

## Operating Instructions

# Micromag HP/50NPT

## High Intensity Magnetic Filter

Representative:



[www.eclipsemagnetics.com/na](http://www.eclipsemagnetics.com/na)

**Eclipse Tools North America Inc.**

442 Millen Road, Unit #9, Stoney Creek, ON L8E 6H2

T 1(800) 260-2124 F 1(800) 260-1410

sales@eclipsetoolsinc.com www.eclipsemagnetics.com/na



While every effort has been made to ensure the accuracy of the information in this publication please note that specifications may change without notice.

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# 1 Introduction

## 1.1 Range of application

The Micromag HP/50NPT follows on from the standard Micromag family and has all the same incredible benefits. The unit was developed to suit high pressure/temperature applications.

Micromag HP/50NPT can be installed anywhere in the fluid delivery system and can remove sub-micron magnetic and para-magnetic particles.

For further information relating to the standard benefits and operation please refer to the downloadable Micromag brochure on our website – [www.eclipsemagnetics.com/na](http://www.eclipsemagnetics.com/na) in the 'Magnetic Filtration' section.

The filter is not to be used with a corrosive or aggressive medium unless it is specified at the time of order and the vessel is supplied with a suitable barrier coating i.e. PTFE.

**Pressure rating** – Standard filter is designed and tested to operate at 725 psi (50 bar) max. line pressure.

**DO NOT USE IN EXPLOSIVE ATMOSPHERE UNLESS ORDERED AS AN ATEX APPROVED PRODUCT!**

## 1.2 Used symbols



Important notes



Danger notes

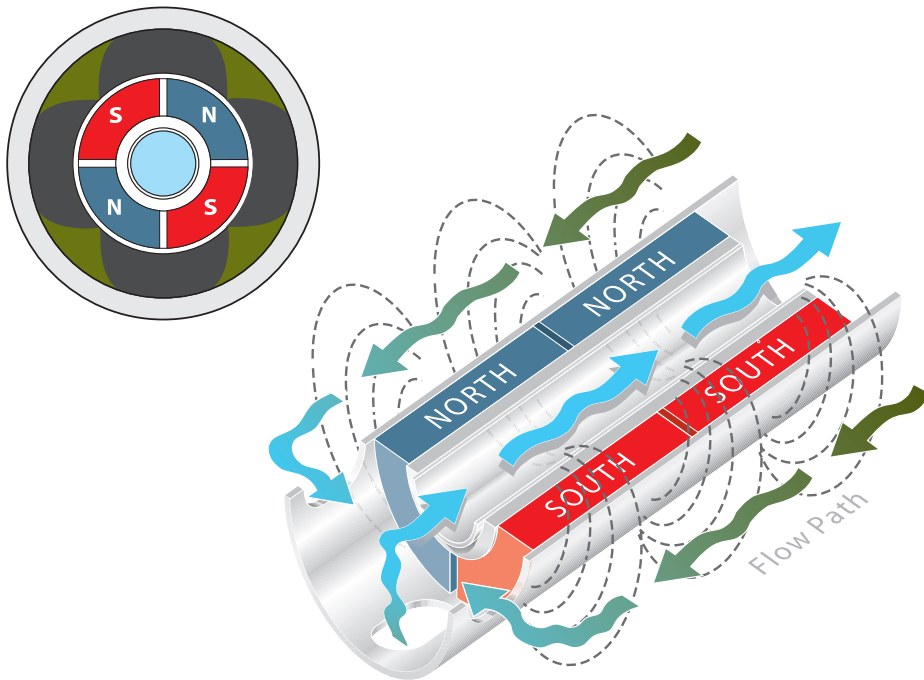


Safety notes

### 1.3 Overview



Details of magnetic circuits showing open flow path through bowl even when core is fully contaminated.



