

**GEORGIA THERMAL PRODUCTS**

**model GTS**



# **buyers guide**

**hot-wall vacuum ovens & dryers**





## model GTS

One of the most reliable and versatile vacuum oven systems on the market today. The Model GTS heating system is mounted to the exterior of the vacuum vessel, which heats the walls, the energy absorbed by the walls is then reradiated into the product inside the vessel. There are several advantages of hot wall heating such as:

- anti-condensation
- clean ability
- no internal electricity required inside the vessel for heating
- uniformly heats complex parts and shapes

Full system integration can be provided which includes but is not limited to, roughing & high vacuum pumping systems, foreline traps, and atmospheric backfill control. Programmable features include inert gas sweeping and vacuum level ramping using throttled valve control.



# **SECTION 1**

## **Chassis Configuration**

## VESSEL CONFIGURATION

<b>MODEL</b>	<b>VOLUME</b>	<b>INTERIOR DIMENSIONS H x W x D</b>
<b>2GTS</b>	1.8-cubic feet 50.97-Liter	12.5 x 12.5 x 20-in 317 x 317 x 508-mm
<b>4GTS</b>	4.5-cubic feet 127-Liter	18 x 18 x 24-in 457x 457 x 609-mm
<b>8GTS</b>	8-cubic feet 226.5-Liter	24 x 24 x 24-in 609 x 609 x 609-mm
<b>27GTS</b>	27-cubic feet 764.5-Liter	36 x 36 x 36-in 914 x 914 x 914-mm
<b>64GTS</b>	64-cubic feet 1812-Liter	48 x 48 x 48-in 1219 x 1219 x 1219-mm
<b>80GTS</b>	80-cubic feet 2265-Liter	60 x 48 x 48-in 1524 x 1219 x 1219-mm

## OPERATING TEMPERATURE RANGE

The Model GTS thermal system consist of exterior mounted mica or MgO based heaters. Our standard configuration includes bottom, top and side walls with rear and door heating as optional. Systems are available in two operating ranges.

<b>Configuration</b>	<b>Specifications</b>	<b>Cost Factor</b>
<b>Standard Operating Range</b>	Continuous Operating Range: 100 to 482° F (38 to 250° C)	<b>standard</b>
<b>Extended Operating Range</b>	Continuous Operating Range: 100 to 600° F (38 to 315° C)	<b>\$</b>



## OPERATING PRESSURES

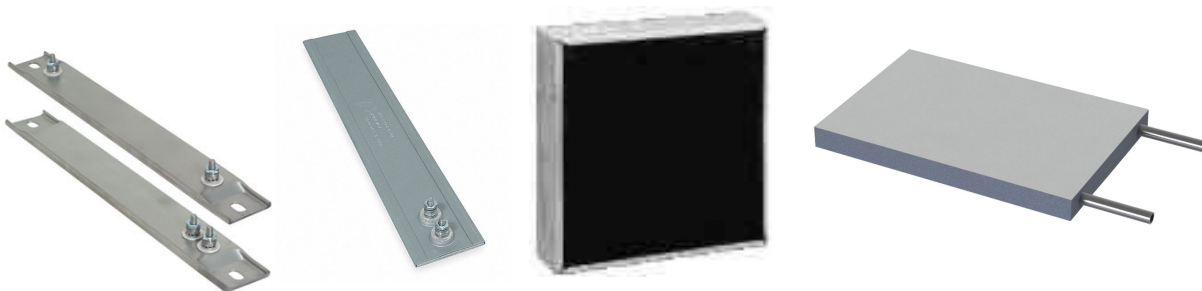
GTP has several operating pressure ranges depending on your processing requirements. From the standard range down to 1-Torr to ultra vacuum pressures exceeding  $10^{-8}$  Torr. All systems are Helium leak checked and conditioned for a minimum leak back integrity of no greater than  $5.00 \times 10^{-5}$  Torr/sec as measured by our NIST Traceable Leybold Phoenix L300i leak Detector.



