

TITAN[®]

Ipsen delivers Innovation...

TITAN® delivers Simplicity

Ipsen dreamed of engineering a vacuum furnace that was cost effective to produce, deliver and operate. A vacuum furnace that was easy to install and operate anywhere in the world, while maintaining our reputation of delivering quality thermal processing technology. With more than 60 years of engineering and heat-treat expertise, we set out on a journey to build the TITAN® furnace.

TITAN® delivers Quality

Our talented team of engineers was able to create a quality vacuum furnace at an affordable price by developing an all-new design and by standardizing the production process. The result: TITAN® offers a wide range of sizes, versatility of processes, speed and uniformity, while maintaining cost effective pricing, delivery and operation.





TITAN® At-A-Glance

- Available in Horizontal and Vertical models up to 10,000 lb (4,500 kg) capacity
- Globally Certified vessel
- Operates in most languages and meets global industry standards
- Variety of Standard Processes Available – temper, anneal, harden, braze, etc.
- Quick installation
- Rent, Lease or Buy
- 30% More Energy Efficient than comparable models
- Easy-to-use controls
- Fits in standard width truck or shipping container

TITAN® delivers Solutions: **Tool & Die**

When it comes to tool manufacturing, TITAN® provides a wide range of heat-treat solutions to meet your needs and expand your possibilities.



Bits

TITAN® shortens your production line since subsequent processes such as washing are unnecessary.



Molds for plastic injection molding

TITAN® hardening produces an optimal structure with minimal distortion.



Countersinks

TITAN® is the ideal furnace for hardening these tools thanks to its high maximum temperature.



Milling Cutters

TITAN® ensures high stability for parts that are subject to wear.

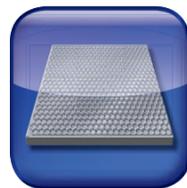


Drills

TITAN® reaches a hardening temperature of up to 2400°F (1300°C) providing the required temperatures of high-speed tool steel.

All in One — Annealing, Hardening, Brazing, Solution Annealing, Stress Relieving and Tempering

Ipsen's TITAN® offers you all the options you need for conventional heat-treat processes. Each process is performed quickly, easily and uniformly at peak efficiency.



Honeycombs

TITAN® can provide the high-temperature brazing of special honeycomb shapes used in the construction of airplanes.



Turbine Blades

The TITAN® furnace's uniformity provides the necessary processes that create highly reliable blades for the high-stress environment of a jet engine turbine.



Turbines

TITAN® is used to develop and produce the required high-temperature materials – CrNi alloys, nickel-based alloys and titanium alloys – required for thermodynamic efficiency of turbines at their hottest point.



Screws, Nuts and Rivets

TITAN® ensures the superior quality needed to create reliable mechanical fasteners.



