# What's the Latest in Heat Treating?

**The following article highlights some of the new heat treat products, technologies and industry news articles recently featured on *www.geartechnology.com*.**

## Solar Atmospheres California

### COMPLETES FACILITY EXPANSION

Solar Atmospheres of California (SCA) has announced the completion of its most recent facility expansion. The new expansion allows SCA to double its current heat treating capacity on the west coast while continually striving to meet the needs of an ever growing customer base.

Project expansion began taking shape in July 2016 with ground breaking for a new 25,000 sq. ft. building. Upon completion of building construction in July 2017 and, applying the lessons learned from SCA's initial facility build in 2010–11, SCA immediately began the design, fabrication and installation of all required support systems including water and gas delivery.

In preparation for the added growth, SCA has procured an additional four vacuum furnaces from sister company Solar Manufacturing (SMI) based in Souderton, PA.

Additional state-of-the-art vacuum heat treating equipment includes an SMI Model HFL-5748-10IQ-VC "High Pressure Vacuum Gas Carburizing Furnace." The furnace features a rigid graphite hot zone design measuring 36"W × 36"H × 48"D, 35" Varian diffusion pump for sustained high vacuum processing, low pressure vacuum carburizing capability, operating range of 600 °F–2,200 °F (maximum temperature 2750 °F), maximum cooling pressure of 10 Bar (135 psig) with 300HP gas blower and maximum loading capacity of 7,000 lbs.

Another new furnace is the SMI Model HFL-7472-10IQ-VC "High Pressure Vacuum Gas Carburizing Furnace" The furnace features a rigid graphite hot zone design measuring 48"W × 48"H × 72"D, 35" Varian diffusion pump for sustained high vacuum processing, low pressure vacuum carburizing capability, operating range of 600 °F–2,200 °F (Maximum Temperature 2,750 °F), a maximum cooling pressure of 10 Bar (135 psig) with 300HP gas blower and a maximum loading capacity of 15,000 lbs.

The third furnace is an SMI Model HFL-7472-2EQ "All Metal Hot Zone with Isolated Gas Quench System," featuring a 6-layer all moly hot zone design measuring 48"W × 48"H × 72"D, 35" Varian diffusion pump with "isolated" external gas quench system for optimized sustained high vacuum processing of sensitive materials, an operating range of 600 °F–2,400 °F (maximum temperature 2,800 °F), and a maximum loading capacity of 15,000 lbs.

The final furnace is an SMI Model HCB-120288-2EQ "120"DIA × 288" Long Horizontal Car-Bottom Furnace," featuring a rigid graphite hot zone design measuring 96"W × 96"H × 288"D, multiple 35" Varian diffusion pumps for sustained high vacuum processing, an operating range of 600 °F–2200 °F (maximum temperature 2,600 °F) and a maximum loading capacity of 150,000 lbs.

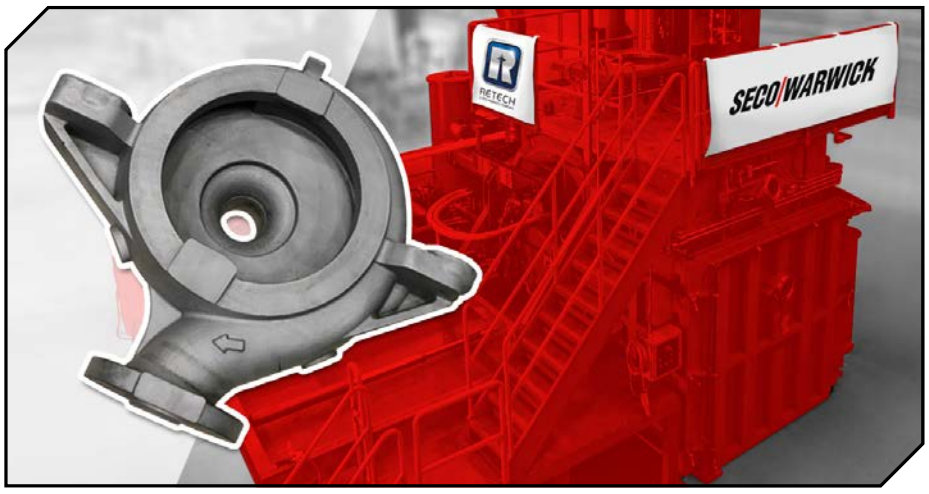
All Solar Manufacturing furnaces are designed for high performance, low maintenance and energy efficient results.

