISSIONS METRIC TONS OF CO₂e



IPG reports on its GHG emissions for its primary manufacturing facilities in the US and Germany representing 66% of our total square footage and include those with the most significant resource consumers from manufacturing and R&D. 2019 data includes Genesis Systems acquired in December 2018.

ENERGY & RESOURCE CONSERVATION

IPG has increased laser production over the last three years, but is actively lowering greenhouse gas emissions and preserving natural resources to protect balanced ecosystems.

		2017	2018	2019
Energy Consumed MWh	Heating Oil	323	265	253
	Natural Gas	61,743	52,439	70,770
	Electricity	66,449	63,790	60,432
Total Energy Consumption		128,514	116,493	131,455
Emissions Metric Tons	Greenhouse Gas Emissions	58,227	54,651	55,551
Laser Production kW		35,834	39,345	40,177
Carbon Intensity MWh/kW	GHG Emissions per kW Laser Sold	1.62	1.39	1.38
Water Cubic Meters	Freshwater	176,946	152,414	168,150
Water Intensity	Water/kW Lasers Sold	4.9	3.9	4.2

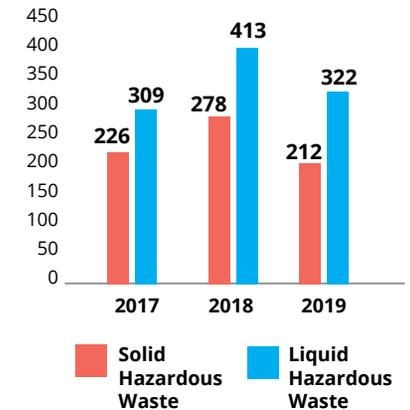
IPG reports on its GHG emissions, resource use and waste for its primary manufacturing facilities in the US and Germany representing 66% of our total production square footage and include those with the most significant resource consumption from manufacturing and R&D. 2019 data adds Genesis Systems Group acquired in December of 2018.

IPG Photonics is determined to conserve energy, reduce greenhouse gas emissions and minimize the use of freshwater. IPG facilities are tasked with the responsibility of managing water consumption and waste water discharge. None of our major production facilities are located in regions with high or extremely high water risk per the World Resources Institute's (WRI) Water Risk Atlas.

NON-HAZARDOUS WASTE GENERATION & DIVERSION (METRIC TONS)



SOLID & LIQUID HAZARDOUS WASTE GENERATION (METRIC TONS)



Most of the waste we generate is a result of our manufacturing operations. From 2017 to 2019, we manufactured 12% more lasers as measured by optical output power. Our solid non-hazardous waste grew because of this as well as the acquisition of Genesis Systems Group in December 2018.

Approximately 85% percent of our waste in 2019 was non-hazardous and the remainder was considered hazardous, the management of which is regulated and strictly monitored. We implement controls to ensure responsible handling of hazardous waste and prioritize treatment and recycling.

We achieved a 21% increase in our recycling of materials from 2017 to 2019 outpacing our increase in manufacturing. IPG has a robust recycling program and we are committed to identifying new recycling opportunities, conserving precious metals, diverting additional waste from landfills and reducing our output of hazardous waste.

A HIGHLY EFFICIENT ENERGY SYSTEM

Tri-generation (TriGen) is a clean and highly productive simultaneous process of power, heating and cooling generations from only one fuel type. By using waste heat recovery technology to capture a significant proportion of wasted heat, IPG is saving energy and protecting the environment from additional air pollutants. We substantially reduced our demand from electrical utilities, which may be coal or diesel-powered, through our on-site TriGen systems. Currently, our headquarters has approximately 4.25 MW of combined heat, cooling and power (CHP) TriGen equipment and our Italian facility has 0.25 MW of TriGen equipment.

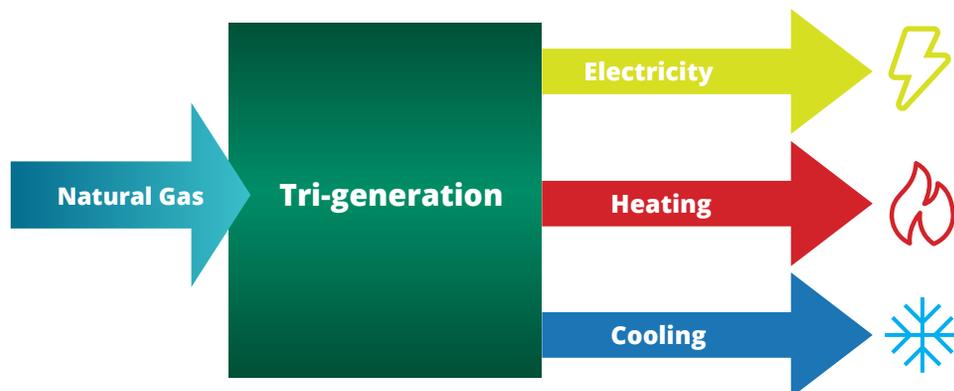


6,808 metric tons
of greenhouse gas
emissions saved by
IPG from TriGen



400,000 gallons
of city water saved a year
from TriGen

OUR TRIGEN SYSTEMS RECYCLE HEAT TO PROVIDE HEATING AND COOLING



The utilization of TriGen technologies have lowered operating costs, reduced greenhouse gas emissions and increased the security of our energy supply.

IPG utilizes well water from an underground aquifer in our TriGen system. We reduced our city water consumption by 400,000 gallons which also reduced the chemical treatments added to city water.

IPG is working on implementing a microgrid at our Oxford facility to conserve energy and combat climate change. The microgrid will increase usage of our highly efficient TriGen equipment and reduce reliance on electricity generated remotely by the electric utility.

In the next few years, the microgrid system will allow IPG to transport energy to different buildings on our campus based on their requirements. This unique portable energy system will create cheaper and more reliable energy to power IPG's largest facility as well as help us become more resilient during a storm or natural disaster.

ARCHITECTURAL EFFORTS **TOWARD CONSERVATION**

IPG believes that environmentally sound practices begin at the ground level. That is why we implemented several programs to lower energy consumption and natural resource usage.



The insulation in our new construction exceed building codes up to **25%**



We replace traditional light fixtures with LED light bulbs worldwide using **75%** less energy



We use water saving fixtures in our new construction projects

VARIABLE FREQUENCY DEVICES (VFDS) TO DECREASE ENERGY CONSUMPTION

A VFD is one of the most effective energy saving tools. It is an electronic controller that adjusts the speed of an electric motor to the specific demands of the work being performed. VFDs are an alternative to standard single-speed drives which can only operate at full speed. Many machines can be operated at less than full speed, such as HVAC systems, pumps, fans and production equipment. Other benefits of VFDs include prolonged equipment life and the ability to recover energy from braking. IPG has installed over 300 VFDs to date and will continue to advance the efficiency of our building and production equipment through expanded VFD investments.



VFDs save **30%-40%** of energy compared to single-speed drives

OUR PEOPLE

- OUR PEOPLE
- IPG BY GEOGRAPHY
- DIVERSITY AND INCLUSION
- OUR WORKFORCE
- CREATING A CULTURE OF SUCCESS
- SAFETY IN THE WORKPLACE
- OUR RESPONSE TO COVID-19



OUR PEOPLE

Our employees are our most valuable asset. They define and represent who we are. We are committed to attracting and retaining the best talent, and we believe that an engaged, diverse and thriving workforce will drive a sustainable future for our company and society. IPG is proud of our supportive culture, innovative spirit and workplace programs.

DIVERSE LEADERSHIP: IPG is proud to support a culture that values different backgrounds and experiences. A substantial portion of our global leadership workforce consists of women and diverse employees in management roles.

EMPLOYEE DEVELOPMENT: IPG also provides continual development to our employees focused on developing their skills and competencies. Examples include training in new manager competencies like giving feedback and coaching and project management. We provide employee support for attendance at professional conferences, seminars and technical presentations.

EDUCATION ASSISTANCE: IPG pays for educational courses related to an employee's work or as part of a degree program, including tuition, lab fees and books. This program has been effective enabling employees to attain advanced degrees and enhance their career opportunities.