Landing Gear

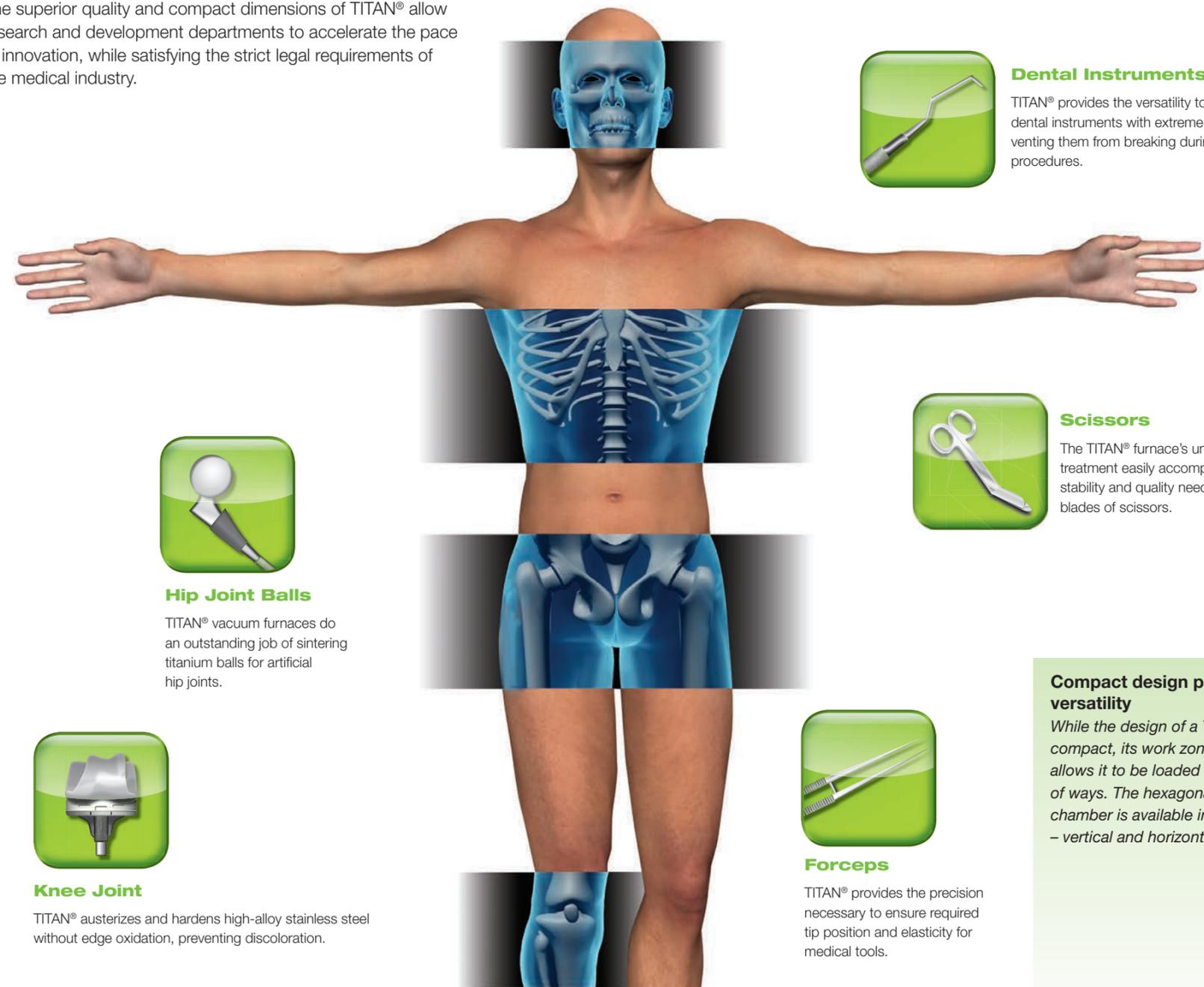
TITAN® can efficiently and reliably heat treat landing gears that can handle more than 560 tons and an enormous amount of stress.

Safe and Reliable

Ipsen is the world's largest manufacturer of furnace and heat-treat systems. With more than 60 years of experience, every product that we manufacture is backed by our comprehensive knowledge and expertise, our robust engineering capabilities, our highly innovative research and development efforts, our world-class customer support services and our dedication to quality.

TITAN® delivers Solutions: **Medical**

The superior quality and compact dimensions of TITAN® allow research and development departments to accelerate the pace of innovation, while satisfying the strict legal requirements of the medical industry.



Dental Instruments

TITAN® provides the versatility to manufacture dental instruments with extreme care, preventing them from breaking during delicate procedures.



Scissors

The TITAN® furnace's uniform heat treatment easily accomplishes the stability and quality needed for the blades of scissors.



Forceps

TITAN® provides the precision necessary to ensure required tip position and elasticity for medical tools.



Hip Joint Balls

TITAN® vacuum furnaces do an outstanding job of sintering titanium balls for artificial hip joints.



Knee Joint

TITAN® austerizes and hardens high-alloy stainless steel without edge oxidation, preventing discoloration.

Compact design paired with versatility

While the design of a TITAN® is compact, its work zone versatility allows it to be loaded in a variety of ways. The hexagonal heating chamber is available in many sizes – vertical and horizontal.

TITAN® delivers Solutions: **Energy**

The highly complex and dynamic parts utilized in the Energy industry require uniform quality and superior reliability that TITAN® can provide.



Turbine Blades

The TITAN® furnace's uniformity provides the necessary processes that create highly reliable blades for the high-stress environment of a land-based turbine.



Solar Panels

Due to the growing demand for renewable energy, the manufacturing of solar cells and photovoltaic analysis has advanced considerably in recent years.



Heat Exchangers

TITAN® can provide the high-temperature brazing of special shapes used in a variety of applications.



Windmill Gears

TITAN® provides the precise temperature control necessary to meet the highly dynamic and dimensional requirements for manufacturing the robust, uniform gears used in wind turbines.



Fuel Cells

TITAN® delivers the precision thermal processing needed to create critical components for high efficiency fuel cells.

Robust uniformity teams up with efficiency

The TITAN® furnace's compact design and energy-efficient operation provides a cost advantage, while providing the thermal processing reliability and uniformity required for creating parts that hold up against high-stress applications offering a long service life.

TITAN® delivers Expertise: **Vacu-Prof® Control System**

Treatment processes are controlled by Ipsen's proprietary software, Vacu-Prof®. Proven and dependable, the Vacu-Prof® system is a powerful tool that provides:

- Easy-to-use interface
- Data Collection
- Security Levels
- Enhanced quality
- Repeatable results
- Improved operational safety

Whether you are new to heat treating, expanding your business or running complex processes, the Vacu-Prof® or Vacu-Prof® Expert systems make TITAN® easy to operate.



