METALLUS

VACTEC™ VACUUM CARBURIZING STEELS

INNOVATIVE METALLURGY TO HELP IMPROVE YOUR PRODUCTS

Manufacturers realize the many benefits of vacuum carburization—from cleaner processes to improved product consistency. Through our vacuum carburizing leadership, we provide even greater returns through our line of alloy steels that we design specifically for vacuum carburizing heat treatments.

Our VacTec™ alloy steels provide consistent vacuum carburizing heat-treat response and take advantage of these vacuum carburizing benefits:

- Elimination of intergranular oxidation;
- Improved dimensional control/Reduced distortion;
- Reduced cycle times;
- Reduced natural gas dependence;
- Improved energy efficiency;
- Enhanced quench flexibility;
- Ecologically friendly; and
- Reduced costs.

VacTec-derived gears, bearings, shafts and axles exceed performance expectations and help save customers money through increased process throughput and minimized scrap rates.

GRADE OPTIONS

- VacTec 200
- VacTec 250
- VacTec 275L
- VacTec 300
- VacTec 325L
- VacTec 350
- VacTec 400

APPLICATIONS

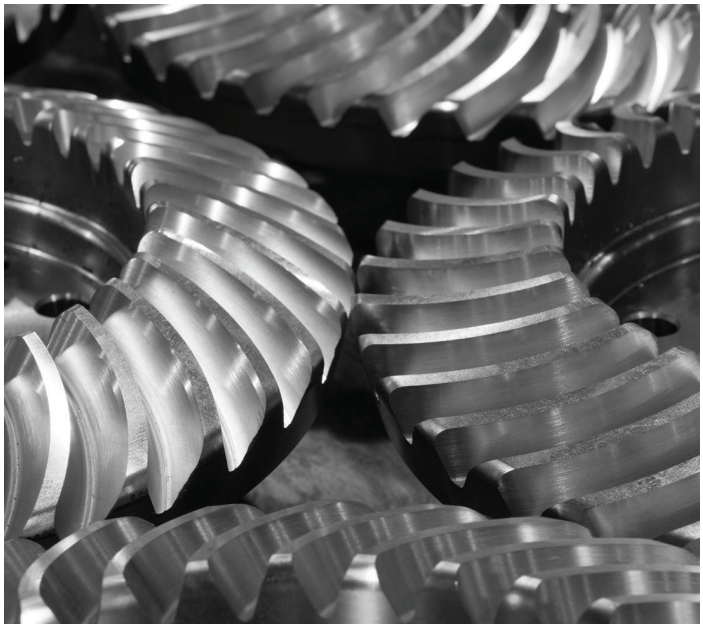
- Differential Gears and Pinions
- Bearings
- CVT Pulley Components
- Planetary Gears
- Helical Gears
- Drill Bits (DTH)
- Fuel Injection Components
- CV Joint Components
- Shafts

AN INNOVATIVE SOLUTION

Building on a solid foundation of clean steel, our team of metallurgists finds ways to provide innovative steel solutions that help solve our customers' toughest challenges. Our VacTec alloy steel combines our innovation with the process technology of vacuum carburizing. This results in consistent hardenability for each application, robust material response to varying quench rates, high-temperature grain coarsening resistance and a lean alloy design.

VacTec steel advantages are visible. Parts that experience traditional carburizing and oil quenching can require post heat-treat cleaning. VacTec steels, in conjunction with the vacuum carburizing process, produce a final product that is both visually and metallurgically clean (i.e., no intergranular oxidation).

Traditional gas-carburizing grades may not achieve specified metallurgical properties in a vacuum-carburizing and high-pressure gas quenching heat treatment. Our metallurgists can recommend the VacTec grade that will yield metallurgical properties superior to traditional carburizing grades in a vacuum carburizing heat treatment. With our technical expertise, we lend material science innovation to each customer application, providing consultation and guidance.



BETTER CONTROL, REDUCED DISTORTION AND MORE

Vacuum carburizing and gas quenching help you produce uniform, durable parts. We take your investment in vacuum carburizing to a new level through VacTec steel, alloys that we design specifically for these processes.

By choosing VacTec, you gain:

- Improved product uniformity and control;
- Shorter processing cycles for larger products;
- Fewer rejects due to distortion and other dimensional features; and
- Access to technical expertise to identify the best alloys for your applications.

We are known for steel that is very clean and engineered for strength and durability in a wide range of applications. We apply our expertise in material science to our line of VacTec vacuum carburizing steels.

ANSWERING CUSTOMERS' TOUGHEST CHALLENGES

We customize every product and service we deliver to meet customers' specific needs. Our focus is on improving performance by addressing the toughest challenges, whether that requires a special bar quality (SBQ) steel bar or seamless mechanical tube, a value-added component, honing, drilling or thermal-treatment services or a supply chain solution.

Our engineers are experts in materials, processing and applications, so we can work closely with each customer to deliver flexible solutions related to our products as well as their applications and supply chains. We believe few others in our industry can consistently deliver this kind of breadth, customization and responsiveness.

METALLUS

Visit **METALLUS.COM** or call us at 866.284.6536 (USA),
+44 (0) 116 2325186 (Europe), +52 (55) 5876 9888 (Latin America)
and +86 (21) 60231080 (China).