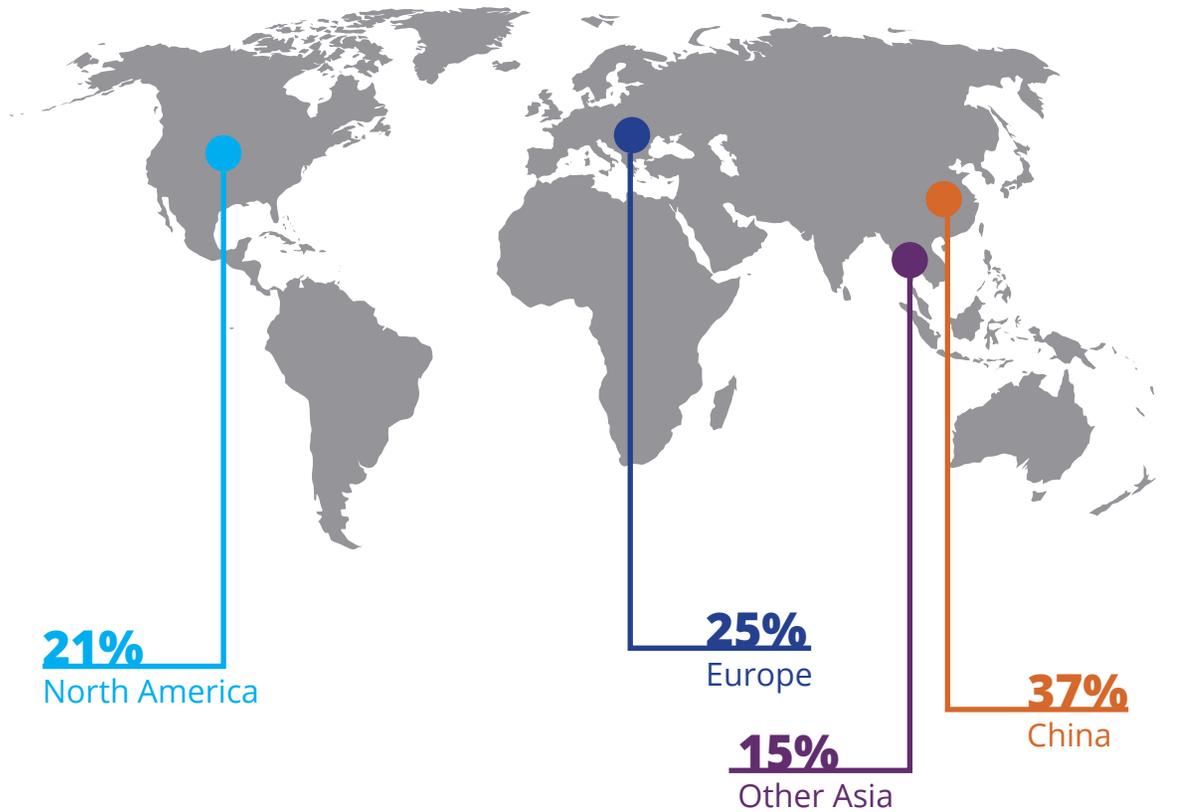
INTERNSHIP PROGRAM: Since its inception, IPG has been committed to fostering diverse and young talent through our internship program. Our paid in-person and remote internships provide practical experience across numerous divisions for college students and recent graduates.

BENEFITS: Employment with IPG offers top-rated benefits and competitive compensation designed to support and retain our employees. Our benefits are locally customized such as health and dental insurance coverage, retirement savings plans and parental leave. We also offer programs to help our employees participate in our profitability through bonuses, equity grants and an employee stock purchase plan, which are available generally to salaried employees.

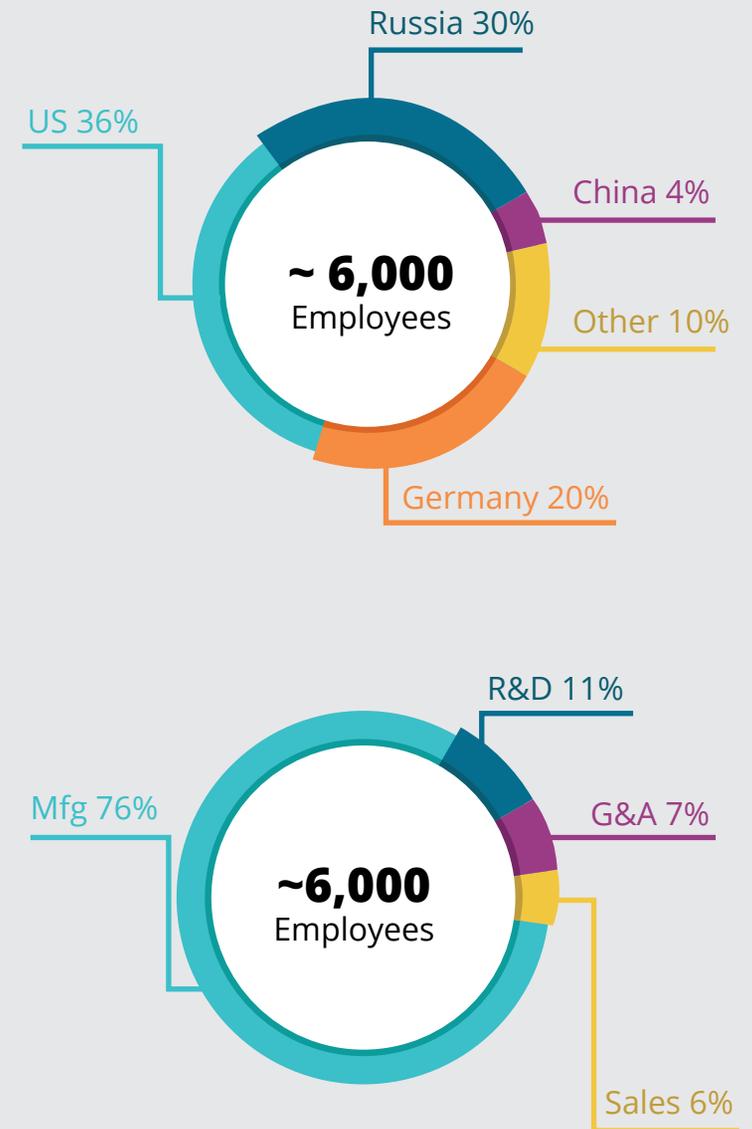


IPG BY GEOGRAPHY

2019 Revenue by Principal Regions



IPG Employees by Locations & Role



DIVERSITY AND INCLUSION

IPG has made great strides to increase diversity in manager positions, building internal resources for potential future executive openings. We recruit and develop diverse candidates for available leadership and other positions at IPG by posting on national and local diversity job boards and maintaining partnerships with organizations and community groups that focus on the needs of minority candidates. We require our search firms to seek female and diverse candidates.

In 2020, IPG partnered with the internship program INROADS, an international non-profit organization designed to promote ethnic diversity across the corporate world. As a national sponsor of INROADS, IPG gained access to extraordinary talent, including top of the class students and recent alumni, to assist IPG at our operations in the United States.

IPG also started a relationship at the national level with the Society of Hispanic Professional Engineers (SHPE) and the Society of Women Engineers (SWE). With these two programs, IPG will work on developing additional programs for corporate sponsorship as well as intern and mentoring opportunities.

We actively recruit at universities having higher than average populations of women and minorities in STEM related programs. IPG also strives to foster talent within the community by recruiting within the local school systems for a variety of different positions. IPG continues to foster innovation and offer educational opportunities to the next generation through scholarships to graduates of Oxford High School and Bay Path Regional Vocational Technical High School.

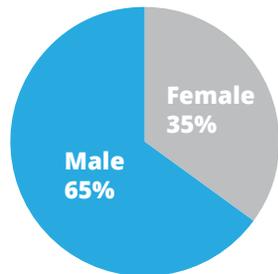
IPG is also an active member of the Boston College Workforce Roundtable – part of the Boston College Center for Work & Family. The Center for Work & Family is the country's leading university-based center focused on helping organizations enhance the employee experience, increase productivity and improve the quality of employee lives.



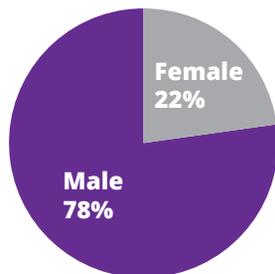
OUR WORKFORCE

IPG is committed to empowering every member of our global workforce. Management ensures that all personnel receive equal opportunities to thrive and grow within IPG Photonics. IPG recognizes the importance of a balanced workforce and strives to employ and promote women into leadership positions across all IPG locations. We are proud that in China, our most important market, 50% of our leadership team is female.