Configuration	Specifications	Cost Factor
Low Vacuum	Continuous Operating Range: <ul style="list-style-type: none"> <li>• 760 to 1-Torr</li> <li>• 1013 to 1.3-mbar</li> <li>• NW / Ultra Torr Hardware</li> </ul>	standard
Medium Vacuum	Continuous Operating Range: <ul style="list-style-type: none"> <li>• 760 Torr to 1-mTorr</li> <li>• 1013 to .001 mbar</li> <li>• NW / Ultra Torr Hardware</li> </ul>	\$
High Vacuum	Continuous Operating Range: <ul style="list-style-type: none"> <li>• <math>&lt; 1.0e-6</math> Torr</li> <li>• ConFlat / ISO Hardware</li> </ul>	\$\$
Ultra High Vacuum	Continuous Operating Range: <ul style="list-style-type: none"> <li>• <math>&lt; 5.0e-8</math> Torr</li> <li>• ConFlat/ ISO Hardware</li> </ul>	\$\$\$



## VESSEL HEATING ARRAY



<b>Configuration</b>	<b>Specifications</b>	<b>Cost Factor</b>
<b>Four Wall Heating Only</b>	This consist of side, top and bottom wall heating only. Heaters are stainless sheathed mica based heater with limit thermocouples on each controlled array.	<b>standard</b>
<b>Four Wall Heating including Door</b>	This option allows for the heating of the vessel door. Which is an excellent option when dealing with processes heavy with condensation.	<b>\$</b>
<b>Five Wall Heating including Door</b>	This configuration includes the heating of the rear wall as well as the door. An excellent choice for both anti condensation and UHV bake outs.	<b>\$\$</b>

## **VESSEL MATERIAL GRADE**

Our Vacuum Vessel is constructed of a minimum .250-in (6-mm) stainless steel. Material options are available which include the following:

<b>GRADE</b>	<b>Application</b>	<b>Cost Factor</b>
<b>304L</b>	General applications not involving corrosives or incompatible materials with 304 stainless	<b>standard</b>
<b>316L</b>	Processes involving corrosives . Typically used in pharmaceutical and medical	<b>\$</b>
<b>Ni-Alloy</b>	Nickel Alloys can be used for process specific applications involving elevated temperatures and corrosives	<b>\$\$\$</b>

Vessels are reinforced using our proprietary gusseting technique which allows maximum sustainability under high vacuum and temperature. In addition vessels are helium leak checked ensuring that the system is sound and contaminate free as possible.



## INTERIOR FINISHES

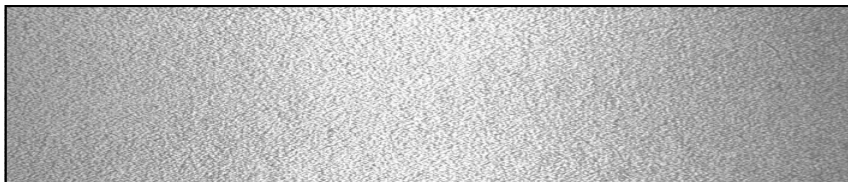
Interior finishes are selected based on typically your clean ability requirements. While most applications can use our 220 DA or bead blasted finishes some require a higher level of surface treatment. All welds are mechanically or chemically treated to remove stain and impurities. Our plate finishing surface selections are as follows:

<b>FINISH</b>	<b>Application</b>	<b>Cost Factor</b>
<b>220 DA</b>	This is a 220-grit orbital sanded finish. It is dull in color and is reasonably easy to clean. This is done as a standard on smaller vessels	<b>standard</b>
<b>Bead Blast</b>	This is a typical rough bead or sand blasted finish. Used as a standard for larger vessels not requiring any special surface treatment	<b>standard</b>
<b>#4</b>	A brush finish removing most all surface imperfections while offering a grained look . 29 to 40Ra	<b>\$\$</b>
<b>#8</b>	Mirror like finish used primarily in ultra clean room and pharmaceutical process requiring a 4 to 10Ra finish. Not available on Ni-Alloys or chambers >10-cuft	<b>\$\$\$</b>



### **220 DA**

*finish dull grey with some sanding swirls and minor imperfections*



### **Bead Blast**

*finish dull grey with a rough texture and minor imperfections*



### **#4**

*Silver grey with a smooth grain finish*



### **#8**

*Mirror like qualities*



## O-RING AND SEAL MATERIALS

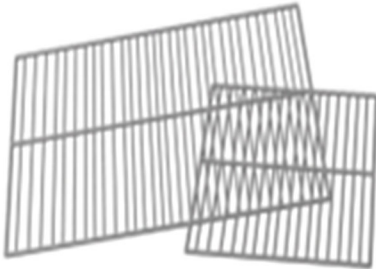

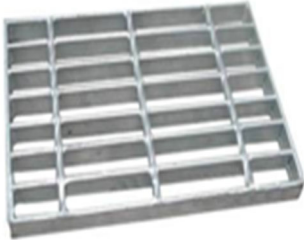
Unlike other vacuum ovens we do not use strange odd shaped or flat gaskets to make a vacuum seal. We use a readily available off the shelf O-ring cord stock that is affixed into our laser cut welded grooves. No adhesives or caulk are necessary. Our vulcanized one-piece constructed O-rings offer reliable and repeatable seals in materials suitable for your application.



