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the hot zone news

open house brings family and friends

On Saturday, September 9, customers, vendors, family and friends were invited to visit the facilities of Solar Manufacturing and Solar Atmospheres in Souderton, PA. The turnout was well above what was expected and visitors enjoyed a tented buffet and tours of the office facilities and shops. Especially interesting to the visitors were the large car bottom furnaces, which are impressive to view in person. About 25 employees from Solar Atmospheres' Western PA operation made the six-hour bus trek from Hermitage just for the event. Thanks to everyone that attended and we hope to see you again next year for food, fun and beautiful weather!

furnaces north america trade show

During the last week of September, Rick Jones, Denny Hiddemen, Pete Reh and Jim Nagy traveled to the Reno Events Center in Reno, Nevada for the Furnaces North America 2006 trade show. FNA is sponsored by the Metal Treating Institute of which Solar Manufacturing is an associate member. This two-day show is held every other year and is designed to attract those in the heat treating industry who are truly looking for the latest equipment and technology from OEM's like Solar Manufacturing. Both days were long and jammed packed with meeting new prospects and familiar customers alike. Overall, we made a number of good sales contacts for future business and the show was well worth the long trip out to Reno.

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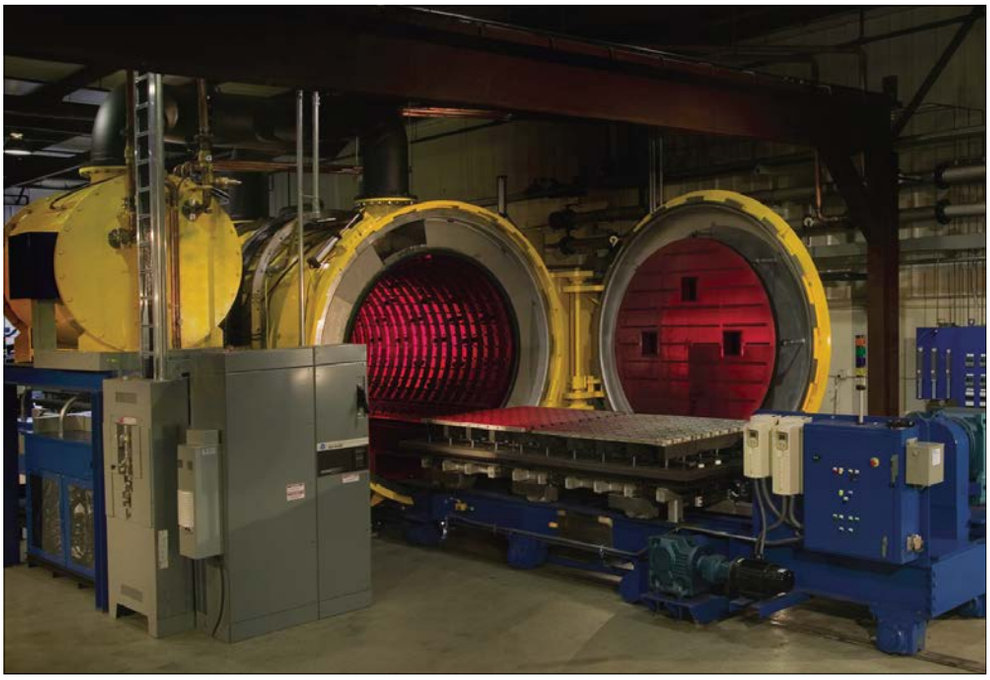

New car bottom furnace in operation

Solar Manufacturing recently completed a new 12-foot deep, 50,000 lb capacity, car bottom vacuum furnace for Solar Atmospheres. This furnace is the third of its kind designed and built by Solar Manufacturing for the Solar Atmospheres' heat treating operations.

The furnace was placed into operation at the Solar Atmospheres plant in Souderton, Pa. With its 50,000 lb weight capacity, this furnace was designed specifically for large, heavy work loads. Loading work can be accomplished from the front as well as the rear due to its double door construction. Two large transfer carts safely shuttle work loads into the furnace from both ends enabling the user to save considerable time setting up a work load while another load is being processed in the furnace. It is estimated that 48 hours can be saved each week assuming a 7 day – 3 shifts per day work week.

The furnace also features an energy efficient hot zone consisting of four layers of graphite felt insulation on the rings and five layers on the door panels for operation up to 2650°F. For safe, high velocity quenching at pressures up to 2-bar PSIG, a 300 HP quench motor controlled by a variable frequency drive is provided and both doors are autoclave-type, locking ring closures.

The SolarVac 3000 Interactive Control System provides the ability to monitor, control and graphically display operational status of the furnace systems via an electronic operator interface. The SolarVac 3000 consists of an interactive Allen-Bradley PanelView Plus 1500 operator interface, an Allen-Bradley Micrologix 1500 PLC, and an Eurotherm Model 6180V digital video recorder.

