



# THE SCIENCE OF ADVANCED VACUUM

# OUR HISTORY OVER 50 YEARS OF SUCCESS!

Although Gamma Vacuum as a brand started in Shakopee, Minnesota, USA in 2003.

**1962**

Donald P. Meighan founds Ultek in Mountain View, California. Ultek becomes a leading manufacturer of vacuum systems, including ion pumps to the research and development community, and components for the semiconductor industry.

**1975**

Perkin-Elmer acquires Ultek.

**1977**

The Perkin-Elmer Corporation acquires Physical Electronics (PHI) and integrates it within its Ultek vacuum business, based in Minnesota. Over the following 17 years, PHI grows substantially to become a leader in the supply of surface analytical instruments as well as a major producer of ion pumps.

**1994**

PHI takes off from Perkin Elmer and becomes independent.

**2003**

2 significant changes occur:

- The Japanese company ULVAC acquires PHI and rebrands it as ULVAC PHI.
- Some employees of the former vacuum division of PHI found Gamma Vacuum with a clear objective: to manufacture ion pumps and controllers.

**2014**

11 years later Gamma Vacuum joins the Atlas Copco Group, one of the world's leading vacuum manufacturers with top-tiered brands such as Edwards Vacuum and Leybold being part of the Group.

**Today**

Gamma Vacuum distributes its products across the globe to the most demanding customers.

We specialize in providing ultra-high vacuum (UHV) solutions for large accelerator facilities and electron microscopes. Our expertise extends to pump controller electronics and we take pride in customizing our products to meet the unique vacuum challenges faced by our customers.

Our commitment to continuous learning and global support enables us to offer innovative solutions for cutting-edge applications that the world has never seen before.

# BRINGING VALUE AND CHOICE TO OUR CUSTOMERS

**Our goal is to provide customers with unmatched value, a wide range of products, and the highest standards in the market.**

Gamma Vacuum specializes in providing solutions for ultra-high vacuum (UHV) applications. With one of the largest UHV product portfolios available in the market, we offer a wide range of equipment such as ion pumps, non-evaporable getter (NEG) pumps, titanium sublimation pumps (TSP), and their respective controllers. Our product range also includes high-voltage and high-current cables. Everything is manufactured in-house at our Gamma Vacuum site in Shakopee, USA.



In addition to our standalone products, we offer combinations of ion pumps and NEG pumps or TSPs, providing our customers with the flexibility to choose the best solution for their specific application.

Our electronics department develops and produces one of the most extensive ion pump controller range in the market: from smart controllers operating ion pumps that can easily fit into your pockets to powerful controllers capable of operating several ion pumps at once. All Gamma Vacuum ion pumps, NEG, and TSPs are compatible with our proprietary controllers, ensuring optimal performance and efficiency.

**At Gamma Vacuum, we pride ourselves on our ability to customize any of our products to meet the unique needs of our customers and surpass industry standards when it comes down to efficiency, reliability, and effectiveness.**

We can create tailor-made pumps and controllers to meet the exact specifications of each project.

Throughout the year's Gamma's established customer work request (CWR) form has spawned the fittest pumps or controllers skipping the usual steps in product evolution.

Gamma Vacuum enables the other vacuum brands of the Atlas Copco group to be a one-stop shop where you can get everything you need to run and control your application the long way from atmospheric pressure down to terrains that are thousands of billion times smaller.

# FIRST-CLASS SOLUTIONS



## SYNCHROTRONS

Synchrotrons are a type of accelerator that uses circular trajectories to accelerate electrons. These accelerated electrons emit X-ray radiation by changing direction, which is often referred to as synchrotron radiation. They reveal atomic-level structures and enable research across a diverse range of fields, including chemistry, material science, and vaccine research.

We provide controllers and ion pumps for synchrotron beamlines around the globe. Many of those are combinations that integrate non-evaporable getter (NEG) pumps.



## LINEAR ACCELERATORS

Linear accelerators provide an alternative approach to material and basic physics research. Since the beginning of Gamma Vacuum, we have supplied ion pumps to these facilities, some of which have been in operation for over 50 years.

In addition to thousands of pumps and controllers, we have also provided over 33,000 feet (or 10,000 meters) of high-voltage cables for those applications.



## MEDICAL APPLICATIONS

Every year, hundreds of Gamma Vacuum products are integrated into X-ray machines for medical and electronics inspection purposes.

X-rays are for instance used to remove white blood cells from blood bags, which can cause complications in the recipient's immune system. The Gamma Vacuum TiTan 3S pump is pocket-sized and widely used for small-volume applications like this.

Along with Gamma's small ion pump controller, they are also used for imaging as well as cancer treatment, for example in computed tomography (CT) scanners or even proton accelerators.



## ELECTRON MICROSCOPE OEMs

Our small ion pumps and controllers are the right choice for many electron microscope OEMs worldwide, with thousands of products shipped annually.

Customers appreciate not only the small footprint of those ion pump controllers but also their ease of use. Moreover, they are the only commercially available controllers that allow for high potting, which enhances pump stability and uptime.

# FOR EVERY CHALLENGE



## BAGGAGE SCANNERS

To maintain safety for all of us when traveling by plane, airport security requires that all belongings be placed on a belt for X-ray screening.

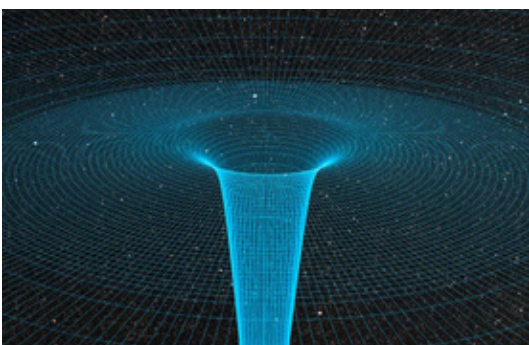
This crucial step quickly identifies and removes any dangerous items. Our top-of-the-line ion pumps and controllers are essential components in the efficient and effective functioning of these machines.