O-Ring Material	Specifications	Cost Factor
<b>High-Temperature Silicone</b>	Color: Orange or Grey Temp Range: up to 600° F (315° C) Chemical Resistance: Fair Sealing Difficulty: Easy	<b>standard</b>
<b>EPDM</b>	Color: Black Temp Range: up to 250° F (120° C) Chemical Resistance: Good Sealing Difficulty: Easy	<b>standard</b>
<b>Buna N</b>	Color: Black Temp Range: up to 250° F (120° C) Chemical Resistance: Good Sealing Difficulty: Fair	<b>\$</b>
<b>Viton</b>	Color: Black Temp Range: up to 400° F (200° C) Chemical Resistance: Excellent Sealing Difficulty: Fair to Difficult	<b>\$\$</b>
<b>Silicone Encapsulated FEP</b>	Color: Orange Temp Range: up to 450° F (232° C) Chemical Resistance: Excellent Sealing Difficulty: Difficult	<b>\$\$\$</b>
<b>Kalrez</b>	Color: White or Black Temp Range: up to 600° F (315° C) Chemical Resistance: Superior Sealing Difficulty: Easy	<b>\$\$\$\$</b>




## SHELVING

Available in several configurations our shelving is custom made per your requirements.

<b>Configuration</b>	<b>Specifications</b>
<p data-bbox="329 520 537 562"><b>Wire Rack</b></p> 	<ul data-bbox="683 632 1409 856" style="list-style-type: none"><li>• Constructed of 300 series stainless steel with a heavy duty welded construction</li><li>• Frame and Crossbar support - 3/8" diameter wire</li><li>• Cross Wires 3/16" diameter on 3/4" spacing</li><li>• 50-lbs capacity evenly distributed</li></ul>
<p data-bbox="326 989 540 1031"><b>Perforated</b></p> 	<ul data-bbox="683 1121 1328 1268" style="list-style-type: none"><li>• Constructed of 300 series stainless steel</li><li>• 11-gauge pan construction with 3/4" circulation holes</li><li>• 100-lbs capacity evenly distributed</li></ul>
<p data-bbox="375 1425 492 1467"><b>Grate</b></p> 	<ul data-bbox="683 1528 1344 1709" style="list-style-type: none"><li>• Constructed of 300 series stainless steel heavy duty welded construction</li><li>• Frame and Crossbar support - 1" x 1/8" thick flat bar</li><li>• 500-lbs capacity</li></ul>

## SHELF SUPPORT

Works in conjunction with our racks, shelves and grates or user provided configurations

<b>Configuration</b>	<b>Specifications</b>
<p data-bbox="375 516 488 558"><b>Fixed</b></p> 	<ul data-bbox="683 548 1341 737" style="list-style-type: none"> <li>• Constructed of 300 Series Stainless Steel structural angle</li> <li>• Welded to vessel side walls at customer specified location</li> <li>• 500-lbs capacity</li> </ul> <p data-bbox="683 779 971 926">Works with: Grates Wire Racks Perforated Shelves</p>
<p data-bbox="321 989 545 1031"><b>Adjustable</b></p> 	<ul data-bbox="683 1062 1403 1209" style="list-style-type: none"> <li>• Double slotted support rail constructed of 300 Series Stainless Steel</li> <li>• Two support rails fastened to each side wall</li> <li>• 100-lbs capacity</li> </ul> <p data-bbox="683 1251 971 1356">Works with: Wire Racks Perforated Shelves</p>
<p data-bbox="315 1465 553 1507"><b>Linear Slide</b></p> 	<ul data-bbox="683 1476 1414 1703" style="list-style-type: none"> <li>• Telescoping bearing rails constructed of zinc plated or stainless steel</li> <li>• Provides slide out shelving for easy loading and unloading</li> <li>• Vacuum rated lubrication</li> <li>• Up to 580-lbs dynamic capacity</li> </ul> <p data-bbox="683 1745 971 1850">Works with: Grates Perforated Shelves</p>



## RECOMMENDED SHELF LIMITS

Below is the recommended maximum allowable shelf support types based on model size. Considerations for more per size are reviewed based on process requirements

<b>MODEL</b>	<b>Fixed Shelves</b>	<b>Adjustable Shelves</b>	<b>Linear Slides</b>
<b>2GTS</b>	2	4	1
<b>4GTS</b>	6	12	4
<b>8GTS</b>	8	16	6
<b>27GTS</b>	12	18	8
<b>64GTS</b>	2	4	3
<b>80GTS</b>	2	4	3

## PANS AND TRAYS

Available in several configurations our shelving is custom made per your requirements.