Solar's new 12 foot furnace has a variety of standard applications including brazing large assemblies, annealing of drawn parts, degassing, titanium part processing, tubing (coils and straight lengths), wire annealing (mesh and straight lengths), age hardening and stress relieving weldments.

The advanced technology of this furnace, along with Solar Manufacturing's specialized aftermarket services, ensures better response to customer needs and improves performance, stability and quality in all heat treating projects.

For more information on our vacuum furnaces, contact Peter Reh at 267-384-5040 ext. 509 or email him at pkr@solarmfg.com.

In October, Solar Manufacturing celebrated its fourth year anniversary of doing business in the vacuum furnace manufacturing industry. Over the past four years, we have experienced tremendous growth as we have changed locations, more than quadrupled our employee number and continue to make record sales every quarter. Thank you to all of our customers and vendors who have supported us and allowed us to reach this goal!

Celebrating **4** Years in Business

In the Zone...

Hot zone and new furnace business is still going strong in the third quarter of 2006.

Williams International of Ogden, Utah has ordered a replacement hot zone for a Vacuum Furnace Systems (VFS) model HL-50X72. The hot zone will be constructed with a .040 thick Flex Shield hot face and backed by four layers of graphite felt insulation. The existing molybdenum elements will be converted to graphite curved elements for improved durability. This is the second hot zone ordered by Williams from Solar Manufacturing.

A new replacement hot zone for a GCA vacuum furnace will be fabricated for PCC, in Minerva OH. The hot zone will include a .040 thick Flex Shield hot face backed by three layers of graphite felt insulation with molybdenum elements.

Steel Treaters, Oriskany NY, has ordered a new replacement hot zone for an Abar Ipsen model HR-26. Fabricated with .060 graphite foil backed by four layers of graphite felt, the hot zone will include a layer of Carbon Fiber Carbon material on the rear head and caps on the front edge of the main zone for added durability. Included is a complete hearth assembly.

ALS Technologies in Austrailia has placed an order for an Abar Ipsen model HR-50x48 replacement hot zone. The hot zone will be fabricated with a 1" thick graphite board with .015" graphite foil hot face backed by two layers of graphite felt insulation.

Solar Atmospheres of Hermitage, PA has placed an order for a replacement hot zone for a VFS model HIQ-5748. The hot zone will be fabricated with 1" thick graphite board with .015" graphite foil hot face backed by two layers of graphite felt insulation.

Solar Atmospheres Inc. of Hatfield, PA has placed an order for a replacement hot zone for a Vacuum Furnace System (VFS) model HL-50. The hot zone will fabricated using .040" Flex Shield hot face backed by four layers of graphite felt insulation.

THE HOT ZONE SPECIALISTS

Solar Manufacturing is proud to be gaining a name in the heat treating industry as hot zone specialists. Our engineers can improve your existing hot zone design. Our high efficiency hot zone requires less than 6 watts per square inch at 2400°F. The maintenance-friendly design consists of a .040 flex shield hot face backed by four layers of 1/2" graphite felt insulation. High velocity gas nozzles can improve cooling up to 43%.

Have a process or furnace question? Call Dennis Hiddemen at 267-384-5040 ext. 510.

U.S. Department of Energy contract

Solar Manufacturing announces the receipt of a contract from the United States Department of Energy for a Model HFL-2624-EQ vacuum heat treating furnace. The furnace will be shipped to the National Energy Tech Lab-Albany in Albany, OR.

The vacuum furnace work zone is 18"w 14"h 26"d will hold a capacity of a 750lb work load and operate to 2500°F with an ultimate vacuum in the low 10-6 Torr range. The hot zone will use graphite felt insulation and operate with a thermal efficiency of less than 6 watts per square inch and utilize cylindrical graphite band heating elements. Full electronic furnace control is provided with a Honeywell Model DCP551 programmable controller, an Allen Bradley Micrologix 1500 PLC and a Eurotherm Graphic Digital Display Recorder.

Tech Tip Corner

"Choosing the most energy efficient furnace design"

Like many industries, operating a heat treat shop is a very competitive business today. Remaining profitable requires having the best equipment available so that the services you offer are the highest quality and provide the fastest turnaround time. Improving profitability means reducing power usage. With energy costs approximately twelve (12) to fifteen (15) percent of sales, reducing this number can make a large impact on company profit.

Heat treaters can squeeze profits from larger loads but additional profit comes from becoming energy efficient. This can be accomplished in a few ways.

We know the largest power use comes from heating the furnace. Thermally efficient hot zone designs will provide the greatest return on investment through lower energy bills. The target is the lowest watts per square inch cost.

While some processes require all metallic hot zones, which are more difficult and costly to make thermally efficient, insulated hot zones now make up approximately 90% of hot zones sold and can be made more efficient easily. Insulated hot zones are more efficient over metal shielded designs.