"We are very thankful for the opportunity to grow our facility," states Derek Dennis, president, Solar Atmospheres of California. "Every SCA employee appreciates the trust and confidence that our customers have placed in our abilities to service their Vacuum Heat Treating, Brazing and Carburizing requirements. Our focus remains on providing the highest quality product with unsurpassed customer service on-time, everytime in the safest, most efficient and environmentally friendly manner. The last 6+ years of providing vacuum processing services in Southern California have proven to be both challenging and rewarding. We look forward to working with our current customer base along with new customers in solving their heat treat challenges. SCA understands the importance we play in our customers' supply chain, especially where delivery and quality are expected. These new facility expansions well help us meet these expectations." (*www.solaratm.com*)

# Seco/Warwick

## PROVIDES RETECH FURNACE FOR PRODUCING LARGE COMPONENTS

Seco/Warwick Group recently provided a Retech Consumable Electrode Casting Furnace to AMRC Castings (AMRCC), capable of delivering up to 1,000 kg of molten titanium, which has just produced the heaviest ever ceramic shell casting in this material from a single pour in Europe. The achievement was unveiled by the Castings Group of the Advanced Manufacturing Research Center (AMRC), a world-class center for research into advanced manufacturing technologies used in the aerospace, automotive, medical and other high-value manufacturing sectors.




Working with U.K. SME pump manufacturer Amarinth, the component, an industrial centrifugal pump housing for highly corrosive applications in the chemical and petrochemical sectors, was produced from a 680 kg melt with a finished part weight in excess of 200 kg. The furnace is equipped with four interchangeable crucibles which form an integral part of a manufacturing cell capable of producing castings up to 500 kg in weight and 2,000 mm in diameter by 2,500 mm in length.

"Last year we were part of creating the first European recycling and refining plant for titanium alloys; now we are proud to announce our joint development with AMRCC, opening new business opportunities for Britain. By staying focused on our clients and their successes, we work together to deliver quantifiable results, enabling our partners to gain competitive advantage in their

sector," said Earl Good, managing director, Retech Systems.

The Castings Group of the Advanced Manufacturing Research Center, the only U.K. titanium equiax casting facility, is already working towards a new goal — to pour over 1,000 kg of titanium, producing two centrispun parts each weighing in excess of 250 kg, fully testing the design parameters of their Retech consumable electrode castings furnace. The group's new milestone is planned for May 2018.

"AMRCC is dedicated to working with manufacturing businesses operating in the global supply chain, ranging from multi-national aerospace giants to local SMEs. We decided to cooperate with Retech, a global leader in the supply of metallurgical processing equipment, and thanks to their technology we achieved a record casting at the first attempt; a significant step forward for us and the U.K. as a whole," said AMRCC's General Manager, Richard Cook. (*www.secowarwick.com*)

# Applied Process

## OPENS NEW ARKANSAS PLANT

Applied Process, Inc. will expand with a new multi-million-dollar heat treatment plant in Fort Smith, Ark. The 51,000-square-foot plant will house six furnaces and add at least 30 jobs. The plant is expected to be fully operational in the 3rd quarter and will serve customers in the Midwest and South.

"We are very excited to announce our expansion in Fort Smith," said Chief Executive Officer Harold Karp. "Record sales performance in 2016 and 2017, combined with a strong new product forecast, make this the right time to expand."

Applied Process plants in Livonia, Mich., and Oshkosh, Wis., will remain in operation, serving the automotive, agriculture, aerospace, heavy truck, railroad, mining industries, as well as the military. The Oshkosh facility houses the world's largest integral quench batch austempering furnace which is capable of austempering parts up to 20,000 lbs. in weight.