## SEMICONDUCTOR INDUSTRY

The purity of nanoscale structures in the semiconductor industry is vital: even the tiniest oil particles present a significant challenge as they are larger than the microprocessor structures themselves.

There again our ion pumps play a main role in providing a pure environment as they reach the lowest ultra-high vacuum pressures and do not contain any oil. They also do not have any moving parts that could create vibrations, ensuring superior results during production such as mask writing with electron beams. Circuit testing with X-rays also benefits from the pure conditions that ion pumps create.



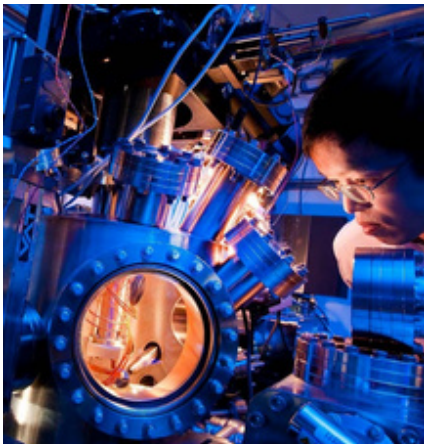
## GRAVITATIONAL WAVE DETECTORS

In 2017, the first observation of gravitational waves was awarded the Nobel Prize in Physics. To observe and study the properties of these waves, laser interferometers with several kilometers long arms

require ultra-high vacuum conditions, which are provided by our quarter-ton TiTan 1200LX pumps and powerful MPCq controllers.



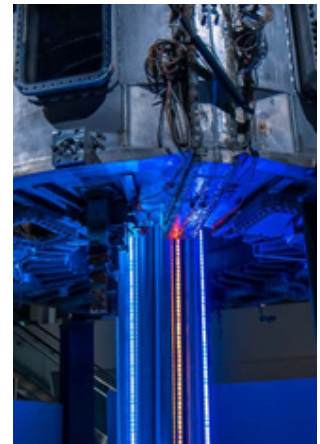
# EXPERTISE IN UHV FOR THE MOST ADVANCED APPLICATIONS



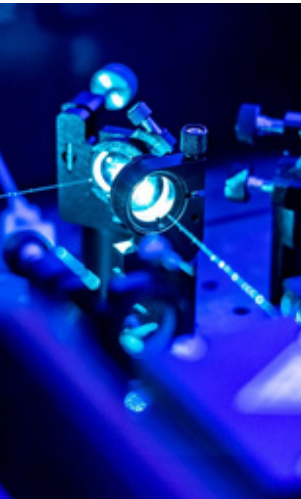
Surface Science



TiTan Ion Pumps



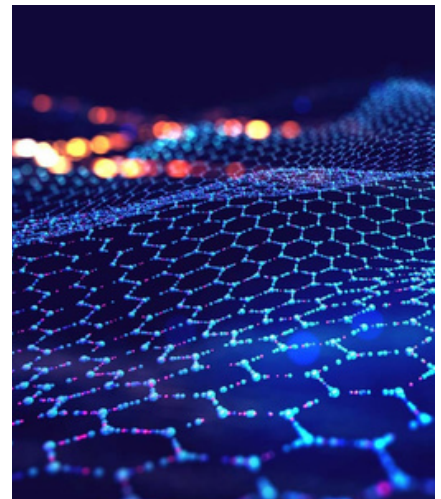
Nuclear Fusion



Lasers



Non-Evaporable Getters (NEG)



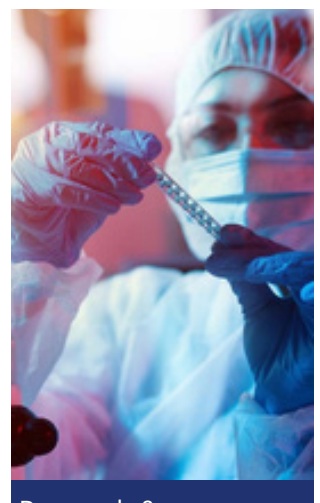
Nanotechnology



Particle Accelerators



DIGITEL Ion Pump Controllers



Research & Development

# THE WORLD AROUND US IS FOREVER EVOLVING AND SO IS GAMMA VACUUM

Our core values of interaction, commitment, and innovation define our culture. They guide how we behave, when interacting with colleagues and in our relationships with external stakeholders.

These values help us maintain our leadership position in a constantly evolving environment.



## INTERACTION

We listen to and understand our customers.

We believe in listening to and understanding the diverse needs of our customers and other stakeholders. We create better solutions based on what we learn from this interactive process.



## INNOVATION

There's always a better way.

We believe there is always a better way of doing things. This innovative spirit is a vital part of our identity and the driving force that has made us who we are today.



## COMMITMENT

Delivering the best possible solution.

We are totally engaged in finding the best solution we can deliver. We are as fully committed to our people and to adding value to our customer's business, as we are to our own goals.



**40+**

Employees



**100%**

Renewable  
on Electricity



Customers in

**180**

Countries



Over

**15,000**

Product  
Configurations

■ **Part of Atlas Copco Group**

[www.gammavacuum.com](http://www.gammavacuum.com) | [info@gammavacuum.com](mailto:info@gammavacuum.com)

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Read all safety instructions in the manual before usage.