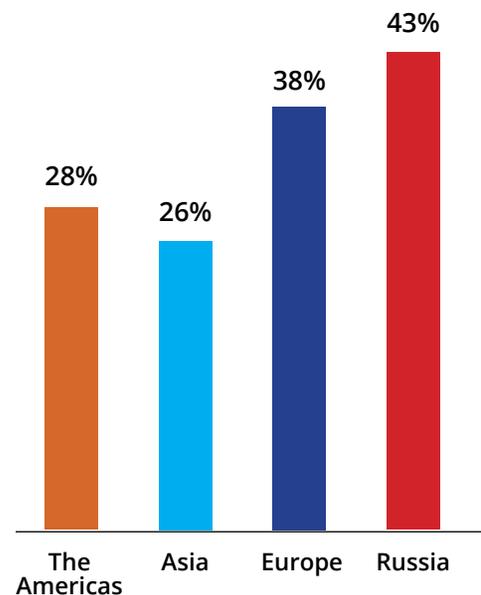
Global Workforce by Gender



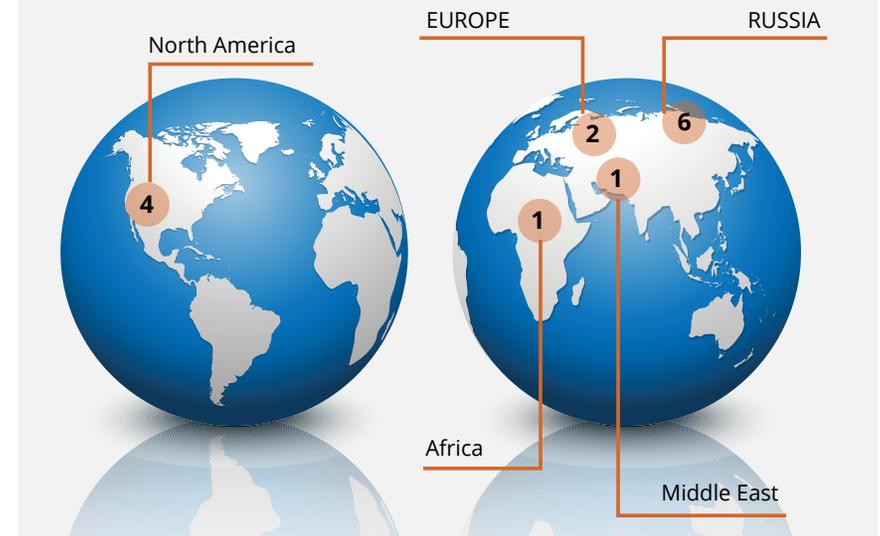
Senior Leaders and Managers



Female Employees by Region



EXECUTIVE DIVERSITY (Birthplace of Management)



Our company has been fortunate with long executive tenures and no impactful executive turnover. While our executive team brings the perspectives of differing global cultures based upon the many continents and countries where our executives were born, the diversity of our executive team does not yet reflect that of our workforce. In an effort to be more inclusive, the company has made strides in increasing diversity below our upper management level and will continue to progress in its efforts. Further, we will continue to look for opportunities to increase diversity in terms of race, ethnicity and gender across all levels of management by developing internal candidates for executive openings and seeking out diverse candidates in outside searches. In this respect, we require our search firms to seek female and diverse candidates. Furthermore, as a regular part of its sessions with company management our Board of Directors will monitor the company's progress in these efforts and undertake to continue providing our executive leadership with input on how to enhance our management team's diversity and report the outcome of these efforts periodically to our stakeholders. Our Board of Directors has set the tone by adopting a policy to require director search firms to include female and diverse candidates in its candidate pool.

CREATING A CULTURE OF SUCCESS

We are dedicated to fostering a culture of inclusion, respect and professionalism. We believe that we are made better and stronger by having a diverse and inclusive workforce shaping our business choices, and we are culturally enriched by having the unique perspectives of people of all backgrounds.

As a global organization, IPG respects and educates new hires on cultural differences and diversity awareness by providing training during the new hire's on-boarding process. We support recruitment and workplace programs that provide equal opportunities to all candidates and current employees.

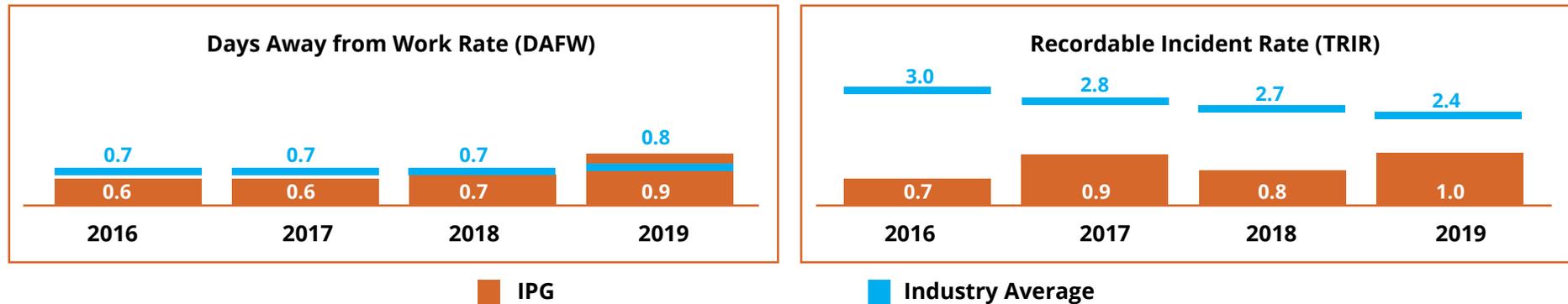
We are committed to developing a community of talented individuals who share our values and are determined to continue to redefine our industry across numerous sectors. Our employee benefits program and individualized training and development programs support the mission of retaining our diverse and inclusive workforce.



SAFETY IN WORKPLACE

At every IPG location safety is the number one priority for our entire workforce. IPG employees complete safety courses including Hazards Communications, Laser Safety and Lockout/Tagout training.

Specifically, our manufacturing employees undergo comprehensive training to help reduce and prevent work place accidents, which contributes to our low incident rates.



Data includes US and German facilities. TRIR = Recordable cases x 200,000 / total hours worked by all employees; DAFW = Lost time cases x 200,000 / total hours worked by all employees. Industry average represents goods-producers with more than 1,000 employee published by US Bureau of Labor Statistics.



IPG is working to enhance its safety management system across its production facilities and is beginning to align its Health and Safety Management System with the GRI Standards and several OSHA guidelines.

OUR RESPONSE TO COVID-19

At IPG, the safety of our employees is our number one priority. Since the beginning of the coronavirus outbreak, IPG has been working to install policies and protocols to ensure the safety of all our employees. IPG has worked to maintain the critical supply chain because our products are necessary within a variety of essential businesses and services. IPG lasers cut and weld parts that go into ventilators, medical devices, transportation equipment and machines that make Personal Protective Equipment (PPE).

“IPG is a resilient company with a 30-year history of successfully managing through difficult and sometimes seemingly insurmountable challenges. On each occasion we have withstood the challenge, learned from the experience and emerged stronger.”

- Dr. Valentin Gapontsev, CEO and Chairman

IPG installed a series of protocols and procedures to protect the safety of our employees, their families and the local communities. IPG complied with local and national guidelines, provided face coverings and PPE gear to employees, installed UVC fans that kill the virus within seconds, and where applicable, introduced employee thermal scanning cameras. IPG implemented an Appreciation Pay Program to honor hourly employees who continued to work on-site during the apex of the pandemic, a COVID-19 Pay Program, and a School Shutdown Pay Program for employees who were required to be at home to care for their children due to school or daycare closure. The outbreak has created a series of social needs within our communities and IPG is responding to these needs by contributing funds, equipment and supplies across the globe.



ASIA

In China, IPG donated approximately **1 million RMB** (\$150,000 USD) to help those in the Wuhan area who were affected by the pandemic.

In Japan, IPG provided support to local community programs to purchase food for children who are unable to attend school due to COVID-19.

EUROPE

IPG Laser in Germany supported the purchase of **PPE supplies** for local healthcare centers.

In Russia, IPG supported the purchase of spare parts for ventilators and the acquisition of infrared thermometers to be used in schools and daycare centers.

In Italy, IPG funded programs to help the elderly and disabled individuals in nursing homes.

