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- Providing analytical microscopes for NASCAR Engine Producer
ZEISS announced today an expansion of its multi-year partnership agreement with ECR Engines, a subsidiary of legendary NASCAR organization Richard Childress Racing (RCR). ECR will provide analytical microscopes for conducting analyses of various engine components. The company develops and builds Chevrolet engines for numerous NASCAR Sprint Cup, XFINITY Series and Camping World Truck Series teams, including RCRs seven full-time teams. ECR is using the latest ZEISS EVO MA25 scanning electron microscope (SEM) for material analysis studies, the ZEISS SterEO Discovery.V20 stereo microscope and the ZEISS Smartzoom 5 digital microscope for imaging larger parts, and a confocal light microscope for measuring surface roughness and 3D-topographical characterization.
"We are proud of this new partnership with ZEISS, the leader of the microscopy industry," said Jim Suth, Quality Manager and Engineer for ECR. "Having access to the latest advanced, analytical technology from ZEISS will be an asset and provide us a distinct advantage that will undoubtedly translate to success on the race track."
ECR, which manufactures engines at its Welcome, NC campus, will use the microscopes for quality control, research and development, and failure analysis work. Data obtained by using these analytical tools will allow engineers to be completely confident in their decision making on both new part acceptance and failed part corrective actions. The work is being carried out as part of the companys ongoing implementation of cleaner components, stronger raw materials and higher performing lubricants. Engineers have found that ever-increasing demands on engines for power and fuel economy places greater pressure on various critical engine components, which can cause premature wear and/or fatigue. Occurrences of premature wear and fatigue can lead to catastrophic failure, resulting in the race team having to exit the race.
ECR will use the newest version of ZEISS EVO MA25 to study these different types of component wear and material fatigue. The SEM is equipped with ZEISS SmartBrowse software for particle analysis and report generation. As an essential part of the EVO workflow, ZEISS SmartBrowse provides an interactive map of the entire sample. By providing in-context visualization of all optical and SEM images in data layers, ZEISS SmartBrowse greatly improves post image analysis and provides an innovative and striking data review method.
For macro scale imaging, failure analysis of larger parts, and sample preparation for electron microscopy, ECR will also utilize ZEISS SterEO Discovery.V20 light microscope. Using ZEISS correlative microscopy solution, images collected with the stereo microscope can be easily translated to ZEISS EVO MA25 for precise overlay with electron microscopy data. This imaging capability saves time usually spent locating points of interest under the electron microscopes high magnification.
Also available is a ZEISS confocal light microscope, which provides quantitative measurements of surface finishes for studying associated friction and wear of internal engine components.
ECR Engines
ECR Engines is a high-performance engine production, research and development company at the Richard Childress Racing facility in Welcome, N.C. ECR provides engines for NASCAR teams like Richard Childress Racing, Furniture Row Racing, JTG Racing and Team Geico Racing, among others. ECR also produces engines used in all of the Chevrolet Corvettes which compete in the Grand Am Series Daytona Prototype division, as well as for teams in the ARCA Racing Series, SCCA, dirt and asphalt short tracks and sprint car racing. ECR Engines have earned more than 100 victories, including two Brickyard 400 wins, and championships in the ISMA Tudor Series, NASCAR Camping World Truck Series and ARCA Racing Series presented by Menards.
Richard Childress Racing
Richard Childress Racing (rcrracing.com) has earned more than 200 victories and 15 championships, including six in the NASCAR Sprint Cup Series with the legendary Dale Earnhardt. RCR was the first organization to win championships in the Sprint Cup Series, NASCAR XFINITY Series and NASCAR Camping World Truck Series. Its 2015 Sprint Cup Series lineup includes two-time NASCAR champion Austin Dillon (No. 3 Dow/American Ethanol/Cheerios/Bass Pro Shops Chevrolet), 2011 Brickyard 400 champion Paul Menard (No. 27 Menards Chevrolet) and 2008 Daytona 500 champion Ryan Newman (No. 31 Caterpillar/Quicken Loans/Grainger/WIX Filters Chevrolet). Its XFINITY Series program includes Brian Scott (No. 2 Shore Lodge/Whitetail Chevrolet), 2012 Camping World Truck Series rookie of the year Ty Dillon (No. 3 Bass Pro Shops/WESCO/Yuengling Light Lager/Red Kap Chevrolet), Brendan Gaughan (No. 62 South Point Hotel
 Casino Chevrolet) and a multi-driver lineup with Austin Dillon, Brandon Jones and Paul Menard (No. 33 Rheem/Menards Chevrolet) team.

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