

ZM150x2 Dual Degauss Control-

Pipe-end/weld joint degauss for 2 Zeromags

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Applications using Zeromags

- Emulate ZM100A-33 High power Zeromag
- High speed deployment of Zeromag in production scenarios
- Lay barge production, on shore or on ship
- High speed pipe end degauss
- Plate edge degauss
- Machine parts degauss
- Use with TIG, MIG, MMA and Sub-arc processing environments



Features

- Simple jog wheel and 2 button operation
- Programmable current change rate
- Programmable hysteresis cycle reduction rate
- Direct display of magnetic field
- Simply plug into the Zeromags and it takes control
- Saves user settings automatically
- Robust construction

Overview

The standard ZM150 provides downcycling and other modes of operation on a Zeromag. The ZM150x2 can control 2 Zeromags, one acting as master and the other as slave. This provides increased demag power from multiple Zeromag units.

When working with pipes there are several ways of working. In normal operation, Zeromag is used to dynamically reduce the magnetism during welding. This works well but can hinder welding throughput. The ideal would be to degauss all the components completely, but the process is too long and cumbersome. There are also issues with penetration of ac degauss fields into the bulk of the material, leaving the core still magnetized.

The Zeromag degauss option undertakes degaussing of the end of the pipe only. This down cycling process is relatively quick - typically less than 3 minutes. The hysteresis loop time is typically 10 seconds allowing deep penetration of the degaussing field into the metal of the pipe end. The magnetism in the rest of the pipe remains unchanged, so, over time, the magnetism in the rest of the pipe will 'leak' back into the pipe end. This process is material dependent, but is typically about 1 hour.

A super fast degauss mode is supported. This is a two stage process in which, initially, the material is learnt and key parameters of the B-H curve are deduced. Then to degauss the pipe end, a single loop degauss is initiated based on the learnt data.

The ZM150x2 degauss option comprises a hand held unit that plugs into two Zeromags. The user can program many aspects of the degauss process.

The effectiveness is dependent on the material of the pipe and the number of turns on the joint or pipe end. With two ZM100A Zeromags 200m of demag cable can be deployed giving the same performance as one ZM100-33

- Converts Zeromags to degaussing mode
- Simple user interface
- Robust and portable
- Can manually control Zeromags

Technical overview

Background

The Zeromag system finds its key application in arc welding. Magnetic fields may cause arc instability, and at worst can cause magnetic arc blow. The fields can be caused by induction of the earth's magnetic field in large structures and pipes. Alternatively, the steel may be magnetised at manufacture or by the use of magnetic clamps or magnetic pipe pigs.

The Zermag ZM100A is at the heart of the of the system. It is light, fast and simple to use. Simply the best way to remove magnetism for pipe welders.

This is the system favoured by many of the worlds leading pipe welders favoured for its 100% success record, excellent post sales support and a variety of options.

Applications

There are applications where the use of Zeromag as the welding happens is not convenient. In these applications the ZM150x2 can be very useful, removing magnetism quickly with low power expenditure on site.

Typical applications are pipeline, spool base operations and lay barges. For pipelines, the fastest way to operate is to fit up the joint, use the ZM150x2 with clam coils, ZMCClam, to wrap the whole joint and demagnetise it. Time taken is typically 2 minutes for a full downcycle and about 30 seconds for a smart single cycle degauss.

The ZM150x2 provides drive to a second Zeromag where the drive current of the slave Zeromag tracks the drive current of the master. This allows 2xZM100A 1.5KW units to mimic a single ZM100A-33 3KW unit, or 2 ZM00A-33 units to supply 6KW for degaussing large pipe joints.



The success of demagnetising of the pipe end is dependent on the pipe material and the number of turns that can be applied. Note also that over time the magnetism in the rest of the pipe will re-establish itself in the pipe end. This occurs typically in 1-2 hours.

The degauss parameters can be set from the defaults supplied, or tuned during weld qualification and stored in the ZM150x2. The parameters are chosen to get the best practical balance between the efficacy of the demagnetisation and the speed of processing.

Clam coils used for joint degauss



Bobbins used for pipe end degauss



ZM150x2: Performance Specification

Application	Must be used in conjunction with 2xZeromag ZM100A or ZM50 or ZM100A-33 units. The ZM150x2I provides current and polarity control to 2 Zeromags, reading the magnetic field directly from the master unit and replicating current drive to the slave unit.
Modes	Conventional hysteresis downcycle with the rate of change of current and the rate of the reduction factor per loop user controllable. Novel single loop fast degauss Material learn facility to discover what are the best parameters for single loop degauss Manual control of Zeromag Auto control of Zeromag
Current Output range:	0A to +/-100A max. via Zeromag ZM100A on each unit
Deployment	Use either with bobbins on pipe end prior to fit up or with clam coil ZMCC clam coils directly over weld joint
Current Output rate of change range:	0.1 to 10A/s
Hysteresis reduction factor	5% to 20% per loop
Demagnetisation time:	3 minutes typical down cycling 30 sec typical single loop
Field Display	Magnitude and polarity 0-750 Gauss resolution 2 Gauss
Display	4 line backlit LCD
Controls	2 push buttons to accept or reject selections made using the jog wheel and the computer controlled menus
Cables	Supplied with extension cables to connect to Zeromags
Weight	1kg
Size	30 x 20 x 3 cm plus cables
Power	Powered directly from Zeromag master
Housing	Aluminium label top and stainless steel bottom. Delrin sides
Environmental	Temperature -20C to 50C Humidity 0-90% non condensing Not water proof so do not operate or store in a wet environment
Support	Call/email Diverse for support for use of clam coils for different weld scenarios