

COLDFIRE

THE UNFAIR ADVANTAGE



Photo by: Walt Thurn

By
Walt Thurn

Every racer dreams about being able to do a “trick” modification to their racecar that produces great results that is not visible to their competitors. Oval track and sports car racers spend a lot of time and money trying to improve engine, braking, and driveline durability on their racecars. But making a high performance racecar reliable is difficult. Trackside conditions stress every component well beyond their normal design limits and failures are frequent, spectacular and expensive. Teams are always searching for a product that puts more speed and reliability into their racers. COLDfire International Inc. has a product that meets that objective.

COLDfire has developed a unique Thermal Cycling process that alters and enhances the molecular structure of metal parts. The thermal process strengthens the metal and dramatically reduces metal vibration of moving components. This helps reduce fatigue and cracking of the treated parts. The company has successfully used COLDfire on engine blocks, components, transmissions, brake rotors, machine tools and even golf clubs. In every case users report greater durability and component performance. Recently, COLDfire has joined forces with VBP, Inc. (Vette Brakes & Products) to enhance the performance of VBP’s extensive line of brake products. VBP, Inc. has produced high performance brake and suspension components for GM products since 1974. VBP, Inc. is now using COLDfire International Inc. to treat their popular SportRotor line of brake rotors. Police departments, racers and high performance street enthusiasts all rave about this product. They report that the rotors produce quicker stops and extend rotor life under hard use. Circle Track had the opportunity to chat with COLDfire’s president Frank Masyada (known as Mr. Freeze) and VBP’s Business Manager, Paul Lesinski to find out more about the COLDfire process.

TECHNOLOGY FOCUS INFORMATION



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COLDfire President, Frank Masyada (l) and VBP's Business Manager, Paul Lesinski, inspect a COLDfire treated VBP 13" SportRotor. VBP re-manufactures thousands of Corvette brake calipers.

CT: Frank, tell us a little about the COLDfire treatment process you developed.

FM: COLDfire evolved from my experience working with cryogenics for 20 years. Three years ago, I discovered that cryogenics was not completing the metallurgical modifications that we needed. I began doing research and development work with VBP and discovered the COLDfire process. This process involves radical swings in temperature as opposed to the cryogenic process. We discovered that after we subjected parts to COLDfire, the parts underwent some dramatic changes in performance.

CT: Paul, why did VBP decide to treat their SportRotors with the COLDfire process?

PL: VBP has always been a company that provides leading edge technology to their customers. In the new generation Corvettes with their enhanced braking power, we discovered that rotors were warping after hard use. So we began researching ways to add performance enhancers to the factory Corvette product. I met Frank at an engineering seminar shortly after I joined VBP. Before joining VBP, I used cryogenics on engine and suspensions parts for almost seven years on a race team. After hearing about the COLDfire process, combined with my knowledge of cryogenics, VBP decided to use the COLDfire process on Corvette rotors. Our objective was to see if we could get more consistent braking and rotor life. VBP worked with Danny Kellermeyer from DJ Racing and Terry Lackey and his Grand Sport Corvette team to test the new rotors under racing conditions. Lackey discovered that COLDfire improved rotor life for the team Corvettes from 2 to 4 races.

CT: What VBP products are available that have been treated with COLDfire?

PL: VBP offers a complete brake rotor line for 1965 to 2001 Corvettes. In addition, we offer products for the F-body line. One of our more interesting customers is the local Pinellas County Sheriff department. They have a high-speed pursuit F-body that they use in various areas around the county. VBP installed

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a set of COLDfire treated SportRotors, Hawke performance street brake pads and Goodrich stainless steel lines. We replaced a set of cross-drilled rotors on the car which had had been abused for 20,000 hard pursuit miles. We found severe cracking around the drill holes. After 20,000 miles of similar use on our SportRotors, they showed minimal wear, more consistent braking and no cracking.

CT: What type of customers have you sold your products to during the last year?

PL: We have predominately sold these rotors to the performance minded drivers and racers.

CT: Paul, what kind of feedback are you getting from your customers?

PL: Our customers are telling us that they are experiencing extended rotor life and no brake pedal vibration.

CT: Why do you think the rotor life is increased?

PL: I don't have the engineering experience that Frank has, but we are observing that the rotor metal is better stabilized and does not seem to hot spot like non-COLDfire treated rotors. In the year 2000 we sold over 700 SportRotors and we have had none returned because of poor performance.

CT: Frank how did you discover this process?

FM: While working with cryogenics for 20 years, I learned that the end results were very inconsistent. When I began working with VBP, we experimented with different processes on their brake rotors. It was helpful having a client that was able to give us immediate feedback on our prototypes. This helped us discover the COLDfire process. The COLDfire process always outperformed the cryogenic method and quality was always consistent. The process is proprietary, but I can tell you that it involves dramatic swings in process temperatures.

CT: What other automotive components have you treated with COLDfire?

FM: We currently treat engine blocks, pistons, gears, transmission parts, drive shafts components and even golf clubs. As a matter of fact the manufacturer of racing driveline components uses our COLDfire process. In addition, we also treat brake rotors, pads and all of the high performance metal components in an engine.

CT: What have been the results?

FM: Extremely extended product life and better performance of the treated parts. Our customers are reporting 2 to 4 times improvement in product life. We are also getting reports of increased horsepower on treated parts because of reduced metal vibration. One of the things we discovered with VBP is we actually create good residual stress in the treated metal. Good residual stress is compression stress that makes the metal work easier which leads to reduced vibration. Vibration robs horsepower.

CT: Where do customers have to send their components to for treatment?

FM: We have locations throughout the United States. Our headquarters is located in Largo, Florida. A customer can contact us and we will give them the name of our nearest dealer. We also have locations in Europe, South Africa and Australia.

CT: How long does it take to get parts treated?

FM: The maximum turnaround time is 24 hours. It takes 12 to 14 hours to treat parts. We have machines that can treat a component up to 72" inches diameter and weighing up to 3,000 pounds.

CT: How much does the treatment cost?

FM: Costs vary depending on the quantity and size of the order. For example, one brake rotor, costs \$35 to treat, larger quantities are less expensive. I must stress that this does not work for all products. The first thing we ask our customers is what is the problem? Sometimes the problem is unsolvable. We want satisfied customers.



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CT: Frank, does this process work on non-metal objects?

FM: Yes it is very effective with polymers. The process is also effective on powder metal components. A lot of people are unaware that gear and engine metals start life as powders, which is blended with alloys. Heat and compression is used to form the parts. Our process is the only one effective with this type of part. COLDfire also provides dramatic improvement for nylon products. For example in tennis, we treat racket strings and they never stretch again, it improves the reliability of the product. It also has a positive effect on carbon fiber. It does not improve the carbon fiber, but it does improve the binders or glue in the product.

CT: Paul, do you think VBP will use this process for any other items in your product line?

PL: We are experimenting with additional components in the Corvette braking system. We hope VBP will be able to keep introducing improved COLDfire treated products to our customers in the months ahead.

CT: Thank you Frank Masyada and Paul Lesinski for telling Circle Track readers about the COLDfire process.

For more details regarding the COLDfire Process in Australia or throughout Asia please contact the South East Asian Headquarters of COLDfire International

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