AMERICAS

In the United States, IPG worked to address the shortage of PPE gear across the nation. IPG proudly provided over **27,000 N95 masks** and other PPE items to medical facilities across Massachusetts and Rhode Island.

In Mexico, IPG made significant contributions to the Mexican Red Cross.

OUR GOVERNANCE

- Philanthropy
- A Business of Ethical Operations
- IPG Photonics Governance
- Innovations Designed with Integrity
- Upholding Human Rights
- The Power to Transform 2021
- About this Report



PHILANTHROPY

IPG Photonics is actively contributing to non-profit organizations and programs that focus on education, community welfare, arts and social services. IPG recognizes the importance of helping our neighborhoods, and so we strive to enhance our local communities across the globe. In the United States, IPG supports dozens of charities across the world with the goal of promoting community engagement and advancing economic opportunities.

EDUCATION

We have a stake in various programs that help students be well prepared to be tomorrow's leaders and innovators:

- Support secondary education programs that enhance core competencies in STEM
- Focus on helping students develop necessary reading, writing and analytical skills
- In response to COVID-19, IPG made a substantial donation to a local school district to help purchase Chromebooks to accommodate remote learning

CIVIC & SOCIAL SERVICES

IPG believes that it is important to ensure that our communities have access to the most basic needs. We want to improve the quality of life in our regions by empowering people to achieve personal growth and encourage them to take advantage of new opportunities. IPG works to establish more experiences for people in their communities by supporting programs that advance:

- Economic and workforce development
- Diversity
- Scientific literacy
- Conservation and sustainability

HEALTH & WELFARE

IPG supports local health and welfare programs. We also donate to local youth and recreational centers that promote responsible citizenship, education and community involvement. IPG is focused on initiatives that improve the quality of healthcare and wellness.

ARTS & CULTURE

IPG invests in programs that promote participation in the arts. Artistic expression inspires creativity and improves mental health. IPG supports a variety of opportunities for the young and the elderly from underserved or diverse communities to partake in cultural and artistic experiences.

A LOOK INTO 2021:

IPG is committed to making a donation to the international non-profit Girls Who Code in support of the annual International Women's Day in March of 2021. IPG is committed to helping Girls Who Code by supporting their mission of closing the gender gap within the technology industry.



A BUSINESS OF ETHICAL OPERATIONS

IPG Photonics values strong corporate governance with a focus on protecting the safety and basic human rights of all our employees across the globe.

CODE OF CONDUCT

At IPG, all employees are responsible for adhering to the values and guidelines included in our Code of Business Conduct. Across the world, all IPG employees have a responsibility to uphold the code and respect our high ethical standards. IPG is committed to running a moral, ethical and trustworthy enterprise. The Code of Business Conduct highlights our regulations and values to help employees identify and avoid any unethical actions that would discredit our reputation and ethical standards.

WHISTLEBLOWER POLICY

IPG and its subsidiaries are compliant with all applicable security laws and regulations, accounting standards, accounting controls, audit practices and bribery prohibitions. Any IPG employee may submit a good faith complaint to the management without fear of dismissal or retaliation.

ANTI-BRIBERY POLICY

IPG and our subsidiaries operate in accordance with applicable anti-bribery regulations and local laws. Our Anti-Corruption Policy advises directors, employees, agents and representatives of IPG of their position regarding sensitive transactions and requires that transactions are executed, and access to assets is permitted, only in accordance with management's authorization guided by applicable laws and regulations.

SUPPLIERS CODE OF CONDUCT

IPG works with suppliers who are ISO 9001:2015 certified and are committed to business integrity, human rights, protection of information and EHS management. Our suppliers adhere to the global, fundamental principles of human rights including the freedom of association, right to organize, abolition of forced labor, elimination of child labor, equality and antidiscrimination rights, and provision of legally mandated employee benefits.



IPG PHOTONICS GOVERNANCE

ETHICAL GOVERNANCE:

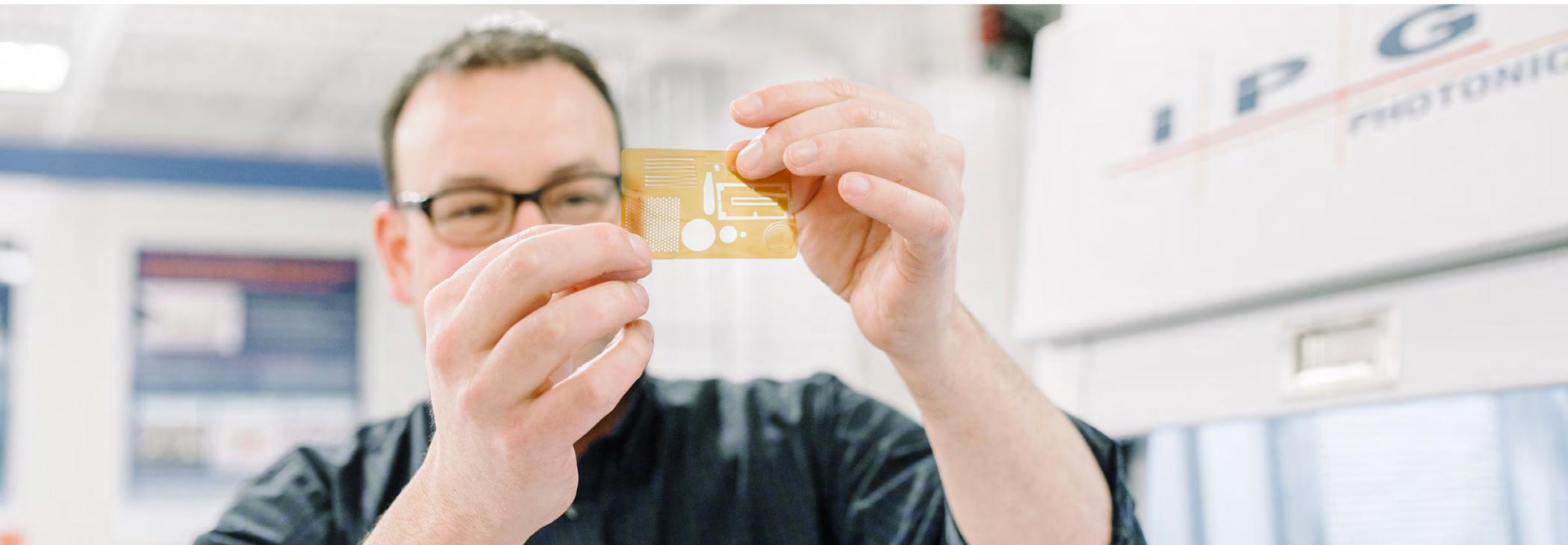
IPG is committed to running an ethical business where all of our employees are given the respect and professionalism they need to thrive. IPG upholds uncompromisingly high ethical standards that are defined by our Code of Business Conduct. Every day, IPG employees implement our values into their operations and interactions. IPG employees and board directors receive comprehensive ethics training upon hire and bi-annually in their local language.

WORK-LIFE BALANCE:

IPG supports a healthy balance between work and other aspects of life. We empower our employees to pursue activities that provide personal fulfillment and social interaction. IPG acknowledges that a strong work-life balance leads to a productive and dynamic workforce. Several IPG locations support physical and mental wellness activities including gym memberships, charity runs and on-site breakrooms. Work-life balance and job security have been two priorities for IPG during the coronavirus pandemic. IPG conducted minimal layoffs and instituted evening schedules for shift workers whose livelihoods were impacted by the closure of schools and day care centers. IPG recognized the immense challenges for employees during this time and protected working parent's income stream and benefits even when they had to take additional time off to care for their children or relatives.

WORKER SAFETY:

Our number one priority is ensuring the safety of every worker across all our regions. In the United States, IPG complies with OSHA standards and manufacturing employees undergo comprehensive safety training to minimize any workplace hazards or accidents.



INNOVATIONS DESIGNED WITH INTEGRITY

HAZARDOUS MATERIALS:

IPG carefully manages all materials and chemicals that are used during production in order to protect the environment and ensure the health and safety of our workers.

European Union REACH - IPG commits to the safe use and identification of chemicals per the requirements of Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH). Our products are “articles” as defined in 3(3) of REACH and do not release substances under normal use. According to REACH, suppliers of articles must provide recipients with information on Substances of Very High Concern (SVHC) if those are present above a concentration limit of 0.1% on an article level. We monitor updates to the list of SVHCs and we strive to minimize or eliminate SVHC substances. Although a substantial majority of our products into the EU marketplace do not contain SVHCs above the specified concentration limits, there may be some that do. We are committed to providing our customers with information regarding SVHC in our products and will continue to monitor our products under REACH.

