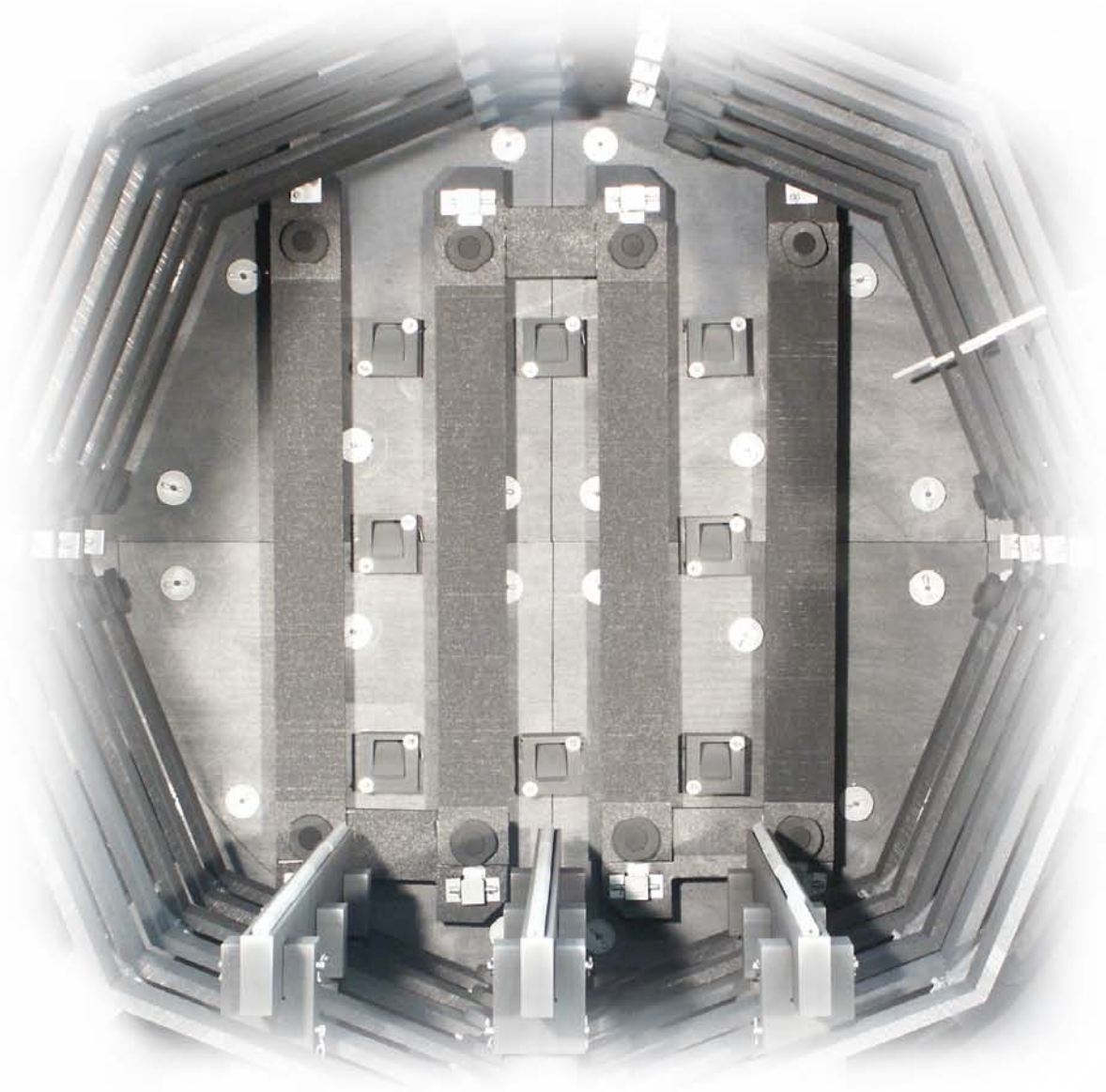


Ipsen *TurboTreater*[®] High Performance Vacuum Furnaces





Ipsen

WARNING
DANGER OF SUFFOCATION
DO NOT PUT YOUR HEAD OR
ENTER THE CHAMBER UNTIL
ALL HAZARDOUS GASES ARE
REMOVED FROM THE CHAMBER



Accelerating the world's heat treat operations.

What separates competitors today is speed.

The speed to bring products to market faster...the speed to process more parts in less time. For many of the world's industrial leaders, Ipsen's TurboTreaters® have become virtually synonymous with heat treating speed and efficiency. Today, in hundreds of installations, TurboTreaters® are achieving productivity, uniformity, and cost objectives that would simply be unobtainable with other competitive technology.

