

# ZEROMAG *News*

## Sometimes you need the big one!

In some applications even the 1.5KW available from the standard ZM100A is not enough. Examples include aluminium smelters, large diameter pipes and vessels, and large area steel plate.

To address these applications, Diverse now provide the Zeromag ZM100A-30. This product offers operation up to 3KW with all the capabilities of the standard Zeromag. Weighing in at 35Kg, this big boy will solve even the most difficult of problems, and yet is still portable and keenly priced.

Zeromag ZM100A-30 is suitable for manual or automated welding processes. In order to use the extended capabilities of the ZM100A-30, demagnetizing cable to 200m long is required. This is normally provided in 50m lengths, but can be realised using an appropriate clam coil for your application. Simple and rapid to deploy, Zeromag will greatly assist productivity, reducing welding times while minimising weld repairs and downtime associated with magnetic arc blow.



## Degauss - remove magnetism before welding

a range of versatile degaussing operations.

The ZM150 is targeted at pipe end degaussing, but, provided the geometry allows sufficient ampere-turns, it can be used to degauss in other fabrication scenarios.

The facilities provided included a classical B-H loop cyclical degauss, a fast single loop degauss, complete control over Zeromag, including manual and automatic operation. Menu driven, even these complex magnetic operations are simple and can be carried out in the field.

current, cycle reduction rate, critical current etc.

For the single loop degauss, the ZM150 can 'learn' the material, and automatically find the critical current, hands free!

One application where the ZM150 excels is thick walled pipe, where conventional 50Hz ac demagnetizers cannot get sufficient depth penetration into the steel due to skin effect. In contrast, the ZM150 can be programmed to go as slow as the material demands and achieve magnetic penetration throughout the depth of the material.

The ZM150 works with an adapted Zeromag and is supplied in its own carry case, complete with easy to follow instructions in a laminated sheet.



By popular request the latest in the Zeromag family - Degauss ZM150. This smart box of tricks connects to Zeromag to provide

All parameters of the degauss sequence can be programmed by the user, including the rate of change of

## CASE STUDY: Aluminium Smelter

This case study focuses on a solving magnetic problems that can occur in aluminium smelters. The smelting process uses very high currents, typically 200,000 Amps! This high current generates a

magnetic field, that not only magnetizes all ferrous material local to the conductors, but generates a static field that is high, even in air. Diverse have been asked to assist with solving this very difficult magnetic problem on a number of occasions.



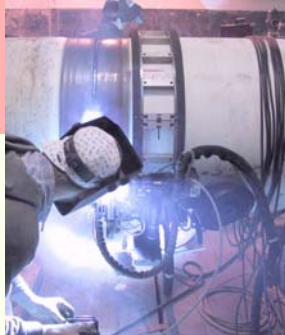
Clearly Zeromag cannot be used to combat such ferocious magnetic fields directly. However, with a combination of Zeromag ZM100A or ZM100A-30, together with suitable clam coils, the field from the smelter can be nulled and welding may proceed. Diverse use finite element analysis of the static field and the geometry of the weld set up to determine the best way to apply Zeromag.

important to consider the distance between the high current conductors and components that are magnetically close to the weld position. Typically at a range of 4m or more Zeromag can be very effective - closer in, the power required to null the field becomes too much even for Zeromag.

The specialist team at Diverse would be pleased to help you solve your magnetics problem, however difficult!

## International

Zeromag is now the internationally recognised way to overcome arc blow. It is used by our customers worldwide in over 25 countries and on lay barges working in International waters. Recent sales have included new countries like UAE, Nigeria and Indonesia. Our specialist magnetism busting team has been solving magnetic problems on site in Croatia, Australia and even the UK!



One of the findings of this type of analysis is that it is

## Stainless steel ferrite number

The ferrite number of stainless steel and weld metal is an important part of quality assurance procedure. Our ferrite meter, the MF300F, is supplied as a small hand held portable instrument that can be used to collect sample readings. Each reading may be stored in the instrument memory for later recall or download via the serial link. The instrument is calibrated against the world standards held at The Welding Institute (TWI) in England.



Every instrument is supplied with calibration standards that are checked with the instrument against the world standards. The MF300F reports in "ferrite number", which for many materials can be converted directly to percentage ferrite.

If your application requires testing of hot samples, there is a version of the MF300F that can be air cooled. The umbilical to the probe has a small manifold that allows connection to a low pressure air line that is used to keep the sensor at a constant, cool temperature even when operating with samples up to 200C.

Applications include measurement of material supply and weld quality.

For more information see:

[www.diverse-technologies.net/gateway/magneticproducts.htm](http://www.diverse-technologies.net/gateway/magneticproducts.htm)

[www.diverse-technologies.net/layer2/proddld.htm](http://www.diverse-technologies.net/layer2/proddld.htm) for the data sheet

All our customers are supported by telephone and email wherever they are in the world, and at short notice we can be with you providing the specialist skills necessary to overcome the complex and sometimes seemingly intractable problem that is magnetism!

### DIVERSE

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