European Union RoHS and WEEE – IPG complies with applicable provisions of the EU Restriction of Hazardous Substances (RoHS) Directive and Directive 2002/96/EC on Waste Electrical and Electronics Equipment (WEEE) targeting the reduction of environmental impact of waste electrical and electronic equipment. IPG is committed to compliance with the RoHS and WEEE Directives and minimizing the environmental impact of its products.

CONFLICT MATERIALS:

IPG is committed to the responsible sourcing of tin, tantalum, tungsten and gold used in our products and IPG conducts annual due diligence of its suppliers to determine the sourcing of the conflict minerals in its products and confirm there is no evidence that the conflict minerals in IPG’s product funded conflict. IPG will not knowingly source any conflict minerals from sources that fund conflict. If IPG’s due diligence reveals that any of IPG’s suppliers have provided IPG with goods or metals that funded conflict, IPG will seek alternative sources for such goods or metals. IPG files a conflict minerals report with the SEC.

COMPLIANCE & RISK MANAGEMENT:

At IPG, risk management is a priority for our board of directors and senior management. Effectively monitoring and managing risk are essential to the successful execution of IPG’s business strategy. Managers at IPG have the power to manage, mitigate and elevate risks to senior management. The board has oversight for risk management with a focus on the most significant risks, including strategic, operational, financial and compliance risks.



UPHOLDING HUMAN RIGHTS

Across the globe, IPG is committed to ensuring equal opportunities and abiding by local laws. IPG strongly believes in treating all employees fairly and with the utmost respect. At IPG, we offer fair compensation, superior benefits and safe working conditions.

ANTI-HUMAN TRAFFICKING AND CHILD LABOR

IPG upholds a strict zero-tolerance policy prohibiting human trafficking. All forms of forced labor by an employee, supplier, agent, subcontractor or subcontractor employee are prohibited. Workers at IPG are always free to leave upon notice.

IPG does not engage in or benefit from any form of child labor and complies with applicable laws and regulations prohibiting or restricting the employment of minors.

FREEDOM OF ASSOCIATION

IPG respects the rights of employees to affiliate freely with lawful organizations, to choose whether or not to join unions and to bargain collectively in compliance with all applicable laws. IPG will not favor or discriminate against any employee based on whether the employee belongs to any labor organization.

WAGES AND WORK HOURS

IPG is committed to ensuring that all employees are fairly compensated in compliance with minimum wage, overtime and other local compensation and benefit regulations, including all applicable laws and regulations governing working time including break times, vacations, holidays, sick leave and other leave periods.

ANTI-DISCRIMINATION

IPG does not tolerate discrimination or harassment in any form and supports the protection of individuals based on any category or class protected by applicable federal, state or local laws. IPG seeks to ensure equal employment opportunity for all individuals and to promote a respectful, diverse and inclusive work environment.

RESPONSIBLE SOURCING

IPG will comply with all applicable laws and regulations governing disclosure and verification of materials sourcing to reduce the risk of violations in IPG's supply chain.

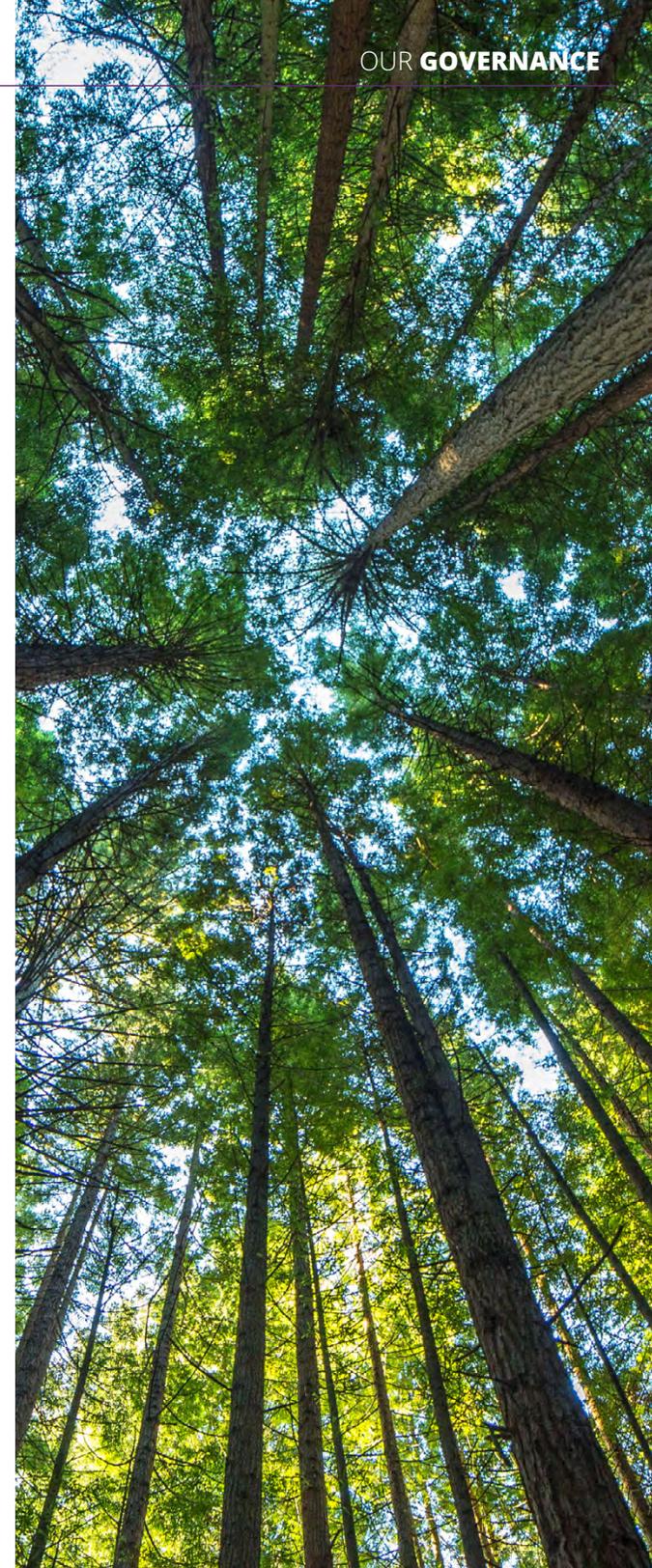


THE POWER TO **TRANSFORM 2021**

IPG Photonics is determined to advance our commitment to society and our planet. We are dedicated to enhancing our sustainability program and to updating our agenda periodically.

IPG plans to establish new goals and conduct assessments to further our sustainability agenda, to reduce our environmental footprint and to advance our community engagement efforts. Among these are to conduct an assessment of climate change upon our business and operations, to investigate opportunities to invest in solar or wind energy to reduce our greenhouse gas emissions and to continue to pursue electrical efficiency increases in our products and operations, with a target reduction of 10% in CO₂ emission per kilowatt of laser power produced over the next decade (assuming the current product mix).

IPG is determined to address the evolving challenges facing society and the planet by continuously updating our priorities and utilizing our unique innovations and technological processes to transform products across all industries.



ABOUT THIS REPORT

This sustainability report covers IPG's approach to sustainability and corporate social responsibility as well as our global progress on environmental, social and governance (ESG) topics. This report was published in December 2020 and covers data from the 2019 calendar year as well as significant developments and highlights from 2020. While this report was not developed in accordance with the GRI Sustainability Reporting Standards, a reference to specific disclosures has been included where full or partial information has been provided. That means we have assessed our most material ESG impacts and have aligned our reporting with them. The report encompasses the operations and geographies noted specifically throughout the report.

Information contained in this document is summary in nature and subject to change without notice. Further information on IPG Photonics financial information and sustainability strategy can be found in our Annual Report, Investor Guidebook and IPG Photonics' 10-K Form.

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Contact Us:

Please send any questions or comments about this report to CSR@IPGPhotonics.com.

IPG Photonics Corporation
50 Old Webster Road
Oxford, MA 01650
IPGPhotonics.com

APPENDIX

United Nations Sustainable Development Goals

IPG Photonics' sustainability strategy is in alignment with the United Nations Sustainable Development Goals (SDGs). IPG's innovations support the United Nations along their goal of establishing a more sustainable society by 2030.