Unparalleled speed and efficiency:

A patented high-velocity internal gas quench system improves hardening qualities and cuts cycle time by 20% vs. competitive systems. In addition, a high-volume turbo fan with unique 360° nozzles and high capacity heat exchanger generates the highest heat transfer coefficient of any furnace in its class.

Significant energy savings:

The TurboTreater® gas quench system uses up to 40% less backfill gas, making every TurboTreater® vastly more energy efficient.

Extremely compact:

The TurboTreater's entire gas quenching system is located within the vessel, greatly reducing floorspace requirements.

Ease of maintenance: TurboTreaters® are virtually a "snap" to service and maintain, with features such as shaped graphite heating elements, 1/4-turn element supports and a one-piece removable hot zone module.

Highly reliable: 2" insulation pack, molybdenum shielding or graphite with CFC over high-erosion areas, and a precision balanced motor and fan for longer life all combine to improve day-to-day dependability.

Even better, TurboTreater® technology now is available for the widest range of application and capacity requirements...



High Performance

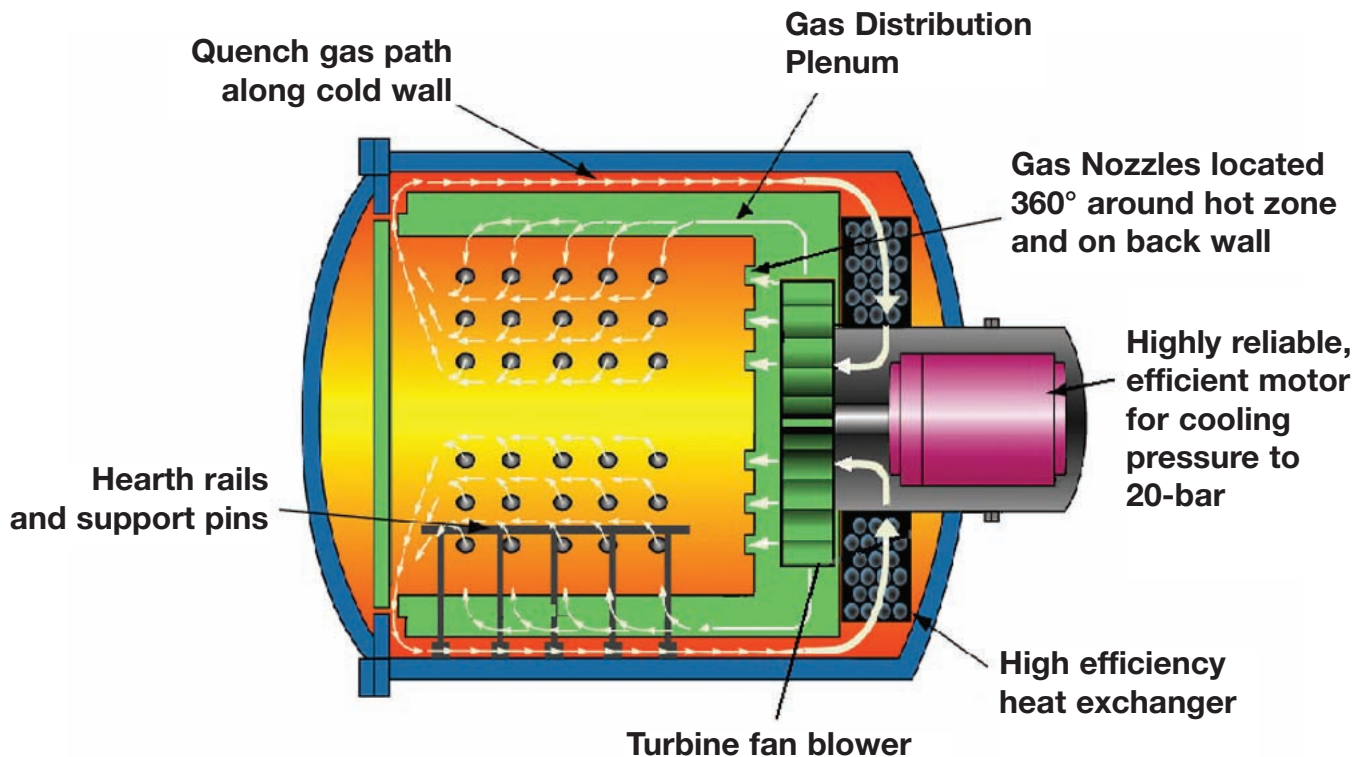
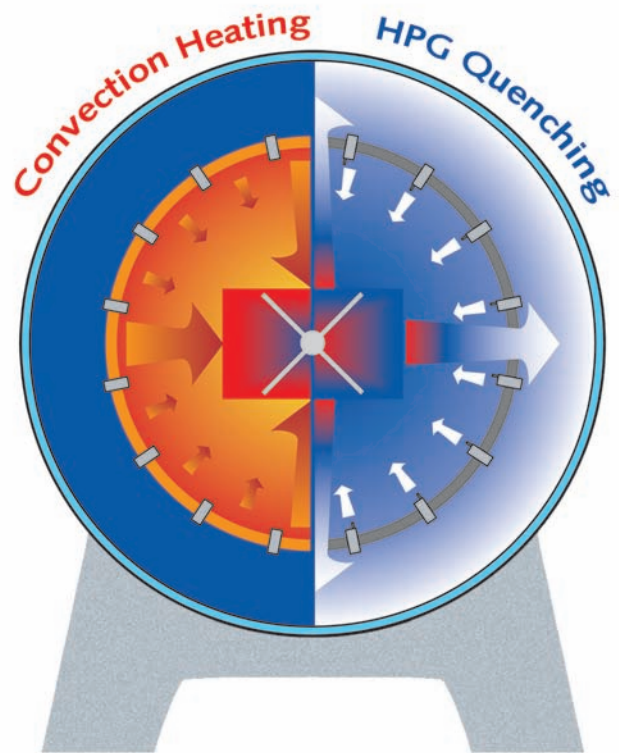
Fast & Uniform

