

TITAN

Thermal Processing As Easy As 1-2-3



**AVAILABLE
IN
3 SIZES!**



Titan Vacuum Heat Treat System:

1 Global Standard

2 Hot Zone Choices

3 Ways To Acquire

1 Global Standard

Titan is versatile enough to be used anywhere in the world for a wide variety of thermal processing applications. It currently operates in over 20 languages and easily converts from imperial to metric units of measure.

2 Hot Zone Choices

Titan is a standard production furnace that offers extraordinary heat treating flexibility. Pick from two types of hot zone materials – all-graphite with CFC hotface, or all-metal.

3 Ways To Acquire

Titan is an extremely affordable furnace. Conventional purchase, leasing or rental options are available to meet cyclical demand or cash flow needs. Your Ipsen representative can help you choose the best option.

If versatility, simplicity, and flexibility are important to your business, Titan is the solution.



TITAN'S STANDARD ALL-GRAPHITE
HOT ZONE WITH CFC HOT FACE



INTUITIVE CONTROL INTERFACE

POWERED OPEN/CLOSE DOOR
WITH AUTOCLAVE LOCK



**30% MORE
EFFICIENT**

GLOBALLY CERTIFIED CHAMBER



MOBILE PLATFORM

TITAN TYPE-2 SHOWN

Titan Features, Advantages & Benefits

Durability

- Double-walled, water cooled vessel
- Powered open/close front door with powered autoclave locking system
- Standard all graphite hot zone assembly
- Optional all metal hot zone assembly

Versatility

- Annealing
- Brazing
- Hardening
- Solution Annealing
- Stress Relieving
- Tempering

Functional Advantages

- Programmable Logic Controller (PLC)
- 20 plus language capability
- 19" color screen, PC-based Operator Interface Terminal mounted on adjustable pendant
- 1000-recipe capacity, each capable of 80 segments
- Data trending and archiving software
- Remote diagnostics capability
- UPS backup for PLC
- Hot zone breaker
- Easy conversion between units of measure and language

System Sizes

	Type-2, 2 Bar	Type-2, 12 Bar	Type-4, 2 Bar	Type-6, 2 Bar
Effective work area	Width: 18" (457mm) Height: 18" (457mm) Depth: 24" (610mm)	Width: 18" (457mm) Height: 18" (457mm) Depth: 24" (610mm)	Width: 24" (610mm) Height: 28" (711mm) Depth: 48" (1219mm)	Width: 36" (914mm) Height: 36" (914mm) Depth: 48" (1219mm)
Hearth gross load weight capacity	2,000 lbs	2,000 lbs	4,000 lbs	6,000 lbs

Mechanical Features

- Temperature operating range 1000°F (538°C) to 2400°F (1316°C)
- ± 10°F (± 5°C) uniformity
- AMS 2750D compliant
- Type S control and over-temperature thermocouples
- Dual gas capable furnace – nitrogen or argon
- Partial pressure for operation up to 1000 microns
- Mechanical/booster pump combination
- Ultimate vacuum level: 50 microns
- Leak rate: Less than 10 microns per hour
- UL-listed control cabinets

	Type-2, 2 Bar	Type-2, 12 Bar	Type-4, 2 Bar	Type-6, 2 Bar
Type K work thermocouple jacks	12	12	24	24
Diffusion pump size (optional)	10 inch	10 inch	20 inch	20 inch

Titan Versatility

For commercial heat treaters who need to expand their thermal processing capabilities or companies who want to do their own heat treating in-house, Ipsen offers the Titan, a compact but powerful heat treating tool.

Multiple Applications

Titan's compact size, value and performance make it ideal for numerous applications including:

- Tool & die parts
- Medical devices
- Automotive components
- Aerospace components
- Land-based turbine parts
- Plastic molds

Flexible Load Configurations

As shown below, Titan's graphite hot zone is designed to accommodate numerous types of load configurations.

