

Multi-test system for automotive shock absorber tubing and OCTG

Magnetic Analysis Corp (MAC) has supplied a combined ultrasonic/eddy current test system to inspect cold drawn welded tube to be used in manufacturing shock absorbers at a new plant in Monterrey, Mexico, built by Prosankin, formerly known as A-4C-Sankin.

A-4C-Sankin was formed in 2015 as a joint venture of Grupo Prolamsa, a steel pipe manufacturer in Mexico; the Sankin Corporation, a manufacturer of cold drawn steel tube; and JFE Shoji Trade Corporation, the trading arm of Japan's second largest steel company.

The new plant's focus is production and sales of cold drawn tubes primarily for automotive use, although the test system is also designed to provide the future capability of meeting API 5CT testing requirement for oil country tubular goods.

Shock absorbers are a critical component of automotive chassis. While they are commonly called 'shock' absorbers, their function is actually not to absorb shock but to reduce and decelerate the vibrations of vehicle springs that are contained within the shock absorber tube – in effect, acting as a vibration dampener. Working together, the springs and the shock absorbers provide the



The multi-test system for automotive shock absorber tubing and OCTG features 100mm ultrasonic Echomac rotary test and a MultiMac eddy current tester

link between wheel suspension and car body, compensating for uneven road surfaces. Most cars currently in mass production feature gas-filled shock absorbers. Accurate and thorough testing of the tube during its production is essential in order to prevent leaking gas.

The test system supplied by Magnetic Analysis Corp to the tube producer utilises two technologies for inspecting the cold drawn welded tubes during production – ultrasonic and eddy current. The 100mm Echomac® rotary ultrasonic system uses four test channels to detect transverse defects, four channels for longitudinal defects, and four for measuring wall thickness. In addition, a MultiMac® eddy current encircling coil test fulfils

the API requirement for detecting a through wall drilled hole, representing a transverse defect, required for some grades.

The system is designed to run in an automatic mode, performing both the ultrasonic and eddy current tests, marking any defects and creating a record (chart, defect list, test parameters, etc) of each tube and batch, while keeping pace with the production line. Data from the tests is stored locally and can be transferred to the customer's network.

The tubes range from 12 to 100mm diameter with wall thickness of 1.5 to 7mm. A new Water Package, designed by MAC, features a counter weight that allows the water box cover, including the attached heavy copper heat exchanger coil, to be easily raised and remain in the open position for access during maintenance.

The system includes automated drive mechanisms on a V-roll bench and a demagnetiser for any residual magnetism created by the eddy current test saturation coil.

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Cutting units for individual demands

Commercially available standard cutting machines may not be able to entirely cope with increased demands and special requirements within finishing applications.

Bültmann cutting equipment for finishing applications is individually tailored to customer requirements. By using standard cutting modules and handling equipment, the lines and machines are customised and individual solutions are created.

For the sawing technology Bültmann will, depending on the application, use its own products or proven com-

ponents from notable suppliers, and combine them with Bültmann handling equipment.

Sawing machines available from Bültmann include hot saws (stationary and flying); layer saws (stationary and flying); multi-head saws for fixed lengths; combined circular cold saws/abrasive cutting units for difficult-to-machine materials; twin-head saws for increased throughput rates; flexible fixed-length saws featuring a feed system for defined material handling without mechanical stoppers; special saws for non-ferrous materials, ensuring high cutting speeds; and integrated fixed-length saws,

including end machining and cleaning stations, in compact and space-saving designs.

For chipless cutting technology, Bültmann chipless cutting units are used, and are interlinked with Bültmann handling equipment. Bültmann machines are not only available as stand-alone production units, but also as turnkey solutions as part of complete production lines. Retrofitting into existing production lines is also possible.

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