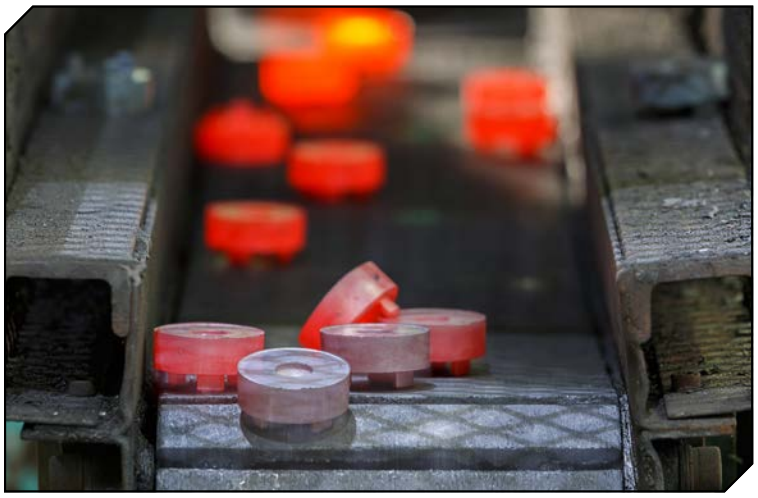
"The additional capacity in Fort Smith will allow us to continue to offer industry-leading levels of customer service, quality and turn time," said Steve Metz, vice president of sales and marketing. "The new facility will allow us to expand into new markets and serve a broader geographic customer base."

Rusty Rainbolt, who has been with Applied Process for three years on the sales team, will be plant manager. Rainbolt holds bachelor's degrees in engineering and marketing from Oklahoma State University. "Rusty's engineering, sales and product experience, along with a strong, experienced leadership team, will ensure a smooth start-up of the new facility," Karp said.

(*www.appliedprocess.com*)

# Messe Stuttgart

## PRESENTS NEW CASTINGS AND FORGINGS TRADE SHOW IN 2018



CastForge is a new trade fair for castings and forgings as well as machining. Messe Stuttgart recently presented the concept of CastForge to interested companies within the framework of several rounds of talks. There was good feedback from the participants who unanimously welcomed the concept, date and venue. The event will take place June 5–7 2018 at the Stuttgart Trade Fair Center.

"The presentations gave the event organizers lots of valuable ideas," said Gunnar Mey, department director for industrial solutions at Messe Stuttgart.

"In our opinion, there has not been such a specific trade fair which addresses our products and services. We expect to meet a customer base which is specifically looking for our services and wants to establish new contacts in the industry," said Timo Richter, head of sales and marketing at Richter Formteile GmbH.

Hermann Bayer from RILE Management und Vertriebs GmbH also spoke in favor of the new trade fair. "As subcontractors we serve diverse industries, making it very difficult to find a suitable trade fair at which we can permanently exhibit. Several good contacts and requests from interested parties who we do not yet know will help us moving forward," Bayer said.

Bernard Hauffmann from ArcelorMittal Ringmill S.A. added: "As far as we know, CastForge is the first trade fair which specifically addresses this industry. First and foremost, we want to meet potential customers and partners here who are interested in our product as the trade fair is aimed at cast and forged products."

With CastForge, Messe Stuttgart gives the industry for castings and forgings as well as their machining its own platform. It showcases the entire value-added chain from the cast or forging blank to machining through to the final component and for the first time offers manufacturers an opportunity to present their range of cast iron, grey cast iron and

spheroidal graphite iron as well as non-ferrous castings and forgings to a wide audience.

For Ulrich Kromer von Baerle, president of Messe Stuttgart, the validation from the industry is not surprising: "With CastForge we have launched a trade fair topic at the right time which strikes a chord with companies. For many companies there was only the opportunity to showcase products and services within the framework of industry and user trade fairs. Now for the first time their castings and forgings as well as their skills as processors take center stage at a trade fair." (*www.messe-stuttgart.de/castforge*)



# Ipsen

## DESIGNS VERTICAL, HIGH-PRESSURE QUENCHING FURNACE

Ipsen recently designed and built a vertical, high-pressure quenching furnace, complete with twin cooling systems and a work volume of 350 cubic feet. During the testing phase, the furnace quenched with 1,000 horsepower (.75 megawatts)—a remarkable achievement that began as an idea just months prior. As is typical with a custom build, the customer came to Ipsen with specific requirements: they needed a large furnace with a very aggressive cooling rate. During the design phase, Ipsen's Engineering Team determined that twin cooling systems to provide 1,000 horsepower quenching capability were the right solution due to the customer's process requirements and the geometry and cross-section of parts.

Ipsen Engineers, alongside the customer, looked on during the testing phase. "We saw the furnace backfill and then go into quench," said Craig Moller, chief engineer. "It took us a minute to realize we were experiencing a groundbreaking design and test, with cooling curves that we've never seen for a furnace of this size." (*www.ipsenusa.com*)

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