GOOD HEALTH & WELLBEING (PAGES 30-31)

IPG responded to COVID-19 by instituting new policies to maintain the supply chain while simultaneously ensuring the safety of our employees across the globe. Our products help transform lives in the healthcare industry and improve worker safety across the globe. We provide proper laser safety training for our employees in accordance with the OSHA guidelines.



QUALITY EDUCATION (PAGE 33)

IPG is committed to ensuring that today's students are well prepared to be tomorrow's leaders and innovators. Our programs are targeted at post-secondary education that enhance core competencies in STEM.



DECENT WORK & ECONOMIC GROWTH (PAGES 7 & 25)

IPG is an equal opportunity employer with competitive employee benefits and compensation. Our vertical-integrated business model allows us to be a leader in the production of fiber lasers and provide solutions to a variety of industries across the world that are advancing technologies and the efficiency of the global workforce.



INDUSTRY, INNOVATION AND INFRASTRUCTURE (PAGES 7 & 15-16)

Our innovations revolutionize automation, industrial production and the automotive industry. Our superior quality and energy-efficient lasers are built to last and protect the environment.



REDUCED INEQUALITIES (PAGES 27-28 & 37)

Globally, IPG is committed to fostering a work environment that promotes diversity and inclusion. We adhere to our Code of Business Conduct and Human Rights Policy to align our business to protect our employees and provide them with the necessary support they need to succeed.



RESPONSIBLE CONSUMPTION & PRODUCTION (PAGES 7 & 19-21)

IPG carefully monitors our internal supply chain to reduce industrial waste, conserve energy and recycle a variety of materials, including precious metals.



CLIMATE ACTION (PAGES 19-23)

Our facilities have LED fixtures, low water consumption plumbing, variable speed motors and tri-generation plants that reduce emissions. Operating our energy-efficient fiber lasers, reduced global CO₂ emissions by 18 million metric tons compared to other competing laser technologies.

APPENDIX

GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 102: General Disclosures		
102-1	Name of the organization	IPG Photonics Corporation About US.
102-2	Activities, brands, products & services	See corporate website. About US.
102-3	Location of headquarters	50 Old Webster Road, Oxford, MA 01540
102-4	Location of operations	We operate three principal manufacturing facilities for fiber lasers, laser systems, fiber amplifiers, and related optical components, which are located in the United States, Germany, and Russia, and we are developing a fourth principal manufacturing location in Belarus. We conduct our major research and development activities in Oxford and Marlborough, Massachusetts; Burbach, Germany; and Fryazino, Russia. We have numerous sales and service offices located throughout the world. 2019 Form 10-K.
102-5	Ownership and legal form	See 2020 Proxy Statement.
102-6	Markets served	See 2019 Form 10-K.
102-7	Scale of the organization	See 2019 Form 10-K.
102-8	Information on employees and other workers	As of December 31, 2019, we had approximately 5,960 permanent, full-time employees. We employ temporary workers in select operations, representing less than 2% of our total workforce. 2019 Form 10-K 2020 Sustainability Report.
102-9	Supply chain	Vertical integration is one of our core business strategies through which we control our proprietary processes and technologies as well as the supply of key components and assemblies. In general, a majority of our components are sourced internally, including semiconductor diodes, optical fibers, electro-optical components, optical components and mechanical assemblies. We purchase common and specialized mechanical, electrical and optical parts and raw materials from third party vendors. IPG's supply chain organizations are designed to support production of its high-performance fiber lasers and amplifiers in a legal, economically effective, and environmentally and socially responsible manner. 2019 Form 10-K
102-10	Significant changes to the organization and its supply chain	IPG has acquired several companies in last three fiscal years, which did not result in significant changes to IPG's size, structure, ownership or supply chain. IPG's business plan is premised on vertical integration using its three largest production locations in Massachusetts, Burbach, Germany, and Fryazino, Russia to provide internal supply needs. IPG has added production capacity in its new facility in Belarus providing lower cost mechanical and other components for our internal production. IPG acquired Genesis Systems Group, LLC, an Iowa-based provider of welding solutions in 2018. 2019 Form 10-K
102-11	Precautionary Principle or approach	A description of the role of the Board of Directors in risk oversight can be found in the 2020 Proxy Statement.
102-12	External initiatives	External initiatives include the following: Customs-Trade Partnership Against Terrorism - USA (CT-PAT); EU Waste Electrical and Electronic Equipment (WEEE) Directive 2005; Global Reporting Initiative—GRI 4.0 sustainability reporting guidelines; U.S. Foreign Corrupt Practices Act and similar anticorruption laws enacted under the OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions; US Equal Opportunity laws and accompanying regulations.

APPENDIX

GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 102: General Disclosures		
102-13	Membership of associations	IPG does not disclose this information.
102-14	Statement from senior decision-maker	See Chairman and CEO letters to stockholders and other stakeholders. 2020 Proxy Statement 2020 Sustainability Report
102-15	Key impacts, risks, and opportunities	Key impacts, risks and opportunities are outlined in 2019 Form 10-K .
102-16	Values, principles, standards, and norms of behavior	Our Code of Business Conduct outlines our values, principles, standards and norms of behavior. This is reviewed annually by the Board of Directors and employees must undergo periodic training in local languages and acknowledge their acceptance of the Code. Additionally, IPG has the following core values: standing by our products; ethical behavior; compliance with laws and standards. Code of Business Conduct
102-17	Mechanisms for advice and concerns about ethics	Employees are trained to seek advice about ethical or unlawful behavior and to report concerns about unethical or unlawful behavior and organizational integrity by either contacting the legal department or using a confidential method in the Code of Business Conduct .
102-18	Governance structure	See pages 26-29 of 2020 Proxy Statement .
102-19	Delegating authority	Not applicable.
102-20	Executive-level responsibility for economic, environmental, and social topics	IPG employs a cross-functional team to manage the company's global corporate social responsibility (CSR) program that analyzes economic, environmental and social topics. Along with input from our executive management team and the Board of Directors, the team defines CSR focus areas, organizes and standardizes IPG's CSR efforts and conducts measurement and reporting on key CSR metrics. 2020 Sustainability Report
102-21	Consulting stakeholders on economic, environmental, and social topics	IPG's cross-functional CSR team consults key stakeholders on economic, environmental and social topics. These stakeholders include customers, employees and stockholders. 2020 Sustainability Report
102-22	Composition of the highest governance body and its committees	See pages 12-23 of 2020 Proxy Statement .
102-23	Chair of the highest governance body	Dr. Valentin P. Gapontsev is the Chairman of the Board and CEO. He is an executive officer of IPG. 2020 Proxy Statement
102-24	Nominating and selecting the highest governance body	See pages 22-23 of 2020 Proxy Statement .
102-25	Conflicts of interest	See pages 25 and 32 of 2020 Proxy Statement .
102-26	Role of highest governance body in setting purpose, values, and strategy	See page 24 of 2020 Proxy Statement .

APPENDIX

GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 102: General Disclosures		
102-27	Collective knowledge of highest governance body	See page 24 of 2020 Proxy Statement .
102-28	Evaluating the highest governance body's performance	See page 24 of 2020 Proxy Statement .
102-29	Identifying and managing economic, environmental, and social impacts	See page 24 of 2020 Proxy Statement .
102-30	Effectiveness of risk management processes	See page 24 of 2020 Proxy Statement .
102-31	Review of economic, environmental, and social topics	See page 24 of 2020 Proxy Statement .
102-32	Highest governance body's role in sustainability reporting	See page 24 of 2020 Proxy Statement .
102-33	Communicating critical concerns	The process for reporting critical concerns is outlined in our Code of Business Conduct. We provide a confidential phone hotline, fax number and confidential web reporting. Code of Business Conduct
102-34	Nature and total number of critical concerns	Not applicable.
102-35	Remuneration policies	See pages 33-56 of 2020 Proxy Statement .
102-36	Process for determining remuneration	See pages 33-56 of 2020 Proxy Statement .
102-37	Stakeholders' involvement in remuneration	See page 39 of 2020 Proxy Statement .
102-38	Annual total compensation ratio	See page 57 of 2020 Proxy Statement .
102-39	Percentage increase in annual total compensation ratio	Not applicable.
102-40	List of stakeholder groups	Customers, employees, stockholders, suppliers, governments and communities. 2020 Sustainability Report