The TurboTreater® Line of vacuum furnace equipment is superior in design and performance, offering fast and uniform results. Its advanced convection heating design with patented Ipsen flapper nozzles provides excellent temperature uniformity, while its compact High Pressure Gas Quenching (HPGQ) system achieves optimal cooling performance levels that improve hardening qualities and reduce cycle times.

Proven and reliable, the flapper nozzle system requires no complex linkage or actuation mechanism. It opens only in the cooling mode, thus reducing heat loss from the hot zone while improving temperature uniformity during heating.

High Performance

In the fast quench cycle of a TurboTreater® furnace, a high efficient turbine blower forces inert gas through dozens of Turbo nozzles. Careful geometric positioning of each nozzle around the furnace hot zone, including its back wall, assures uniform quench gas flow throughout the entire workload, regardless of load size or workpart configuration. Quenching gas must flow through the workload in order to exit the hot zone.



Tiny Turbo Treater®

Fastest door-to-door vacuum furnace.

TinyTurbo® is a fast, versatile furnace requiring minimal floorspace, making it easy to integrate into manufacturing cells. TinyTurbo® brings faster door-to-door performance to a wide range of applications, including powder metal, high-speed steel, cutting tools and dies:



- 2, 6 and 12 Bar Quench Pressure options.
- Ipsen state-of-the-art Furnace Controls Software: intuitive and user-friendly.
- Adjustable power settings for each heating zone, using Digital Trim.
- Wide variety of hot zone insulating materials to suit all your process requirements.
- Optional processes like AvaC™ (Acetylene-based Vacuum Carburizing) and SolNit™ (a process where nitrogen is dissolved into the surface layer or case of corrosion-resistant steels).

