

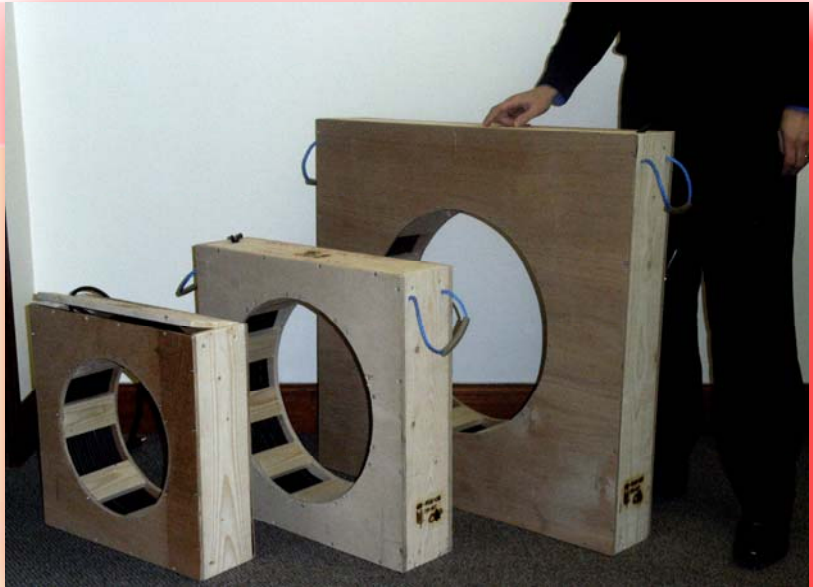
ZEROMAG News

Bobbins - the new arrival in the Zeromag family

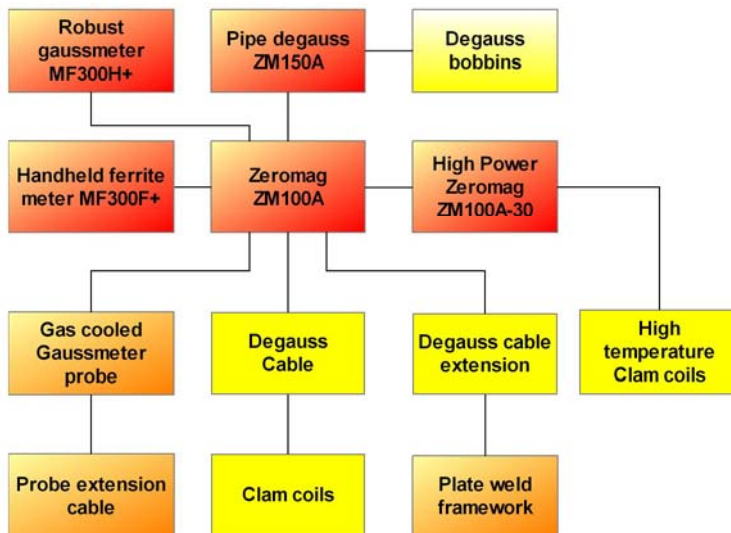
Zeromag can be used to degauss the ends of pipes before welding. In situations where space is limited or if magnetism is zoned, degaussing pipe-ends before fit-up is more efficient than active nulling.

Although it is possible to wind coils on and off each time, bobbins made for the specific pipe diameter offer high speed deployment and tight magnetic coupling. Clam coils are the product of choice when using Zeromag in a production environment. For quick deployment when using Zeromag to actively null the field while welding progresses, many customers use the single action clam coils.

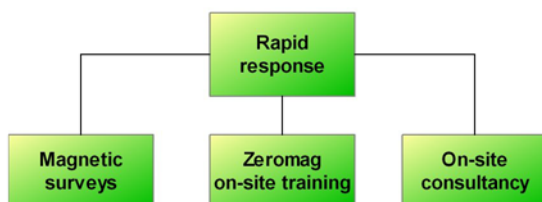
Clam coils may not be suitable for pipe-end degauss as much larger fields are required during degauss than active nulling. Enter the Zeromag bobbin - custom designed and optimised to add as many turns as possible to the customer's particular pipe size. Bobbins for ZM100A have 100m of cable and connection leads. When even higher fields are required to saturate the pipe steel a 200m bobbin should be used with the high power ZM100A-30.



