



## Comanche Technologies, 70+ Years of Expertise in Alloy Filtration

**C**omanche Technologies is a research & development firm with more than 70 years of hands-on collective experience in molten alloy filtration & casting quality improvement in both investment casting and standard foundry operations. One of the world's leading investment casting & foundry filter technology companies, Comanche patented and introduced the very first high temperature silica mesh filters to the metalcasting industry in 1989 and a dedicated strategic focus on product technical improvement has yielded a consistent stream of higher performance filters ever since.

### Our History

Jay R. Hitchings, the current director of research and development, began his lengthy career as a metallurgist at Foote Mineral Company in the early 1960s and was a co-author of the widely read "Foote Facts" metallurgical

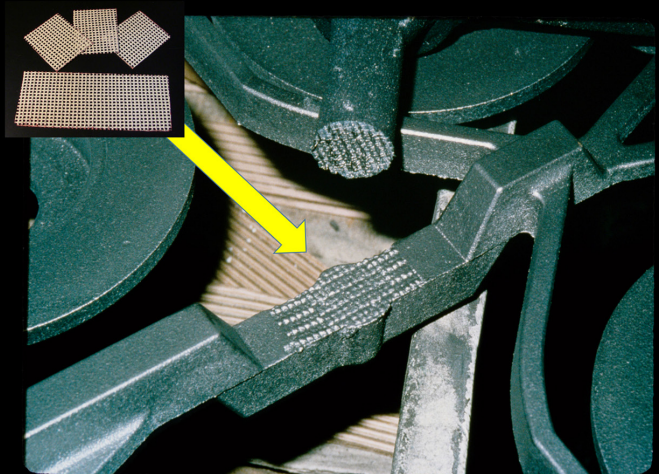
research compendium. Developing an early expertise in ferro-alloys and their applications, Jay's research & development topic areas grew to include lithium battery technology, ductile iron metallurgy and ultimately, molten alloy filtration. Directly encouraged by Prof./Dr. Karl Loper of the University of Wisconsin to push back against the materials science "orthodoxy" of the time, Jay's groundbreaking project work resulted in his being awarded over 13 US patents in various metal casting related concepts and yielded plenty of data for technical paper presentations given by Jay at both the AFS and ICI over the past 40 years.

Jason Hitchings (son of Jay R.) began his professional affiliation with large steel castings not with molten metal but with M1A1 Abrams tanks as an Army officer in the 3rd Infantry Division in Schweinfurt, Germany in 1990. Later transitioning into a counter-intelligence

### AFFILIATE MEMBER

[www.comanchetechnologies.com](http://www.comanchetechnologies.com)

Comanche Technologies is a global leader in molten metal filtration research and development with over 70 years of experience and expertise in both investment casting and standard foundry applications. Their proprietary, high performance filter products include CerraFlex® and TorrentFlow® filter cups, CerraBreaker® de-gating aids and RiserBreaker® riser removal filters. Unique to our products is the ability to deliver measurable performance above the capabilities of standard ceramic filters including reduced cleaning & finishing room operational costs, increased throughput, reduced cycle time, and a cleaner production environment on the shop floor.



Above left: CerraBreaker flat cleavage plane “break point” easily visible on automotive brake rotor end-casting (ductile iron). Inset images shows the CerraBreaker shapes used by the foundry.



Above right: Jay R. Hitchings early in his metallurgical R&D career at Foote Mineral Company.

officer, Jason’s next career stop was originally scheduled to be the Special Forces Selection Course at Fort Bragg, NC. But an unexpected side trip to the GIFA show in Dusseldorf with Jay R. in 1993 while on leave ultimately laid the groundwork for the formation of Comanche Technologies and Jason’s transition to a civilian business career.

### What We Do

“An early experience I had with a foundry customer gave me a simple but straightforward lesson that has driven me ever since,” Jason Hitchings explained. “At the time, I was still learning the basics of both metalcasting and molten metal filter technology and had just arrived for a big meeting with the VP of operations at one of the largest cast iron foundries in Texas. Although initially agreeing to the meeting, it became glaringly apparent this executive wanted it kept as short as possible. He began by saying ‘I’m familiar with your company already, so let’s get right down to it... Is your filter better than the ones I already use? If yes, how so and by how much? If they’re not much different, then how much money are you saving me with a lower price? That’s all I want to know. I don’t care about your ‘core values’, that you’re ‘green’ or how many followers you have on your company ‘Face-Chat’ or whatever. We clear, son? OK, go...’. He had my whole spiel pegged! After a second or two, we both began laughing hysterically. But he was right.

This experience was the direct catalyst for the later development of CerraFlex, which in turn gave me the ability to provide those hard, data-driven answers originally asked by my unexpected ‘mentor’ in Texas. And to him, I’m grateful.” Hitchings remarked.

### Our Growth

The “springboard” new product directly associated with Comanche Technologies at the outset was CerraFlex®, a patented molten metal filter technology born from addressing the performance limitations of our earlier high temperature silica mesh filter product, Flexsil®. Continual interaction with foundry and investment casting customers had provided a solid “wish list” of filter performance attributes that simply were not available at that time, regardless of filter type or supplier. Casting producers wanted a filter that could:

- a. Withstand higher pouring temperatures and or longer pouring times
- b. Provide larger active filtration areas
- c. Maximize the efficiency of exothermic agents (“hot topping”)
- d. Increase filter inclusion capture capacity without sacrificing alloy throughput rate

The development of CerraFlex achieved these objectives, and after patenting the technology, Comanche licensed AMETEK Foundry Products to be the worldwide exclusive manufacturing partner for all CerraFlex products.

The vast resources of a multinational manufacturing powerhouse like AMETEK turned out to be a perfect match for the much smaller, maverick innovator that’s Comanche Technologies.

### Looking Forward

“While we’re fortunate to see continued growth in our investment casting & foundry customer filter base, our true untapped growth opportunity with both new and existing customers lies in expanding the use of both Flexsil and CerraFlex filters in fettling operations (degating and riser knock-off applications)” explains Jason Hitchings, General Manager of Comanche Technologies. “Flexsil & CerraFlex filters can be placed directly at the ingate of an end casting on an investment tree or in a foundry sand mold where they act as a filter and as a pre-determined “cleavage plane” that will safely break away the end casting from the gating using the slight impact of a shop hammer. This alternative technique is considerably faster, cheaper and safer than the usual practice of manual cut-off methods typical to fettling operations.” In the end, it’s actually more exciting to our small team here to know our efforts help US based foundries and investment casting producers to be more competitive with regard to their overseas competition. Our products may not be as “sexy” as AI enabled robots or 3D printing, but they can be just as important when it comes to producing a high-quality end casting.