Configuration Color Key

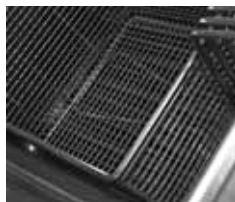
The color next to the photo corresponds to the hot zone color in each diagram.



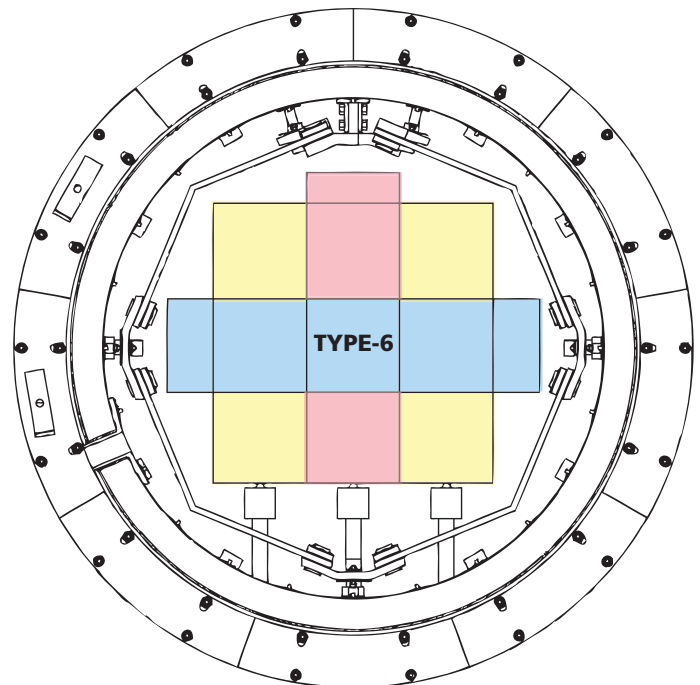
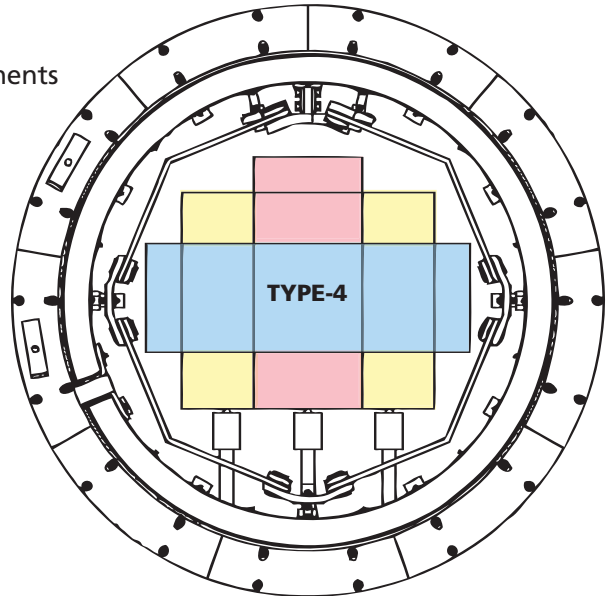
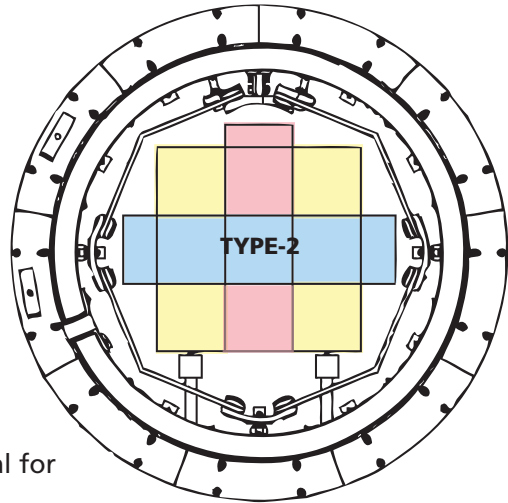
TUBES
 Type-2: 20" h
 Type-4: 30" h
 Type-6: 40" h