<b>Configuration</b>	<b>Specifications</b>
<p data-bbox="386 541 483 583"><b>Pans</b></p> 	<p data-bbox="683 659 1289 768">Constructed of 300 Series Stainless Steel Coved corners for easy cleaning NSF listed</p> <p data-bbox="683 816 911 848">Available sizes:</p> <ul data-bbox="683 856 1219 1045" style="list-style-type: none"> <li>• 21.00-in x 12.50-in x 2.50-in Deep</li> <li>• 12.50-in x 10.25-in x 2.50-in Deep</li> <li>• 7.00-in x 6.500-in x 2.50-in Deep</li> <li>• 12.75-in x 7.00-in x 2.50-in Deep</li> <li>• 10.25-in x 6.50-in x 2.50-in Deep</li> </ul>
<p data-bbox="378 1188 483 1230"><b>Trays</b></p> 	<p data-bbox="683 1285 1289 1394">Constructed of 300 Series Stainless Steel Formed lip for easy removal from oven Rounded corners and edges</p> <p data-bbox="683 1442 911 1474">Available sizes:</p> <ul data-bbox="683 1482 997 1709" style="list-style-type: none"> <li>• 11.00-in x 11.00-in</li> <li>• 17.00-in x 17.00-in</li> <li>• 17.00-in x 23.00-in</li> <li>• 23.00-in x 23.00-in</li> <li>• 29.00-in x 29.00-in</li> <li>• 17.00-in x 35.00-in</li> </ul>



# **SECTION 2**

## **Exterior Configuration**

## EXTERIOR STYLE



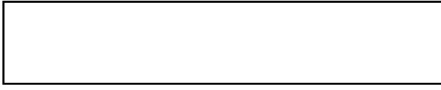

The exterior style should be selected based on the environment or location of the vacuum oven unit in your facility. Configurations include specialty locations, like clean rooms, as well as economical ones like a simple high strength finished steel table. All control enclosures carry a minimum rating of NEMA 12/13.

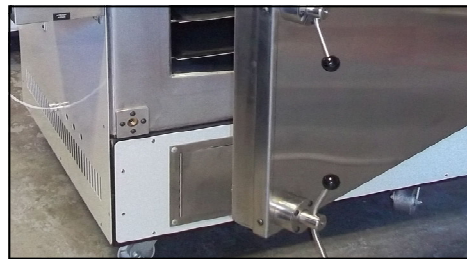
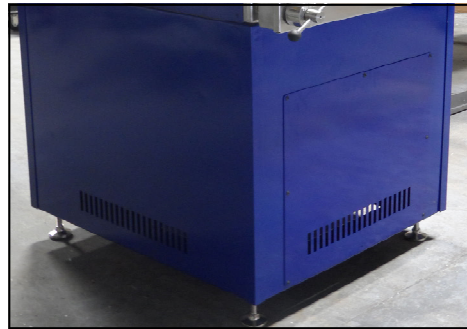
Type	Description	Cost Factor
<b>Table Top</b>	Offered on our 2GTS and A chassis units. The built in base frame with leveling mounts sits on an existing bench or table in your facility.	<b>standard</b>
<b>Fully Enclosed</b>	Our standard steel frame fully enclosed with hinged / removable access panels on all sides.	<b>standard</b>
<b>Open Frame</b>	Fished steel frame open on all sides with lower shelf for ancillary equipment mounting.	<b>(-\$)</b>
<b>Floor Mount</b>	Used for extra large walk-in chambers, these structural pallets not only offer anchoring or leveling options but also maintain reasonable operating heights by locating its ancillary equipment in the rear compartment.	<b>\$</b>
<b>Clean Room</b>	Clean room trim-outs are available on all size models. A structural Aluminum flange is created around the perimeter of the Oven chassis.	<b>\$\$</b>
<b>Isolator Mount</b>	Used in conjunction with pharmaceutical product isolators. Specialized constructions with adaptive mating flanges.	<b>\$\$</b>



## EXTERIOR FINISHES

The exterior is constructed of either a powder coated carbon steel or #4 stainless steel shell attached to a robust structural support frame. Enclosed frames have bolt-on covers which allow easy access to user replaceable parts and ancillary equipment such as pumps, traps and heat exchangers.