Insulation is key to thermal efficiency. We know that the denser the material the less thermally efficient it is. Dual pane windows were developed to reduce heat loss in your house by including an air space between the two (2) panes of glass. Old style single pane windows in steel frames transferred the heat/cold easily through the single layer of glass or the steel frame. The transfer was so efficient that ice would form on the inside during winter cold spells. Dual pane windows utilize space between the panes of glass to provide thermal efficiency. The idea is that heat/cold does not transfer well through an air or gas filled space. The larger the space the better the efficiency.

READ THE COMPLETE ARTICLE BY DENNIS HIDDEMEN IN THE NOVEMBER 2006 ISSUE OF *INDUSTRIAL HEATING MAGAZINE*

Solar Manufacturing is dedicated to designing and building the most advanced, highest performing, lowest cost of operation vacuum furnace systems in the heat treating industry. Through diligence, hard work and innovation, we intend to build lasting relationships by treating everyone with honesty, respect and integrity, while standing behind every product we produce.

Available for delivery!

Refurbished VFS HL34 Vacuum Furnace

- Horizontal, front loading design with hinged front door for easy, convenient unobstructed loading/unloading of work loads and fixtures.
- Autoclave ring closure eliminates door seal problems.
- Work zone size 24" W x 18" H x 36".
- Hearth weight capacity 1000 pounds.
- New, energy efficient graphite insulated hot zone for high temperature applications up to 2800°F.
- Molybdenum heating elements for rapid, uniform radiant heat up and cool down.
- High performance 100 HP external gas quenching system for rapid cooling at positive pressures up to 15 PSIG.
- Fully automated and programmable industrial touch screen controls package.
- 1 Year Warranty.

New Solar Manufacturing HFL-3836-2EQ

- Horizontal, front loading design with hinged front door for easy, convenient unobstructed loading/unloading of work loads and fixtures.
- Autoclave ring closure eliminates door seal problems.
- Work zone size 24" W x 24" H x 36".
- Hearth weight capacity 1500 pounds.
- Energy efficient graphite insulation for high temperature applications up to 2650°F.
- Graphite resistance elements for rapid, uniform radiant heat up and cool down.
- High performance 100 HP external gas quenching system for rapid cooling at positive pressures up to 15 PSIG.
- Fully automated and programmable industrial touch screen controls package. Full one year warranty.

Call Dennis Hiddemen at 267-384-5040 ext. 510 for more information.

world's largest vacuum ion-nitriding system

Solar Manufacturing has been contracted by Advanced Heat Treat Corp. of Waterloo, IA to build a large car bottom chamber, hot zone and gas system assembly as part of an Ion Nitriding System. Advanced Heat Treat Corp.'s engineering staff will provide the pulse power supply, the resistance heating power supply, process gas controls as well as the total integrated control package. The total cost for the system exceeds $1.5 million and will be delivered mid-2007 for installation in their new Cullman, Alabama facility, currently under construction. It will be used to process large dies for the automotive industry.

Advanced Heat Treat Corp., the world's largest ion nitrider, currently has 36 systems in operation.

The chamber will have a 50,000 pound capacity hot zone hearth and will include a powered bottom load cart with wireless controls. The all-metallic hot zone will be a modular design for ease of removal and have a work zone of 110" wide x 32" high x 240" long. The gas cooling system will be designed to improve production time.

For more information on our vacuum furnaces, contact Peter Reh at 267-384-5040 ext. 509 or email him at pkr@solarmfg.com.

SAMI Snapshots
Meet the New Employees

Rob Renner

As the new Aftermarket Sales Associate, Rob Renner comes to Solar after working as a furnace operator at Solar Atmospheres. Working with Dennis Hiddemen, Rob will assist customers in finding spare parts and other aftermarket materials. A graduate of East Stroudsburg University, Rob lives in Towamencin with his wife and young daughter.

Corinne Frick

After 11 years at McDonnell Douglas, Corinne took time off to raise her four children. Since joining Solar's engineering team, she works with Bob Daley on furnace user manuals and various electrical engineering projects. With duel degrees in Electrical Engineering and Computer Science Engineering from LeTourneau College, Corinne resides in Franconia.

Amber Brumbaugh

A 2006 graduate of Messiah College, Amber Brumbaugh uses her business administration degree as the Solar Manufacturing and Magnetic Specialties Accounting Assistant. She supports Accounting Manager Sue Sowden in the daily recording of invoices, accounts payable and receivable and day to day business operations. A fan of travel and outdoor activities, Amber lives in Telford, PA.

Nick Cordisco

With two years as a Project Manager / Electrical Engineer at Staneco Corporation in Horsham, PA, Nick Cordisco joins the Solar engineering team. A 2004 graduate of Penn State, Nick received his Associates in Mechanical Engineering and his Bachelors in Electrical Engineering. Currently residing in Pennsburg, PA, Nick enjoys playing ice hockey and golf in his spare time.

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