APPENDIX

GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 102: General Disclosures		
102-41	Collective bargaining agreements	Employees of several IPG companies participate in unions and employees of several other IPG companies participate in collective bargaining agreements. Human Rights Policy
102-42	Identifying and selecting stakeholders	IPG's key stakeholders include customers, employees, shareholders, suppliers and communities. 2020 Sustainability Report
102-43	Approach to stakeholder engagement	IPG engages with the stakeholders listed in disclosure 102-40 throughout the year.
102-44	Key topics and concerns raised	See 2020 Proxy Statement .
102-45	Entities included in the consolidated financial statements	See 2019 Form 10-K .
102-46	Defining report content and topic Boundaries	Not applicable.
102-47	List of material topics	Not applicable.
102-48	Restatements of information	Not applicable.
102-49	Changes in reporting	Not applicable.
102-50	Reporting period	2019.
102-51	Date of most recent report	Not applicable.
102-52	Reporting cycle	Annual.
102-53	Contact point for questions regarding the report	csr@ipgphotonics.com .
102-54	Claims of reporting in accordance with the GRI Standards	We self-declare that the report is prepared in accordance with GRI Standards: Comprehensive Option.
102-55	GRI content index	This Sustainability Reporting Table serves as our GRI content index.
102-56	External assurance	While we have not sought external assurance for the content of this Sustainability Reporting Table, certain data included is subject to external review and all information provided is reviewed internally.

APPENDIX

GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 103: Management Approach		
103-1	Explanation of the material topic and its Boundary	IPG believes that CSR is a crucial component of the company's success. As such, the Company has allocated employee time and efforts to measure and manage our CSR initiatives. 2020 Sustainability Report
103-2	The management approach and its components	IPG employs a cross-functional team to manage the company's global corporate social responsibility program. Along with input from our executive management team and the Board of Directors, the team defines CSR focus areas, organizes and standardizes IPG's CSR efforts and conducts measurement and reporting on key sustainability metrics. 2020 Sustainability Report
103-3	Evaluation of the management approach	IPG's CSR team consists of executives and managers in our Legal, Accounting, Investor Relations, Human Resources, Operations, Safety, Facilities, Supply Chain and Quality departments. The team's objectives are to develop and enhance IPG's global CSR program, identify gaps in CSR compliance and develop strategies to ensure compliance and to improve IPG external communication of environmental, social and governance metrics. 2020 Sustainability Report
GRI 201: Economic Performance		
201-1	Direct economic value generated and distributed	2019 direct economic value generated \$1,336,139,000; 2019 economic value distributed: \$1,149,101,000; 2019 economic value retained: \$187,037,000. 2019 Form 10-K
201-2	Financial implications and other risks and opportunities due to climate change	We believe an increasing global focus on mitigating risks from climate change presents an opportunity for greater adoption of our high power fiber laser technology, which we invented and commercialized. IPG fiber lasers uses less electricity than other types of laser and we estimate that operation of IPG fiber lasers instead of other types of lasers has resulted in approximately 18 million metric tons less global CO ₂ emissions by our customers since 2011 and over 6 million metric tons less CO ₂ emission in 2019 alone. We help our customers achieve their sustainability goals by lowering their electrical usage while still providing high performance industrial tools. IPG fiber lasers are used in renewable energy products including production of electric vehicles (EV), solar cells and EV batteries. Our laser technology also enables lighter materials to be used in transportation that reduces weight and improves fuel efficiency. Laser welding reduces the amount of overlapping material required in joining metal panels, and IPG lasers enable more efficient and faster drilling of holes in turbine blades and fans that improve jet engine fuel efficiency. 2020 Sustainability Report 9, 12 and 15-16
201-3	Defined benefit plan obligations and other retirement plans	IPG does not offer a defined benefit plan to employees. IPG offers defined contribution plans that vary country by country. 2019 Form 10-K
201-4	Financial assistance received from government	Not applicable.
GRI 202: Market Presence		
202-1	Ratios of standard entry level wage by gender compared to local minimum wage	IPG does not disclose this information.
202-2	Proportion of senior management hired from the local community	IPG does not disclose this information.

APPENDIX

GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 203: Indirect Economic Impacts		
203-1	Infrastructure investments and services supported	Not applicable.
203-2	Significant indirect economic impacts	IPG does not measure indirect economic impacts as noted nor does IPG track indirect economic impacts in context of external benchmarks.
RI 204: Procurement Practices		
204-1	Proportion of spending on local suppliers	IPG does not disclose this information.
GRI 205: Anti-Corruption		
205-1	Operations assessed for risks related to corruption	All operations are assessed for risks related to corruption. No significant risks have been identified.
205-2	Communication and training about anti-corruption policies and procedures	All IPG employees receive training on IPG's anti-corruption policy upon employment and biannually.
205-3	Confirmed incidents of corruption and actions taken	Not applicable.
GRI 206: Anti-Competitive Behavior		
206-1	Legal actions for anti-competitive behavior, anti-trust, and monopoly practices	IPG has no legal actions for anti-competitive behavior, anti-trust or monopoly practices.
GRI 207: Tax		
207-1	Approach to tax	Our tax strategy is implemented in support of our business strategy and global operations. IPG reports profits and pays taxes on those profits in the countries of its operations, including research & development, manufacturing and sales, in accordance with the laws of each country. Our tax rate is based on our income, statutory tax rates and tax planning opportunities available to us in the various jurisdictions in which we operate. We file federal and state income tax returns in the United States and in numerous international jurisdictions. 2019 Form 10-K
207-2	Tax governance, control, and risk management	Our tax strategy is implemented by our Chief Financial Officer, along with other members of the finance tax group and regional controllers, in consultation with our executive management team and oversight by the Audit Committee of the Board of Directors. 2019 Form 10-K
207-3	Stakeholder engagement and management of concerns related to tax	We engage with tax authorities in the many regions in which we operate.
207-4	Country-by-country reporting	See 2019 Form 10-K .

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GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 301: Materials		
301-1	Materials used by weight or volume	IPG does not track this information.
301-2	Recycled input materials used	See 2020 Sustainability Report
301-3	Reclaimed products and their packaging materials	IPG provides incentives for customers to return pump modules, which we then repair, refurbish or recycle. 2020 Sustainability Report
GRI 302: Energy		
302-1	Energy consumption within the organization	Approximately, 131,455 megawatt hours of electricity, heating oil and natural gas consumption in 2019. 2020 Sustainability Report .
302-2	Energy consumption outside of the organization	IPG does not track this information.
302-3	Energy intensity	55,551 metric tons CO ₂ emissions in 2019 equivalent per 1.38 kW of laser power shipped, refer to 2020 Sustainability Report
302-4	Reduction of energy consumption	In 2019, our energy consumption was 131,455 megawatt hours, which was lower than our 2017 consumption despite and increase in production and acquisitions. 2020 Sustainability Report
302-5	Reductions in energy requirements of products and services	IPG has continually increased the wall-plug efficiency (watts of electricity required to generate a watt of optical energy) of our laser products. For example, the wall-plug efficiency of a 5 kilowatt continuous wave Ytterbium fiber laser has increased by about 67% from 2010 to 2020. 2020 Sustainability Report
GRI 303: Water and Effluents		
303-1	Interactions with water as a shared resource	IPG does not track this information.
303-2	Management of water discharge-related impacts	IPG does not track this information.
303-3	Water withdrawal	IPG does not track this information.
303-4	Water discharge	IPG does not track this information.
303-5	Water consumption	Approximately 168,150 cubic meters in 2019. 2020 Sustainability Report

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GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 304: Biodiversity		
304-1	Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas	None to our knowledge.
304-2	Significant impacts of activities, products, and services on biodiversity	None to our knowledge.
304-3	Habitats protected or restored	None to our knowledge.
304-4	IUCN Red List species and national conservation list species with habitats in areas affected by operations	None to our knowledge.
GRI 305: Emissions		
305-1	Direct (Scope 1) GHG emissions	Approximately 12,821 metric tons CO ₂ equivalent in 2019. 2020 Sustainability Report
305-2	Energy indirect (Scope 2) GHG emissions	Approximately 42,730 metric tons CO ₂ equivalent in 2019. 2020 Sustainability Report
305-3	Other indirect (Scope 3) GHG emissions	IPG does not track this information.
305-4	GHG emissions intensity	GHG emission per kW lasers sold (MWh/kW) is 1.38 in 2019. 2020 Sustainability Report
305-5	Reduction of GHG emissions	Our GHG emissions and GHG emissions intensity decreased from 2017 to 2019. 2020 Sustainability Report
305-6	Emissions of ozone- depleting substances (ODS)	There are no ozone depleting substances found on site in the United States or Germany.
305-7	Nitrogen oxides (NOX), sulfur oxides (SOX), and other significant air emissions	Not applicable.
GRI 306: Effluents and Waste		
306-1	Water discharge by quality and destination	IPG does not disclose this information.
306-2	Waste by type and disposal method	IPG does not disclose this information.
306-3	Significant spills	None.
306-4	Transport of hazardous waste	IPG uses licensed transporters only.
306-5	Water bodies affected by water discharges and/or runoff	Not applicable.