STATORS
 Type-2: 23" w
 Type-4: 33" w
 Type-6: 43" w



BASKETS
 Type-2: 18" w x 18" h
 Type-4: 24" w x 28" h
 Type-6: 36" w x 36" h



COLOR BLOCKS SHOW WIDTH AND HEIGHT CONFIGURATIONS

Titan Simplicity

Simple To Install

Titan is a self-contained, skid-mounted system with rapid utility hookups and installs in one day. Each complete Titan System is delivered in one standard-width truck or shipping container.



TITAN EASILY MOVES INTO ANY FACILITY WITH THE HELP OF A FORKLIFT

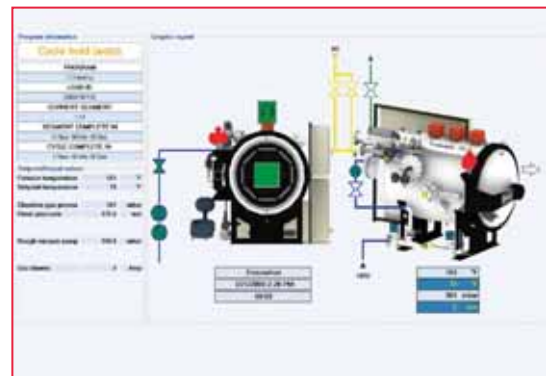
Simple To Operate

Titan is designed for ease of use, making it perfect for first-time heat treaters and thermal experts alike. Titan's simple-to-master control system features a 19" screen and a PC-based Operator Interface Terminal mounted to the side of the furnace on an adjustable pendant.

- Packaged heat treating recipes
- User-friendly maintenance screens
- Real time data acquisition
- Remote diagnostics capability
- Controller stores up to 1000 recipes
- UPS back-up for PLC
- Data trending and archiving
- Easy measurement and language conversions



TITAN RECIPE GENERATION AND CONTROL SCREEN



TITAN HOME MAINTENANCE SCREEN

Note: Examples of languages currently supported by the system are Bulgarian, Chinese, Czech, Danish, Dutch, English, Finnish, French, German, Hungarian, Italian, Japanese, Polish, Romanian, Russian, Spanish, and Swedish.

Titan Flexibility

You'll appreciate the way that Titan adapts to your needs and budget and the fact that you can process smaller loads much more efficiently than in a larger furnace. Titan is a compact furnace system with compact pricing to match.

Affordable

Titan utilizes proven and dependable Ipsen technologies and is much less costly than a custom furnace. It can be shipped just 2 weeks after order placement, allowing you to get into production faster.



With three options to acquire Titan – rent, lease or purchase – it will fit your budget as well as your process requirements.

Rent: Ipsen offers a variety of rental terms from 3 to 12 months to suit your needs. We provide you the flexibility to utilize the Titan on a month by month basis, after your initial 3 month commitment.

Lease: Titan can augment your heat treating capabilities, increase your productivity, and keep your process competitive. You'll enjoy predictable, affordable payments and preserve capital for other operating needs. Ipsen has partnered with GE Capital to provide fair and flexible leasing arrangements.

Purchase: Buying Titan outright is a smart long-term investment with a quick payback. Titan is ready to start heat treating, and paying for itself, almost immediately. And you can count on reliable performance for years to come.

Profitable

In a nutshell, here's how Titan makes your heat treating process more profitable:

- Improved lead times to end users
- Ability to customize process demands
- More energy efficient for smaller loads
- Less work in process
- Reductions in logistical expense
- Ownership of throughput

Sample testing on customer-furnished material is available.