<b>Color</b>	<b>Sample</b>	<b>Cost Factor</b>
<b>ANSI-70 Grey</b>		<b>standard</b>
<b>RAL 5005 Blue</b>		<b>standard</b>
<b>RAL 9003 White</b>		<b>standard</b>
<b>#4 Stainless</b>		<b>\$</b>



## MOUNTING TYPES

Mounting configurations are available in several different types depending on your logistical or set-up requirements. All hardware is mounted to a universal pad, except the anchor pad, in the event future changes are required.

<b>Type</b>	<b>Sample</b>	<b>Cost Factor</b>
<b>Leveling Mount</b>	 <p>High Capacity Leveling mount with mounting hole for additional anchoring.</p>	<b>standard</b>
<b>Caster</b>	 <p>Non-marring high strength, swivel casters.</p>	<b>standard</b>
<b>Caster / Leveling Mount Combo</b>	 <p>Combination caster and leveling mount provide both logistics and set-up in one unit.</p>	<b>\$</b>
<b>Anchor Pads</b>	 <p>For anchoring in place without the need for leveling.</p>	<b>\$\$</b>
<b>Seismic Restraints</b>	 <p>Typically required in seismic zones. These units are high strength and fully approved.</p>	<b>\$\$\$</b>

# **SECTION 3**

## **Control Configuration**



## CONTROL TYPE

GTP features the best in industrial process control. We utilize technologies like cascade temperature control, profile programmability, operator security, data trending and a self diagnostic system status.

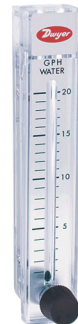
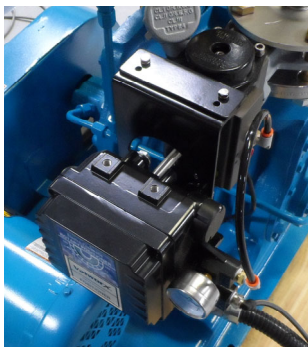


Configuration	Specifications	Cost Factor
<b>Basic</b>	Programmable Ramp & Soak Controller with the following features: <ul style="list-style-type: none"> <li>• 4.3" Color touchscreen</li> <li>• 40 (50)-step Profiles</li> <li>• Built-in FM approved over-temperature control</li> </ul>	<b>standard</b>
<b>Intermediate</b>	PLC-based Programmable Controller with the following features: <ul style="list-style-type: none"> <li>• 5.7" color HMI interface</li> <li>• Unlimited (20)-step Profiles</li> <li>• Built-in FM approved over-temperature control</li> <li>• Graphical trending</li> </ul>	<b>\$</b>
<b>Advanced</b>	Programmable Ramp & Soak Controller with the following features: <ul style="list-style-type: none"> <li>• 7.5" Color touchscreen</li> <li>• Unlimited (20)-step Profiles</li> <li>• Built-in FM approved over-temperature control-PLC based</li> <li>• Graphical trending &amp; data logging</li> </ul>	<b>\$\$</b>

# EXTENDED ATMOSPHERIC CONTROL

GTP offers the widest range of configurations for atmospheric control on the market. Meeting the needs of atmospheric control is one of the most important aspects of your process .

<b>Configuration</b>	<b>Specifications</b>	<b>Cost Factor</b>
<b>Backfill with ambient atmosphere</b>	<i>Using a bellows seated isolation valve when opened allows the chamber to equalize pressure using the surrounding atmosphere</i>	<b>standard</b>
<b>Backfill with inert gas</b>	<i>Using a bellows seated isolation valve when opened allows the chamber to equalize pressure using a factory supply of inert gas</i>	<b>\$</b>
<b>Exhaust chamber to atmosphere</b>	<i>Use this valve in conjunction with a sweep valve to lower O2 content or remove volatiles .</i>	<b>\$</b>
<b>Sweep to Vacuum Pump</b>	<i>This feature is also used in conjunction with a sweep valve to better promote the removal of contaminants using the vacuum pump</i>	<b>\$</b>
<b>Sweep Manual Rotameter</b>	<i>Manual rotameters offer a simple manual flow control over a pressurized backfill gas or an ambient atmosphere vent</i>	<b>\$</b>
<b>Sweep Electronic Rotameter</b>	<i>This rotameter can be programmed to offer multiple flow rates that can be triggered during a profile</i>	<b>\$\$</b>
<b>Vacuum Throttle</b>	<i>Vacuum inlet throttle valves are used when establishing flowrates used in processes that require vacuum pump condensing.</i>	<b>\$\$\$</b>