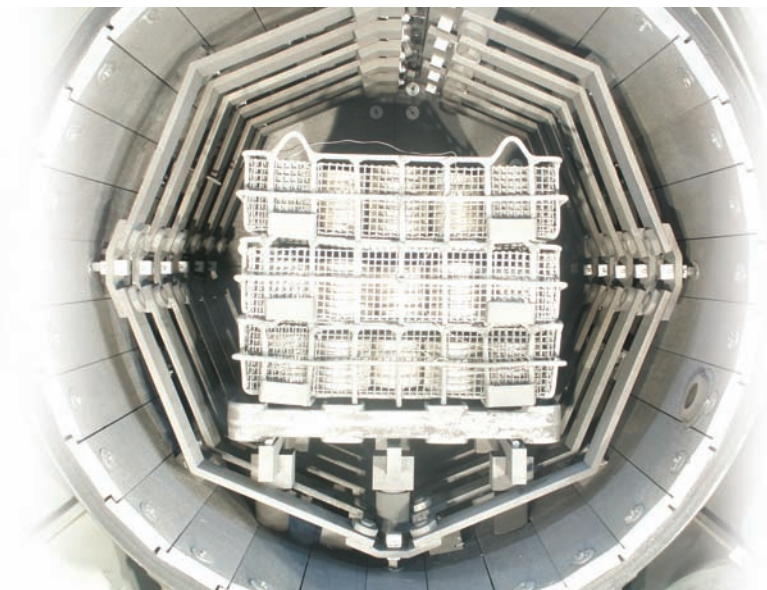
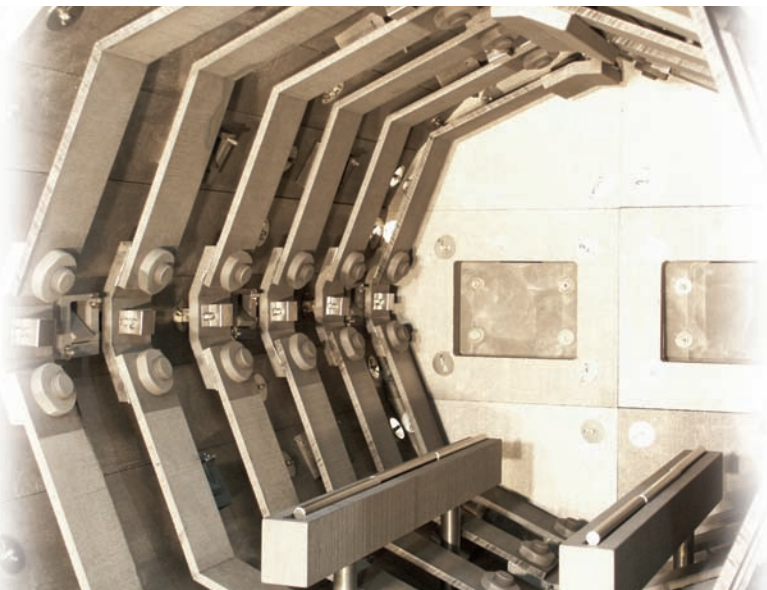
Turbo Treater®

Ultra high-speed, high efficiency

For hardening, tempering, brazing, sintering, annealing (and AvaC™ and SolNit™) high-speed steels, titanium or the latest super alloys, nothing delivers fast cycle times and improved workload results like TurboTreater®. It has set the industry standard for quenching speed, energy efficiency and repeatability in hundreds of installations worldwide:



- Ipsen-patented gas quenching system improves hardening qualities and cuts cycle times by up to 20% vs. competitive furnaces.
- Gas quench pressure to 20-Bar.
- Compact cooling system design reduces gas consumption by up to 40%.
- Robust design for high optimal performance.



Super Turbo Treater® ***Global V®***

High capacity, superior quenching.

SuperTurbo® is the industry's premium, top-of-the line large horizontal vacuum furnace. It applies all the superior TurboTreater® technology to improve processing of larger dies, tools and parts with complex geometries. It's equipped with features that make it effective even for larger, heavier loads:



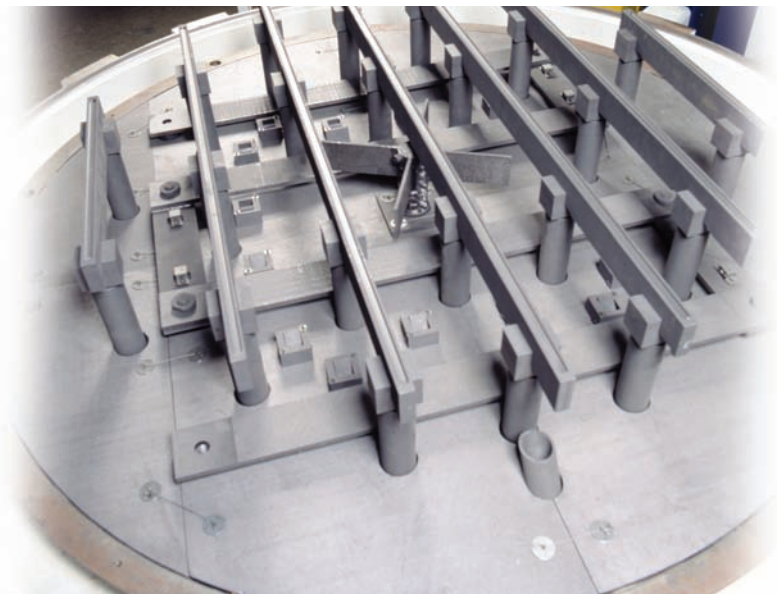
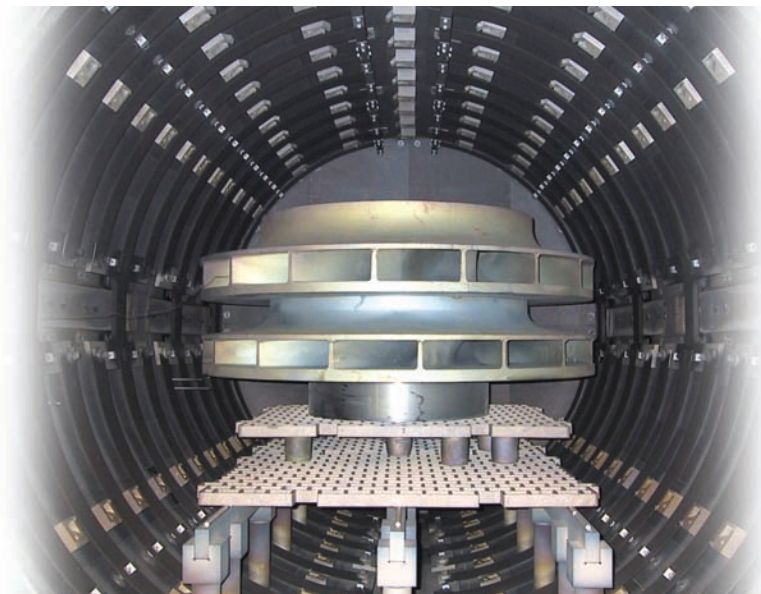
- Programmable-directional cooling; adjustable cooling gas flow for various geometric loads and part sizes).
- Highly reliable water-cooled motor that improves hardening performance for heavy loads.
- Unique gas exit design offers improved cooling uniformity, minimizing part deformation.

For vertical production applications

The Global Vertical provides users with the best of both worlds: improved uniformity of large production parts during heat-up and cool down segments, and the structural design and floorspace saving benefits in a vertical configuration. In addition, the Global Vertical is unique in its ability to make significant improvements in heat-up and cooling times, and overall cycle times, through the use of:



- A compact, water-cooled gas recirculation motor designed to greatly accelerate cooling rates.
- A convection assisted heating option with CFC fan for faster heating of larger loads.
- Low mass, shaped graphite heating elements for more work space clearance to heating elements.
- Simplified bottom head lifting system to improve reliability and maintainability.
- Floor accessible utilities minimizes the need for climbing ladders.



Specifications

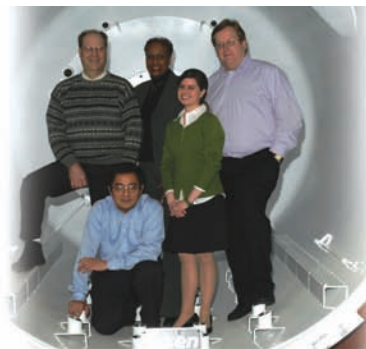
	Load Capacity lbs. (kg)	Load Size (W x H x D)
Tiny TurboTreater®	Up to 400 lbs. (Up to 181 kg)	18" x 14" x 24" (457 mm x 355 mm x 610 mm)
TurboTreater®	1,500 lbs. to 8,000 lbs. (682 kg to 3,636 kg)	24" x 24" x 36" (610 mm x 610 mm x 914 mm) to 48" x 48" x 72" (1,219 mm x 1,219 mm x 1,829 mm)
Super TurboTreater®	3,000 to 8,000 lbs. (1,361 to 3,636 kg)	36" x 36" x 48" (914 mm x 914 mm x 1,219 mm) to 60" x 100" x 48" (1,524 mm x 2,540 mm x 1,219 mm)
Global V® Vertical Vacuum Furnace	3,000 to 5,000 lbs. (1,361 to 2,268 kg)	48" D x 54" H (1,219 mm x 1,372 mm) 72" x 72" (1,829 mm x 1,829 mm)

Additional sizes available upon request.

About Ipsen

Ipsen is the largest manufacturer of heat treating equipment in the world. Our products include atmosphere and vacuum industrial furnaces and engineered ceramic components. Our aftermarket group provides replacement parts, hot zones, rebuilds and retrofits, and exceptional technical support.

Together with our sister company, Ipsen International, Kleve, Germany, we are at the forefront of providing our customers with the latest technologies and a fast expanding array of product solutions—all designed to meet the accelerating demand for more economy, efficiency and environmental safety.



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