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GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 307: Environmental Compliance		
307-1	Non-compliance with environmental laws and regulations	IPG has received no material fines or non-monetary sanctions for non-compliance with environmental laws and/or regulations in 2019.
GRI 308: Supplier Environmental Assessment		
308-1	New suppliers that were screened using environmental criteria	Our suppliers adhere to the Supplier Code of Conduct which outlines environmental standards they must meet.
308-2	Negative environmental impacts in the supply chain and actions taken	IPG does not perform negative environmental impact assessments of its supply chain.
GRI 401: Employment		
401-1	New employee hires and employee turnover	IPG does not disclose this information.
401-2	Benefits provided to full-time employees that are not provided to temporary or part-time employees	IPG does not disclose this information.
401-3	Parental leave	IPG complies with local laws to allow for parental leave for regular employees. 2020 Sustainability Report
GRI 402: Labor/Management Relations		
402-1	Minimum notice periods regarding operational changes	We provide a minimum number of weeks' notice to employees prior to implementing significant operational changes that could substantially affect them in accordance with local operations.
GRI 403: Occupational Health and Safety		
403-1	Occupational health and safety management system	In the US, IPG works with the globally recognized ANSI Z10 Management System. In Germany, the occupational health and safety management system has been implemented according to German law and part of our ISO quality system.
403-2	Hazard identification, risk assessment, and incident investigation	IPG conducts hazards assessments and risk assessments. Incidents, injuries and illness are reported, tracked and investigated. 2020 Sustainability Report
403-3	Occupational health services	Designated clinics, alternative transportation for non-emergency follow-ups and eye care clinics are available at specific sites where applicable.
403-4	Worker participation, consultation, and communication on occupational health and safety	Where applicable there are regular safety meetings with our safety officers. Prevention medical check-up by the company doctor for workers subject to work risks.
403-5	Worker training on occupational health and safety	Training at hire and retaining periodically varying by operations and exposures. 2020 Sustainability Report
403-6	Promotion of worker health	Yes, there are amenities related to health. 2020 Sustainability Report

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GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 403: Occupational Health and Safety		
403-7	Prevention and mitigation of occupational health and safety impacts directly linked by business relationships	We design and optimize our working stations to prevent posture damage or other health problems.
403-8	Workers covered by an occupational health and safety management system	Workers are covered by our operating procedures which incorporate health and safety practices.
403-9	Work-related injuries	IPG tracks and reports in accordance with local laws and regulations. 2020 Sustainability Report
403-10	Work-related ill health	IPG tracks and reports in accordance with local laws and regulations. 2020 Sustainability Report
GRI 404: Training and Education		
404-1	Average hours of training per year per employee	IPG does not disclose this information.
404-2	Programs for upgrading employee skills and transition assistance programs	IPG does not disclose this information.
404-3	Percentage of employees receiving regular performance and career development reviews	IPG does not disclose this information.
GRI 405: Diversity and Equal Opportunity		
405-1	Diversity of governance bodies and employees	IPG does not disclose this information.
405-2	Ratio of basic salary and remuneration of women to men	IPG does not disclose this information.
GRI 406: Non-Discrimination		
406-1	Incidents of discrimination and corrective actions taken	IPG does not disclose this information.
GRI 407: Freedom of Association and Collective Bargaining		
407-1	Operations and suppliers in which the right to freedom of association and collective bargaining may be at risk	We have identified none. IPG allows employees to have the right to freedom to association and collectively bargaining. Human Rights Policy

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GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 408: Child Labor		
408-1	Operations and suppliers at significant risk for incidents of child labor	We have identified none. Our labor policy prohibits the use of child labor and prohibits workers under the age of 15 or the minimum age under local law. IPG's Supplier Code of Conduct contains similar restrictions on child labor. Human Rights Policy Supplier Code of Conduct , Anti-Human Trafficking Policy
GRI 409: Forced Labor		
409-1	Operations and suppliers at significant risk for incidents of forced or compulsory labor	There are no identified risks of child and forced labor abuse at any of our operations. IPG's Terms and Conditions of Purchase, Supplier Code of Conduct, and Anti-Human Trafficking Policy and Compliance Plan contain explicit restrictions on child labor to which all suppliers are expected to adhere. IPG also supports the UK Modern Slavery Act and is committed to identify and address the risks of modern slavery, as outlined in IPG's UK Modern Slavery Act Transparency Statement. Human Rights Policy Supplier Code of Conduct , Anti-Human Trafficking Policy
GRI 410: Security Practices		
410-1	Security personnel trained in human rights policies or procedures	IPG hires third parties organizations for security which are required to comply with law and our Supplier Code of Conduct
GRI 411: Rights of Indigenous Peoples		
411-1	Incidents of violations involving rights of indigenous peoples	None.
GRI 412: Human Rights Assessment		
412-1	Operations that have been subject to human rights reviews or impact assessments	Not applicable.
412-2	Employee training on human rights policies or procedures.	IPG employees undergo Code of Business Conduct training biannually.
412-3	Significant investment agreements and contracts that include human rights clauses or that underwent human rights screening	Contracts require suppliers to agree to our Supplier Code of Conduct, which includes human rights provisions. Supplier Code of Conduct
GRI 413: Local Communities		
413-1	Operations with local community engagement, impact assessments, and development programs	IPG Photonics actively contributes to non-profits organizations and programs that are designed to enhance education, community welfare and social services. IPG consistently donates equipment and machinery to first responders in the Massachusetts and Rhode Island area. Furthermore, in response to the coronavirus pandemic IPG donated essential PPE supplies to our key communities across the globe, as disclosed in the Sustainability Report. 2020 Sustainability Report
413-2	Operations with significant actual and potential negative impacts on local communities	IPG has not identified any operations with significant actual or potential negative impacts on local communities.

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GRI Standard	Disclosure	IPG Photonics Disclosure, links
GRI 414: Supplier Social Assessment		
414-1	New suppliers that were screened using social criteria	IPG requires suppliers to comply with all applicable environmental, health and safety laws, regulations and directives. Suppliers are expected to protect the health, safety and welfare of their people, visitors and others who may be affected by their activities. Supplier Code of Conduct
414-2	Negative social impacts in the supply chain and actions taken	Through our vertical integration model, we reduce purchases from third-party supply chains as well as the negative social impacts of any third-party supplier actions.
GRI 415: Political Contributions		
415-1	Political contributions	IPG had no political contributions for the reporting period.
GRI 416: Customer Healthy and Safety		
416-1	Assessment of the health and safety impacts of product and service categories	Product safety group is responsible for ensuring the safety of our products. In addition, third party certifiers are utilized to assess certain of our products.
416-2	Incidents of non-compliance concerning the health and safety impacts of products and services	IPG is not aware of any non-compliance concerning the health and safety impacts of any of our products or services.
GRI 417: Marketing and Labeling		
417-1	Requirements for product and service information and labeling	IPG is required by applicable laws to label its products to disclose laser light, electrical and other risks.
417-2	Incidents of non-compliance concerning product and service information and labeling	IPG is not aware of any non-compliance concerning the product and service information and labeling of any of our products or services.
417-3	Incidents of non-compliance concerning marketing communications	IPG is not aware of any non-compliance concerning the marketing communications of any of our products or services.
RI 418: Customer Privacy		
418-1	Substantiated complaints concerning breaches of customer privacy and losses of customer data	IPG has not identified any substantial complaints received concerning breaches of customer privacy.
GRI 419: Socioeconomic Compliance		
419-1	Non-compliance with laws and regulations in the social and economic area	IPG has received no material fines or non-monetary sanctions for non-compliance with laws and/or regulations in the social and economic area.