TITAN® delivers Versatility: **Options**

The standard options available for TITAN® increase its capabilities.



Increased speed and efficiency - **TITAN® Loader**

The optional forklift offers faster and more efficient manual loading and unloading for loads up to 3,000 lbs.



Greater Control - **VacuProf® Expert**

Add the VacuProf® Expert control system to maximize operator controls and efficiency.



More vacuum - the **high vacuum pump**

The optional high vacuum system for TITAN® includes a diffusion pump and a holding pump that can produce higher vacuum ranges.



Faster cooling - the **water system**

The optional fast-cooling water system for TITAN® has a closed circuit with a high throughput of gallons per minute, and contains a reserve tank and heat exchanger.

Additional Options:

- All-metal hot zone
- Backfill reservoir
- Operator Access Platform (vertical only)
- Uniformity fixture
- Parts kits
- VFD for cooling
- Grids and baskets

TITAN® delivers Flexibility: **Rent, Lease, Buy**

TITAN® vacuum furnaces are engineered to rigorous Ipsen standards. When you buy, rent or lease a TITAN®, you get peace of mind.

You will appreciate the way that TITAN® adapts to your needs and budget. TITAN® can also process smaller loads much more efficiently than a larger furnace and takes up a fraction of the space.

Rent: Ipsen offers a variety of rental terms to suit your needs. We provide you with the flexibility to utilize the TITAN® on a month-by-month basis, after an initial three-month commitment.

Lease: TITAN® can augment your heat treating capabilities, increase your productivity and keep your process competitive. Enjoy predictable, affordable payments and preserve capital for other operating needs.

Purchase: Buying a TITAN® is a smart long-term investment with a quick payback. TITAN® start-up is fast and efficient so it's ready to start heat treating, and paying for itself, almost immediately. TITAN® delivers reliable, robust performance for years to come.

TITAN® delivers Profitability

- Improves lead times to end-users
- Customizable process demands
- Efficient load process saves time and energy costs
- Reduces logistical expenses



Aftermarket support

Count on Ipsen's responsive Aftermarket Support team to help you get winning performance from your heat treating equipment. From parts and service to retrofits and training, we can provide you with everything you need to be successful.

- Parts and service for atmosphere and vacuum furnaces
- Hot zones, retrofits and upgrades
- Thermal processing and furnace operation/maintenance training
- Global service and support networks
- Equipment installation, relocation and start-up services

TITAN® delivers Performance

From our robust Research and Development teams to our world-class Aftermarket Support and everything in between, Ipsen provides the cutting-edge equipment and processes, retrofits, upgrades, parts and service that keep your business successful.

For more than 60 years, Ipsen has been the leader in heat-treat innovation delivering the highest performance, quality and reliability, which explains why our furnaces and heat-treatment equipment have an excellent reputation throughout the world. Our customers come from a variety of industries including Aerospace, Automotive, Tool and Die, Medical and Energy. We also serve a large number of commercial heat-treating companies.

When you want top-quality, innovative equipment backed by decades of engineering expertise and world-class service and support — Ipsen delivers.

Find out more about TITAN®

TITAN® Roadshow

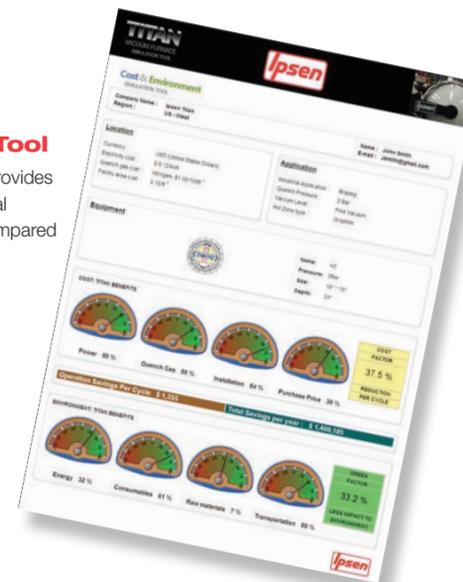
The TITAN® Roadshow brings the TITAN® to you! Learn about the TITAN® furnace process and load capabilities first hand, and have the opportunity to learn how easy TITAN® is to acquire and operate. Contact your Ipsen Representative today to find out when the Roadshow will be near you.



TITAN® Cost & Environment Simulation Tool

A simple, step-by-step vacuum heat-treat process analyzer that provides users with an informative report showing the positive environmental benefits and significant cost advantages of the TITAN® furnace compared to conventional vacuum furnaces.

www.TITANcostsavings.com





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