cordingly durable. Weld seams on tower structures are often a critical weak point. If this work is not performed with high precision, material fractures with severe consequences may result. SGS testing personnel have therefore developed an innovative NDT method. As early as the manufacturing process, they monitor the quality of the round weld seams. (Fig. 2) In this way, even elaborate structural designs for applications under extremely high loads can be protected. To achieve better, faster and more affordable test results, SGS has developed the automated phased-array/TOFD (time-of-flight diffraction) testing system, which also involves conventional pulse reflection technology. In this way, reliable tests on round weld seams are possible on tower structures with wall thicknesses up to 100 mm. The method is now standardised, tested in serial production and accredited as a "mechanical ultrasonic test (PA/TOFD) on the round weld seams of wind power plants" according to DNV GL-OS-C401. The broadband probes used enable the detection of material and binding defects independently of their position or orientation in the weld seam. Both pores, cracks or root concavities can be identified, as well as the expansion of discontinuities. This succeeds even in low-lying areas, as well as near the surface. An additional special feature: In the combined phased-array/TOFD testing system of SGS, an autonomous robot with controllable magnetic wheels is used. With a speed from 20 to 50 mm/s, it processes the length of the round weld seams. (SGS Germany GmbH, Rödingsmarkt 16, 20459 Hamburg/Germany; www.sgsgroup.de)


Fig. 2

Seamless cored wires

The "Diamondspark T-line" has a worldwide proven track record with the full range of highest quality copper-coated seamless


Fig. 3

cored wires. The portfolio includes rutile and basic types as well as a specialised range for high performance subarc welding. The "Diamondspark T-line" covers a great variety of welding applications in normal strength, high strength, low-temperature, weather-resistant and heat-resistant steels. Approved by major approval societies, "Diamondspark T-line" products are the best choice for demanding industries like oil & gas, offshore and pipeline constructions. The latest invention, the "Diamondspark L-line" (laser-sealed) (Fig. 3), is a unique precision tool which ensures highest productivity in automatic welding. The "Diamondspark L-line" is today's best available choice to optimise robotic or mechanised serial fabrication of high integrity components in demanding industries. With diffusible hydrogen at the level of solid wires, the "Diamondspark L-line" are the perfect seamless cored wires for high and ultra-high strength steel welding and other extremely hydrogen critical applications. (voestalpine Bohler Welding UK Limited, European Business Park, Taylors Lane B692BN Oldbury West Midlands/UK; www. voestapine.com)

Work simplification by magnetic clamping technology

Bernd Siegmund GmbH observes that in all areas of metalworking magnetic clamping devices have proven themselves for quick and precise clamping. With the "Duo Magnetic Clamping Block" (Fig. 4) Siegmund is creating another work-saving accessory for its customers. If vices are often cumbersome and time-consuming to handle, the "Duo Magnetic Clamping Blocks" enable a quick and precise clamping of parts without distortion. The magnets can be conveniently placed anywhere on the welding table. With two differently shaped clamping sides, the magnetic clamping block can hold practically any workpiece geometry in position. Whether flat or round material, profiles and sheets, everything can be processed safely and without interference edges. The "Duo magnetic clamping block" is designed to process work pieces on steel surfaces like machines or welding and clamping tables. It is suitable as a clamping device for drilling, deburring, welding or thread cutting up to grinding and chamfering of almost any application. It has opposite clamping sides and via the hexagon socket of the shift shaft several magnetic clamping blocks can be interconnected. The activation for this is done via a removable switch key. The additional third clamping side even allows a vertical placement of the block. The "Duo magnetic clamping block" is standardly available with following three retention forces: 5 kN, 7 kN and 10 kN. (Bernd Siegmund GmbH, Aehrenstrasse 29, 86845 Grossaitingen/Germany; www.siegmund.com)

Fig. 4

High-frequency induction (HFI) welding

The Emmedi "MosWeld SiC HFI" welder (Fig. 5) will change the face of high-frequency induction (HFI) welding technology. Using high-current capable "SiC" (Silicon Carbide) transistor technology, the system delivers the same frequencies as former "Mosfet" units. However, what sets this unit apart from other "Mosfet" units, is that the "SiC Mosfet"'s only require four semiconductors versus 36 of the traditional "Mosfet" transistors, per 100 kW of power. This particular 500 kW "MosWeld SiC" unit has 16 "Mosfets" versus 180 "Mosfets" required of traditional solid-state "Mosfet" HFI welders. The "SiC Mosfet" transistor frequency rating is 150 to 500 kHz, which is the ideal frequency for