

ZEROMAG News

There's an awful lot of *oil & gas* in Brazil

One of our latest ventures was a magnetism training course for a customer in Brazil. The customer is part of a large international consortium working to extract pre and post salt oil deposits. The training had the usual theoretical morning session followed by the practical afternoon session. The balance of understanding that comes with the lecture session allows users to proceed with confidence during the practical session. An informal examination followed the theory section - interesting because all those who attended were able to pass the exam, whereas one senior engineer who joined the session late just in time for the exam was unable to answer a single question!

The weather was days of unseasonal rain deluge, with the site a morass of mud and water ... certainly not suitable for the girl from Ipanema! The customer's team gained valuable knowledge about magnetism and Zeromag, sadly no time for the Samba, carnival, soccer or even coffee!



Diverse undertake lecturing, user training and consulting at customer's sites around the world. In recent years destinations have included Brazil, Middle East, Italy, Croatia, Netherlands, Thailand, Australia and others.

Zeromag goes subsea

The standard Zeromag ZM100A has over the years been used in many different industrial applications from pipes to plates from China to America. Although not hyperbaric, it has been used in habitats subsea. At the request of a customer who is a leading subsea operator, Diverse have developed a version of Zeromag, the ZM50, designed specifically for subsea operation. This new version of Zeromag is to be integrated into the structure of the habitat vessel.



The new unit is completely reformatted and redesigned to allow it to be packaged in a cylinder which can be sealed in one of the working pods of the subsea habitat. The unit is constructed using stainless steel and even with this steel construction the weight has been kept to a reasonable 30Kg.

For this customer speed was of the essence and the time taken to complete the new design and manufacture the first unit was only 10 weeks. Although we were able

to take advantage of some of the design ideas in the standard product, major changes were required in the controller, power unit and packaging.

The ZM50 is supplied as standard with 50A operating capability, but with the addition of a second power unit this can be boosted to 100A matching the standard Zeromag.



ZeroB: Available for repair of busbar cracks

Diverse have been developing a new product, ZeroB, for use in high ambient magnetic field environments.

Diverse have been working with Rio Tinto until recently on ZeroB, a system to allow welding on busbars. Trial work has been carried out in a number of smelters, and it was found that ZeroB worked very well for repairs to bus bars where the field was

predictable and the weld pool was not bridging high currents. A very successful project was carried out on a smelter in Bahrain to repair cracks in the power supply busbars.

We continue to have an interest in welding busbars in smelters and would be pleased to discuss specific applications with interested smelters.



In development: Zeromag Arctic version

Zeromag has been used in a wide variety of environments, from tropical jungle to extreme cold in Canada. In response to a customer request, we are developing a version for use in the Arctic to temperatures as low as -50C.



At these low temperatures, the equipment needs to be protected from condensation within the casework and even the demagnetizing coils have to be made with low temperature cable because standard cable specified to -20C will crack if operated in these extreme arctic conditions.

Ferrite meter updates - user calibration

User calibration has been just one of a number of improvements and updates to the MF300F+ ferrite meter.



The ferrite level is important to assure minimum exposure to solidification cracking when depositing austenitic stainless steel weld metal. A lower ferrite number is better for corrosion resistance, while balancing higher ferrite content to avoid solidification cracking in the weld deposit. Low

ferrite numbers are less important for applications such as cladding where no cracking is observed. Testing for ferrite number can be achieved using the MF300F+ and crack

testing can be done using liquid penetration verification.

One of the most important updates is the user calibration mode. The concept of user calibration is that small changes in the scale calibration of the instrument can be trimmed by the user using one of the supplied transfer standards. This technique provides confidence in the performance of the instrument and maximises the time between repeat factory calibrations.

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