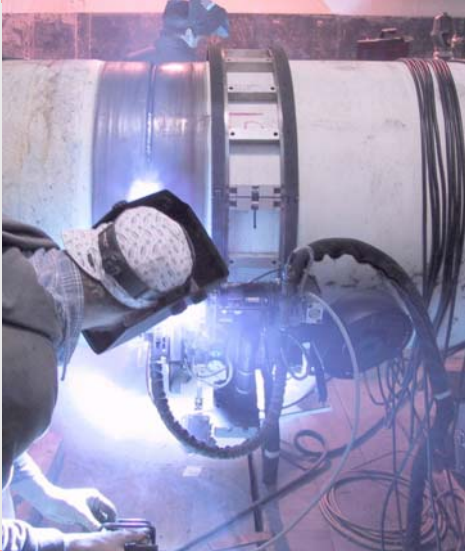


ZEROMAG *News*

The benefits in a nutshell



Diverse are the designers and manufacturers of Zeromag, the world's first, and only, dynamic demagnetiser. Zeromag solves the magnetism and arc welding problem by measuring and neutralizing magnetic fields which may be present in the weld preparation region of mating steel components. Zeromag has been supplied to the world's welding professionals and has **ALWAYS** been successful in solving this difficult problem. See the article about arc blow for more information about the symptoms and causes of the problem at <http://www.diverse-technologies.net/gateway/arcblow.htm>

Zeromag is suitable for manual or automated welding processes. In operation, Zeromag can be used in the demagnetisation process either manually or automatically. Zeromag demagnetisers are compact, portable and ruggedly constructed for use in typical welding site environments. Simple and rapid to deploy, Zeromag will greatly assist productivity, reducing welding times while minimising weld repairs and downtime associated with magnetic arc blow.

Consultancy & Training

DIVERSE has been supplying consulting services to solve magnetic problems for many years to leading welding and manufacturing companies all over the world.

The range of Zeromag consulting applications is vast - here are a few examples:

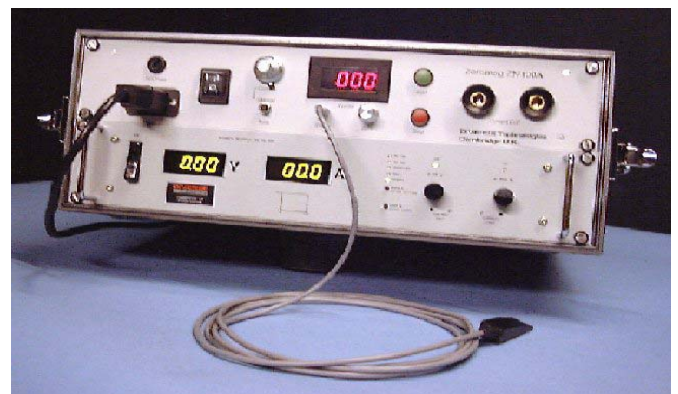
- 1 Application to marine lay barge/ships for pipe section laying
- 2 On shore pipe welding e.g. for spooling
- 3 Ship plate welding
- 4 Spiral pipe manufacture
- 5 Magnetic analysis of the steel in a complete high rise building
- 6 Welding of pipes that have been in the ground and have become magnetized.
- 7 Demagnetizing of machine tools and parts
- 8 Demagnetising of construction jig and manufacturing materials

No matter what the application, Diverse assists its clients by phone or email support - usually for free. If it becomes clear that the customer does not have the specialist test equipment required to measure the level and potential causes of the magnetic problem, Diverse undertake on site consultancy. We travel worldwide to provide this service.

To complete our range of support services, we provide our customers with low cost training in the identification

and solving of magnetic welding problems using Zeromag. The training can be carried out at our offices in the UK, or better still in the customer's own workshop where their welders can get hands on experience relevant to the specific project needs.

Diverse are pleased to provide assistance to overcome magnetic problems encountered in arc welding. Our unique Zeromag demagnetiser is used by welding engineers around the world. With the high cost of down times on a lay barges, Zeromag is the most effective insurance against stop time due to magnetism.



CASE STUDY: The old pipe problem ...

This case study focuses on a situation that we have to deal with regularly. It is not unusual that pipelines are unearthed after many years in the ground, either for repair or to be rerouted due to topside developments. This was the case last year when Diverse were called in to advise on magnetism problems for a project that was bypassing one of the main gas supply lines in the UK.

The pipeline had been installed some 30 years previously, and was aligned north - south. The net result of this was that the pipes had become longitudinally magnetised by the earth's magnetic field. The problem only became an issue when the new

lengths of pipe were brought into place for welding. This proved to be impossible. Site measurements conducted by Diverse personnel showed that the magnetic field in the prep ranged between 200 and 800 Gauss - the maximum that the chosen stick welding system could tolerate was 50 Gauss.



Zeromag was deployed and welding was able to take place as if there was no magnetism - the net field being reduced by Zeromag to less than 10 Gauss. The pipes were large, with a 1.8m diameter and 30mm walls requiring multiple passes. After the first 2 passes the field had fallen back to a level where Zeromag could be removed and welding could continue at 2 positions concurrently.

An interesting aspect of this project is that the pipes had been manufactured using seam

welding. The weld metal in the seam had a completely different magnetic performance. This meant that the field correction delivered by Zeromag had to make very large dynamic changes as the weld position passed over the seam.

After just two days all the sections of pipe had been welded and that aspect of the job completed. The customer was so pleased with the result, he bought a Zeromag for future use and invested in training for his whole welding team.



New lower pricing

Zeromag is now priced with each component of the system available separately. This allows simple costing of the final system, tailored to the customer's specific requirements. The basic price of a complete system has remained stable through the last 5 years, representing a real cost reduction over that time of about 25%.

New facilities, such as the degauss option (which allows the end of pipes in particular to have their field removed before welding) and multiple air cooled probes are simple add-ons to the standard unit.

Need to measure - use Magmeter



M agmeter MF300H is the Diverse Gaussmeter. It is a robust field instrument that can measure magnetic field from the very low levels right up to the point where magnetic materials saturate. It is supplied with a slim but robust stainless steel probe ideal for measurement in pipe weld preps.

With smart autoranging as standard over any of the user selected measurement units, Magmeter is very simple to use. It is calibrated against standards validated by the National Physical Laboratory

(NPL) thus Magmeter provides accurate measurements with confidence.

Applications include measurement in weld prep, magnetic measurements for magnetic dye inspection and other magnetic NDT tests.

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For more information see:

www.diverse-technologies.net/gateway/magneticproducts.htm

www.diverse-technologies.net/layer2/proddld.htm for the data sheet