

DMC70

Version 01022021

70mm Aperture AC Demagnetizing Coil

The DMC70 can be used as both a magnetising and demagnetizing coil and is capable of finding transverse orientated defects. Encapsulated in a hard wearing polymer the DMC70 is resistant to impact, abrasion and corrosion damage. This unit is suitable for use in even the harshest engineering environments, with 3 models available including a benched mounted model with an energizing button on the front facia and hand held model with a handle and trigger mounted button.



Key Features

Internal Aperture	70mm
Input	230V @ 50/60Hz
Field Strength	>200 Gauss @ Centre
Weight	3kg

1 Technical Information

Suitable as both a magnetising and demagnetising coil.

Ideal for NDT processes requiring strong magnetic fields.

Three models available - Bench mounted (pictured), hand held with trigger switch or fluke with base plate and energize button at the side.

Requires a 230V supply - Operates at 50/60Hz.

The DMC70 produces strong magnetic fields with >200 Gauss at the coil centre.

Lightweight at 3 kg so can be to use for extended periods without excessive arm fatigue and can be easily be relocated to different work sites when required.

Maximum 'On' time of 30 seconds with a duty cycle of 25%.

Coil is encapsulated in a hard wearing polymer the DMC70 is resistant to impact, abrasion and corrosion damage. This unit is suitable for use in even the harshest engineering environments

Fitted with a self-resetting thermal cut-out to prevent burnouts from misuse

High quality equipment, built to last and manufactured by Johnson & Allen Ltd in Sheffield, UK.

Johnson and Allen Ltd

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2 Method of use

2.1 Introduction

The information presented in this section is intended as a manufacturer's guide and best practice recommendations for operation of the DM70 Demagnetizer. If using the DM70 Demagnetizer for NDT it is strongly recommended any NDT procedure be first approved for use by an organisations qualified level 3 NDT operator or by someone in a senior position (e.g. quality manager) prior to any work being undertaken.

2.2 Models Available

There are three models of the DM70 available. The bench mounted version is the standard version featuring a push-to-energize button on the front facia of the unit and will suit most demagnetizing applications. The hand-held model features a handle on a side facia with a trigger switch and is more suited to applications where the DM70 needs to be taken to the component, such as when demagnetizing long component such as a pipe on a rack or in situ. The hand-held DM70 also lends itself better to MPI in many instances. The fluke model is similar to the bench mounted model but has a base plate to allow the energizing button mounted to one side of the coil.

2.3 Demagnetizing

The DM70 Demagnetizer can be used to remove residual magnetism from ferromagnetic materials. While keeping the components leading edge at least 30cm away from the coil aperture, energize the DM70 and keep energizing while bringing the component slowly towards the front facia of coil aperture. If the component is short enough to fit entirely within the width the coil aperture insert the component fully inside the coil aperture and while still energizing extract the component back out of the coil to at least 30cm. For longer components it may be easier to feed the component in one side and while energizing extract the component from the other side, making sure the trailing edge is at least 30cm away from the DM70 before ceasing the energize.

2.4 Verifying Demagnetization

Successful demagnetization should be confirmed using a magnetic field indicator or Gauss meter. The most economical meters for this task are either digital magnetometers like a DigiGauss DG1 or an old analogue deflection type 20-0-20 magnetometer. Run the magnetometer along the component surfaces, giving additional focus to edges and end sections and compare and verify the readings. Common post-demagnetization levels are less than 5 Gauss for general engineering and less than 2 Gauss for aerospace and critical components. If the demagnetization is unsuccessful either try the process again and experiment with greater extraction distances, inserting the component more slowly and changing component origination.

2.5 Theory

The DM70 produces an oscillating AC magnetic field. However by decaying this field with distance by moving the out of the coil aperture this causes the micro magnetic poles within the component to become unaligned. The net result is that these unaligned micro poles cancel each other out and there is no overall magnetism left in the component.

2.6 Magnetic Particle Inspection (MPI)

As DM70 produces an oscillating AC magnetic field it can also be used for undertaking Magnetic Particle Inspection (MPI) methods of NDT. By applying magnetic inks to the component close or within to the coil aperture the DM70 will be able to find circumferential orientated defects. To avoid washing indications away, ink application should be discontinued before the energization is ceased.

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3 EMF Safety

3.1 General

The following information will increase the equipment's useful life expectancy and ensure safe operation. Operators should take the time to read this information and familiarise themselves with the product before use. For any further information please visit the Johnson & Allen website or contact our head office building and talk to our technical sales team.

3.2 EMF Directive 2013/35/EU

Employers and operators should beware of the EMF Directive 2013/35/EU and understand the benefits of reducing EMF exposure. Johnson & Allen advise our customers to familiarise themselves with the EMF directive before using any equipment capable of generating strong magnetic fields.

3.3 Long Term EMF Risks

There is no evidence of persisting long term effects due to EMF exposure.

3.4 Short Term EMF Risks

While there is evidence of persisting long term effects due to EMF exposure, healthy persons (persons not at increased risk) may experience a number of short term health effects. Effects which might be experienced include localised tissue heating, muscle stimulation, vertigo, retinal phosphenes (the phenomenon of seeing light without light actually entering the eye). Operators should be aware of these health effects before operating the DM70 which are documented in EMF Directive 2013/25/EU.

3.5 High Risk Groups - Pace makers etc.

There are individuals who are more vulnerable to EMF exposure. The highest risk group includes and persons with medical implants like but not limited to those with pace makers and hormone pumps. These individuals should not under any circumstances operate or be near a demagnetiser intended for use. It is also recommended that pregnant women and those with other implants such stents and replacement joints not operate the DM70.

3.6 Signage

The DM70 should be operated in an isolated part of a workshop or shop floor where only the operator is near DM70 during times when it could be operated. It is recommended that environments with strong magnetic fields should have hazard signs local to this area denoting such and access to the area should be restricted to operators and inspectors only.

3.7 Fire Risk

When the DM70 is operated in environments where flammable vapours are being produced from consumable products (such as aerosols) ensure there is adequate ventilation to prevent vapour build-up and reduce the risk of fire or explosion.

3.8 Projectile Risk

Operators should remove any ferrous objects local to the DM70 which could to become projectiles when the unit is in use.

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4 Maintenance

4.1 General

Inspect demagnetiser before each use. If the body or cable show signs of damage you should not use the unit. Do not directly spray consumables onto the demagnetiser or immerse the body of the unit in any fluid. Being a portable appliance, regulations require that demagnetisers should be PAT checked at a frequency proportional to its use and operating conditions and environment. Johnson & Allen offer safety and refurbishment services if required.

4.2 Warranty

The DM70 Demagnetizer includes Johnson & Allen's standard 12 month limited warranty from date of dispatch. Please refer to the J&A Standard Warranty Document to see what this covers.

4.3 Repairs

The DM70 should not be modified in any way without prior consultation with Johnson & Allen. Repairs and modifications can impair performance and compromise safety and will invalidate any warranty if undertaken without permission. Before attempting any repairs, including component replacements, the DM70 must be disconnected from the mains supply. Repairs must only be attempted by a competent electrician with knowledge of portable appliances. The DM70 should only be used for the purpose it is intended for; namely magnetizing and demagnetizing components.

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4.5 Magnetically Sensitive Items

Keep the DM70 away from magnetically sensitive items and equipment such as credit cards, phones, computers, monitors and other electronic apparatus etc.

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