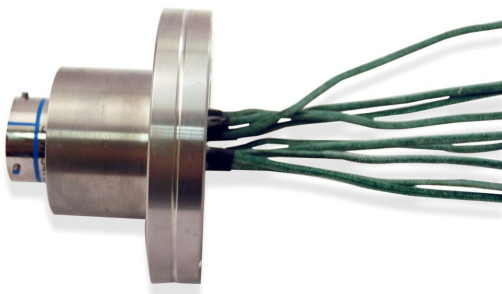
## **INSTRUMENTATION FEEDTHROUGHS**

Used in conjunction with our validation and accessory ports these process feed-throughs can be used to expand your processing capabilities.

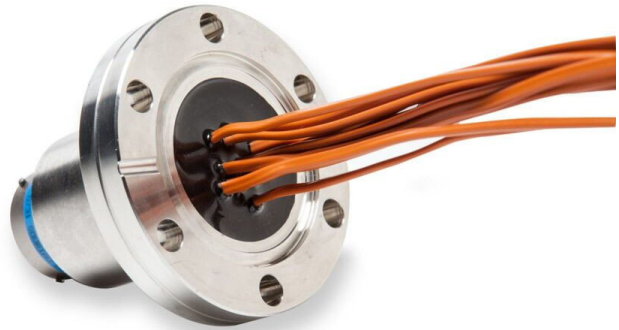
Available in a variety of flanges. These feedthroughs can be configured for liquids, electrical signal or power, and popular temperature sensor types

Details for types and sizes are typically configured at time of order

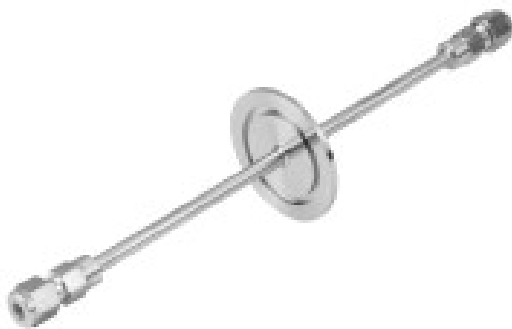
**ELECTRICAL  
SIGNAL**



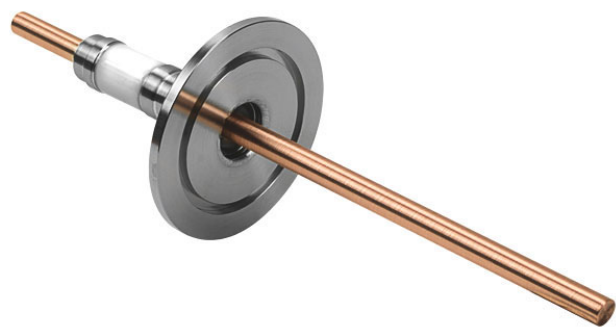
**TEMPERATURE SENSOR**



**LIQUIDS**



**ELECTRICAL  
POWER**



## DATA LOGGING & TRENDING

We recognize the need for process validation. That is why we offer the ability to integrate trend and data logging into our systems.

Configuration	Specifications	Cost Factor
<b>Integrated Graphical Trending</b>	<ul style="list-style-type: none"> <li>Utilizes existing control system touchscreen</li> <li>Ethernet ready ; MODBUS protocol</li> <li>Up to 4 channels of trending</li> <li>Used to monitor critical process values</li> <li>Non-exportable data</li> </ul>	<b>standard</b>
<b>Integrated Trend &amp; Data Logging</b>	<ul style="list-style-type: none"> <li>Utilizes existing control system touchscreen</li> <li>Ethernet ready; MODBUS protocol</li> <li>Up to 4 channels of trending &amp; data</li> <li>USB and Network exportable data</li> </ul>	<b>\$</b>
<b>Stand Alone Trend &amp; Data Logger</b>	<ul style="list-style-type: none"> <li>4.3" color touch screen</li> <li>Ethernet ready; MODBUS protocol</li> <li>Up to 16 channels of trending &amp; data</li> <li>USB and Network exportable data</li> <li>Encrypted Data; 21 CFR part 11 ready</li> </ul>	<b>\$\$</b>



# **SECTION 4**

## **Vacuum Pumping**



## ROUGHING PUMP TYPE

We can provide and fully integrate several styles of vacuum roughing pumps into your system based on your processing requirements. Integration includes, plumbing, all necessary hardware and electrical devices to properly connect and control your pumping needs.