Zeromag Product Family



Services



Diverse has the solutions to tackle magnetism

Zeromag is only one of a wide range of products and services that Diverse can bring to solve weld problems due to magnetism.

Our rapid response service can have an expert on-site within a matter of hours to provide immediate advice, and undertake a magnetic survey. We usually have Zeromag units for immediate despatch and/or hire.

Zeromag is used by leading construction and oil and gas companies around the world.

CASE STUDY: Magnetic hell with Inconel



Welding steel pipes that are magnetised is no problem for companies that use Zeromag. With Zeromag in automatic mode the welder can progress without suffering arc blow as the local magnetic field is nulled. For the majority of pipes magnetism problems appear at fit-up. At fit-up any magnetism in the pipe is focused into the weld-prep gap. Large fields can result and without Zeromag the root pass will be either impossible due to arc blow or of very poor quality due to arc wander. When welding homogenous mild steel pipes, using Zeromag the root pass will progress without issue. Once the root pass is in place the magnetism will couple through the weld material and the field in the remaining weld prep will be progressively reduced. Later weld passes can often be made without the need for Zeromag.

Clad pipes, with a stainless steel or inconel lining are often specified to

reduce or eliminate corrosion. The inconel lining is metallurgically bonded to the steel layer. Welding the root passes with such pipes progresses without problems because the magnetism is concentrated in the magnetic mild steel. However, as the weld approaches the steel - inconel interface, terrible arc blow can be experienced and the job grinds to a halt.

Diverse has been retained as consultants to solve this problem on several occasions. In such situations Diverse has been on-site at short notice and solved magnetism problems associated with residual fields in the steels using Zeromag, either using active nulling or degaussing. The basis of the problem is that inconel is not magnetic so during the root pass magnetism is not focused where the welding is occurring. However, once welding reaches the boundary between the inconel and the steel the

field is focused and high field values exist in the weld region. With inconel weld material the field does not get shunted through the weld passes and high fields can exist at the weld preparation up until the capping pass. Some welding processes are more sensitive to magnetic field than others and while Zeromag removes the remanent field in the steel, local fields due to the return weld current can still exist that may cause weld arc instability. To achieve high quality reproducible welding, changes may be required to the welding technique or weld preparation in addition to using Zeromag to remove the remanent magnetism. Our consultancy visits are followed up with a technical report and recommendations on how to proceed.

The specialist team at Diverse would be pleased to help you solve your magnetic problems, no matter how difficult!

Rapid response

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.

At Diverse we are a proactive team dedicated to supplying the solution to your magnetism problems. We understand that when arc blow strikes a solution is required immediately. We supply products and services to customers with urgent requirements within days.

A recent example was a company whose whole business was in jeopardy as they could not cap pipes and had to fulfil a large order. Within a week of contacting Diverse they had equipment on site, where welding and made their deadline.

Weld ferrite number

The ferrite number of stainless steel and weld metal is an important part of quality assurance procedure. MF300F+ is the latest version of our popular Ferrite meter. It is 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 downloaded via the USB/serial link. The instrument is calibrated against the secondary world standards held at The Welding Institute (TWI) in England. Sixteen samples are used in the calibration ranging from 2.7FN to 90FN.

MF300F+ has a robust slimline probe benefiting from a novel magnetic design with excellent coupling to the measurement sample. This results in sensitivity to a small well defined volume of sample metal and excellent response over the full range of ferrite samples.

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. Connection to a low pressure air line ensures the sensor is cooled even when operating with samples up to 200C. In addition the instrument senses the temperature of the probe and takes this into account when calculating the Ferrite Number.

Applications include measurement of material supply and weld quality.

For more information see:

<http://www.diverse-technologies.net/layer3/mf300f.htm>

and a specification at <http://www.diverse-technologies.net/layer2/proddld.htm>



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