For more information or to see Titan in action, visit us on the web:
www.ipsenusa.com/titan
or call the Titan Hotline at 800.365.8879

Titan Options



- Diffusion pump with high vacuum valve
- Holding pump
- Piping and valving

HIGH VACUUM



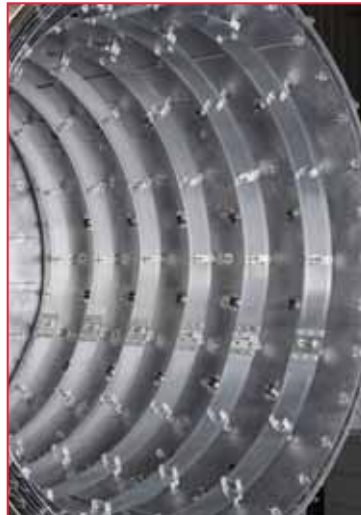
- 2000 lb or 3000 lb capacity
- Electric lift – Type-2
- Manual lift – Type 4 or 6
- Built-in charger

LOADER



- Single closed-loop system
- 350 gallon reservoir tank
- Pump station with heat exchanger
- Type-2 furnaces only

WATER



- Molybdenum and stainless steel shields
- Molybdenum hearth posts and rails
- Stainless steel frame

METAL HOT ZONE



- 220-460 Volts
- 50/60 HZ
- 3 Phase

POWER



- Shorter cycle times
- Improved temperature uniformity
- Convection heating to 1,600°F, 2-bar max

CONVECTION



- ASME code tank
- Horizontal or vertical mount
- Includes pressure gauge, check valve and ball valve

BACKFILL RESERVOIR



- Interactive program generation
- Visualization of load configuration
- Integrated time temperature transformation (TTT) diagrams

EXPERT CONTROLS



- Consumable and preventive maintenance items to help ensure equipment uptime

PARTS KIT



- Designed for the Titan hot zone work area
- RA330 material
- Furnished less thermocouples

UNIFORMITY FIXTURE

Installation Features & Specifications

All Titan models can be installed in one day and incorporate fast utility hookups for power, water inlet, inert gas, and mechanical pump exhaust. Primary power requirements for any unit are 380-400-460 volts, 50/60 HZ, 3 phase. A standard kit is available for 220 volts.

	Type-2, 2 Bar	Type-2, 12 Bar	Type-4, 2 Bar	Type-6, 2 Bar
Shipping Weight (furnace only)	12,300 lbs	12,300 lbs	27,800 lbs	29,000 lbs
Self-contained mobile skid size - Furnace with High Vacuum System	Width: 88" (2235mm) Height: 94" (2388mm) Depth: 158" (4013mm)	Width: 88" (2235mm) Height: 94" (2388mm) Depth: 158" (4013mm)	Width: 180" (4572mm) Height: 111" (2819mm) Depth: 173" (4394mm)	Width: 180" (4572mm) Height: 111" (2819mm) Depth: 173" (4394mm)
Water Cooling Requirements	80 gpm @ 40 psig	150 gpm @ 40 psig	213 gpm @ 40 psig	213 gpm @ 40 psig
SCF Backfill/Quench	130	780	450	450
Units per shipping container	2	2	1	1

Electrical Amperage Requirements

(Connected load)

	Type-2, 2 Bar	Type-2, 12 Bar	Type-4, 2 Bar	Type-6, 2 Bar
380/400 volts - Titan furnace with no options	110 amps	160 amps	250 amps	440 amps
380/400 volts - Titan furnace with High Vacuum System	120 amps	170 amps	270 amps	450 amps
380/400 volts - Titan furnace with High Vacuum System & Closed- Loop Water System	140 amps	190 amps	n/a	n/a
460 volts - Titan furnace with no options	100 amps	140 amps	210 amps	360 amps
460 volts - Titan furnace with High Vacuum System	100 amps	150 amps	230 amps	380 amps
460 volts - Titan furnace with High Vacuum System & Closed- Loop Water System	120 amps	160 amps	n/a	n/a



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