Pump Type	Specifications	Cost Factor
<b>No Pump Connection Only</b>	When using your own in-house vacuum system we can simply provide a NW vacuum port connection with a controlled isolation valve.	<b>standard</b>
<b>Rotary Vane</b>	Pumping Speed: up to 12.3 cfm (410 lpm) Ultimate Pressure: $2.0 \times 10^{-3}$ Torr Oil Filled Process type pump GTP Standard: <i>Agilent DS-402</i>	<b>\$</b>
<b>Dry Scroll</b>	Pumping Speed: up to 18.2 cfm (500 lpm) Ultimate Pressure: $1.0 \times 10^{-2}$ Torr Dry Pump for clean applications GTP Standard: <i>Agilent Triscroll 300</i>	<b>\$ - \$\$</b>
<b>Rotary Piston</b>	Pumping Speed: up to 33 cfm (934 lpm) Ultimate Pressure: $1.0 \times 10^{-2}$ Torr Oil Filled Process type pump GTP Standard: <i>Kinney Tuthill KD-30</i>	<b>\$\$</b>
<b>Rotary Screw</b>	Pumping Speed: up to 76 cfm (2152 lpm) Ultimate Pressure: $7.5 \times 10^{-3}$ Torr Dry heavy duty pump GTP Standard: <i>Busch Cobra NC0100B</i>	<b>\$\$\$</b>

**AGILENT  
DS-402**



**AGILENT  
TRISCROLL  
300 / 600**

**TUTHILL  
KD-30**



**BUSCH  
COBRA NC0100B**

## FORELINE TRAPS

Different applications require different vacuum Foreline trapping capabilities. We have installed and integrated everything from simple filters to complex automated condensers. Below are the most common Foreline traps used in the industry offered by GTP:



Trap Type	Specifications	Cost Factor
<b>Filter Element</b>	<p>GTP utilizes the Mass Vac POSI-TRAP for filter element Foreline trapping. Element types include:</p> <ul style="list-style-type: none"> <li>• <b>Metal Gauze</b> - its large surface area is good for removing condensable particles and oil vapors</li> <li>• <b>Poly-Pro Micron Filters</b> - traps high volumes of particulates</li> <li>• <b>Absorption Media</b> - includes charcoal, zeolite, and soda-sorb of which can neutralize acidic vapors, remove organic vapors and trap water</li> </ul>	\$
<b>Water Cooled Condensate Trap</b>	<p>Water-cooled traps protect roughing pumps and other downstream components from condensable process gasses and their byproducts. Depending on the application, house water, refrigerated water or glycol can be used to achieve the required temperature to cause by-products to pass from gas to solid phase.</p>	\$\$

# HIGH VACUUM PUMPING

GTP specializes in high vacuum pumping. From installation to control integration we can provide a complete turbo molecular system for your vacuum oven including gate valve isolation.

Pump Type	Specifications	Cost Factor
<p align="center"><b>UHV Expansion Port</b></p>	<p>Expansion port for the future integration of a turbo molecular pump. This is typically an ISO or ConFlat type flange depending on vessel size,</p>	<p align="center">\$</p>
<p align="center"><b>Turbo Molecular UHV Pump</b></p>	<p>Pumping Speed: up to 660-lps Ultimate Pressure: &lt; 10<sup>-8</sup> Torr</p> <p>GTP Standard depending on vessel size: <i>Agilent Twistorr 84 FS (up to 4-cuft)</i> <i>Agilent Twistorr 304 FS (up to 27-cuft)</i> <i>Agilent Twistorr 704 FS (27+cuft)</i></p> <p>Includes hardware and control integration</p>	<p align="center">\$\$</p>
<p align="center"><b>Turbo Molecular UHV Pump with Isolation Gate Valve</b></p>	<p>Pumping Speed: up to 660-lps Ultimate Pressure: &lt; 10<sup>-8</sup> Torr</p> <p>Stainless Steel or Aluminum Gate valve sized accordingly</p> <p>GTP Standard depending on vessel size: <i>Agilent Twistorr 84 FS (up to 4-cuft)</i> <i>Agilent Twistorr 304 FS (up to 27-cuft)</i> <i>Agilent Twistorr 704 FS (27+cuft)</i></p> <p>Includes hardware and control integration</p>	<p align="center">\$\$\$</p>



# **SECTION 5**

## **Model Specifications**

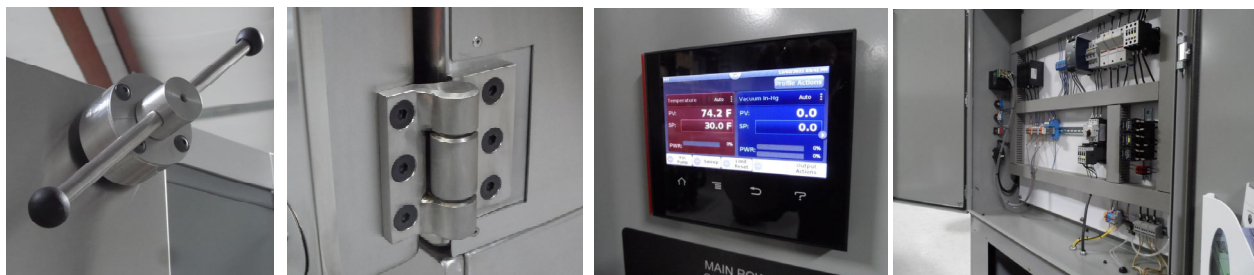
# model GTS

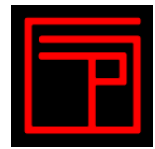
## PHYSICAL SPECIFICATIONS

Specification	Model					
	2GTS	4GTS	8GTS	27GTS	64GTS	80GTS
<b>Interior Size Cubic Feet (liters)</b>	1.8 (50.9)	4.5 (127)	8 (226)	27 (764)	64 (1812)	80 (2265)
<b>Interior Width (mm)</b>	12.5 (317)	18 (457)	24 (609)	36 (914)	48 (1219)	60 (1524)
<b>Interior Height (mm)</b>	12.5 (317)	18 (457)	24 (609)	36 (914)	48 (1219)	48 (1219)
<b>Interior Depth (mm)</b>	20 (508)	24 (609)	24 (609)	36 (914)	48 (1219)	48 (1219)
<b>Exterior Width (mm)</b>	24 (609)	48 (1219)	48 (1219)	62 (1574)	72 (1828)	72 (1828)
<b>Exterior Height (mm)</b>	24 (609)	64 (1625)	64 (1625)	82 (2082)	90 (2286)	84 (2133)
<b>Exterior Depth (mm)</b>	30 (762)	42 (1066)	42 (1066)	56 (1422)	60 (1524)	60 (1524)
Exterior dimensions includes fully enclosed base except the 2GTS which is a table top						
<b>MAX Fixed shelves</b>	2	6	8	12	2	2
<b>MAX Adjustable shelves</b>	4	12	16	18	4	4
<b>MAX Linear Slides shelves</b>	1	4	6	8	3	3

## LAYOUT OPTIONS

- Reversible Hinges
- Viewing Ports
- Standalone Approved Over-temp Controller





## PROCESS & UTILITY SPECIFICATIONS

Specification	Model	2GTS	4GTS	8GTS	27GTS	64GTS	80GTS
<b>Standard Interior Material</b>		304L stainless	304L stainless	304L stainless	304L stainless	304L stainless	304L stainless
<b>Temperature Range</b>		38 to 315° C	38 to 315° C	38 to 315° C	38 to 315° C	38 to 315° C	38 to 315° C
<b>Heating Rate (under vacuum)</b>		100° C <20-min	100° C <30-min	100° C <30-min	100° C <35-min	100° C <45-min	100° C <60-min
<b>Control Temp Stability @ 100° C</b>		±0.3°C	±0.5°C	±0.5°C	±0.4°C	±0.3C	±0.3°C
<b>Temperature Uniformity @ 100° C</b>		±3.5°C	±3.5°C	±3.5°C	±4.0°C	±5.0°C	±5.5°C
<b>Pressure Capability ( low range)</b>		760 to <1-Torr	760 to <1-Torr	760 to <1-Torr	760 to <1-Torr	760 to <1-Torr	760 to <1-Torr
<b>Electrical Requirements:</b>							
<b>Power Supply 120V</b>		1.5kW 12A	•	•	•	•	•
<b>Power Supply 208/240V 1ø</b>		1.5kW 8A	5-kW 25A	8-kW 38A	•	•	•
<b>Power Supply 208/240V 3ø</b>		•	5-kW 13A	8-kW 22A	27-kW 72A	•	•
<b>Power Supply 480V 3ø</b>		•	5-kW 6A	8-kW 10A	27-kW 32A	46-kW 55A	57-kW 70A
<b>Does not include amp loads for vacuum pumps or other ancillary equipment</b>							
<b>Utility Requirements:</b>							
<b>Compressed Air</b>		70-psi	70-psi	70-psi	70-psi	70-psi	70-psi



**Discuss your application further**

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