## 2 Technical data

### 2.1 Performance data

Application ambient temperature: 32°F to 284°F (0°C to 140°C)

Design temperature: 302°F (150°C)

Operating design pressure: 725 psi (50 bar)

Throughput:	MM5/HP/50NPT	18 gallons/minute
	MM10/HP/50NPT	26 gallons/minute
	MM20/HP/50NPT	40 gallons/minute

Vessel: Aluminium

### Magnetic characteristics

max. operating temperature: NdFeB HT-material 302°F

### Port size and contamination capacity

5" unit – 1" NPT	2.2 lbs capacity
10" unit – 1" NPT	4.4 lbs capacity
20" unit – 1 ½" NPT	8.8 lbs capacity

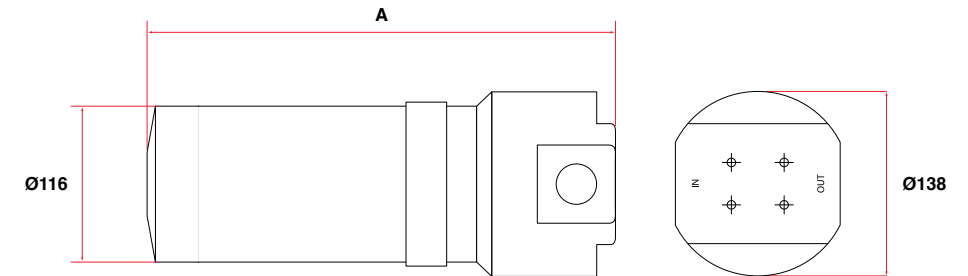
### 2.2 Noise data sheet

Sound pressure level, measurement according to DIN 45635:

Idling < 70 dB (A)

Conveying < 70 dB (A)

### 2.3 Dimensions



5" unit: A = 9.72 inches (247mm)  
 10" unit: A = 14.37 inches (365mm)  
 20" unit: A = 24.61 inches (625mm)

## 3 Design and method of operation

### 3.1 Method of operation

The single magnetic core is integrated in an aluminium housing and forms one unit e.g. fitted in series with the pipe-line.

The flow is arranged in such a manner that the material that is to be cleaned is well distributed and comes intimately into contact with the magnetic field.

### 3.2 Construction

- All aluminium construction with optional internal coatings
- Viton 'O' ring lid seals
- High intensity magnetic core

## 4 Safety

### 4.1 Intended use



The inline liquid filter is designed for installation into pressurised pipe lines working at up to 725 psi (50 bar). All pipeline connections are to be installed accurately and sealed to prevent the loss of pressure/fluid.

The lid seal is to be maintained in a good condition.

To ensure that the supplied magnets maintain their high level of performance, attention must be paid to the following conditions:

1. **NO temperatures above the specific operating temperature**
2. **NO oscillating vibrations**
3. **NO impacts**
4. **NO strong external magnetic flux fields**
5. **Pay attention to the cleaning and maintenance of the system**

### 4.2 General preventive measures



The core is constructed with strong magnets. The handling of ferrous tools (e.g. with maintenance or cleaning) etc. can cause risk of injury for the personnel due to the magnetic attraction. Special measures regarding the presence of ferrous items have to be considered when handling magnetic material.

### 4.3 Dangers of not adhering to safety notes



Using this equipment in a manner not intended can be hazardous.

### 4.4 Safety notes for operation and maintenance



Maintenance work is to be executed only by technical personnel. With work on pneumatic, hydraulic, pressurised or electrical services, the supply lines are to be isolated prior to any cleaning or maintenance actions.

Prior to any maintenance work being carried out, the process, equipment used and personnel must be risk assessed and deemed suitable to conduct that task. All work is to be carried out in accordance with local and legislative regulations.

**WARNING! This system incorporates strong permanent magnetic materials.**

**Please pay attention to the safety notes in order to avoid personal injury or material damage:**

- Operators fitted with a heart pace-maker shall not come within 1m of the equipment
- Oppositional poles of magnets attract each other with high clamping forces
- Do not use steel/iron tools or other ferrous parts in the flux field of the system
- Data carriers, credit cards, computer drives etc. can be erased by the influence of the magnetic field
- Keep electronic and sensitive mechanical units (for example, watches) away from the magnet
- Please contact our service department before welding or drilling works on the unit

#### 4.5 Notes on residual risks



Vent any trapped pressure from the equipment prior to working on the unit.

#### 4.6 Consequences with arbitrary change



With arbitrary change or repairs all warranties and assertions delivered by the manufacturer become void.

Only genuine o.e.m. parts are to be used in any repair to maintain the manufacturer's warranty.

#### 4.7 Prohibited operation



- The unit must not be subjected to any high external loads or induced vibrations

## 5 Installation and use

### 5.1 Mechanical installation

For optimum performance the unit is to be installed as follows:

Before installation ensure that all supplies are isolated.

Micromag HP/50NPT is to be installed vertically with the bowl pointing **upwards**, this allows fluid to drain out of the bowl and into the line prior to cleaning.

Micromag can be installed anywhere in the fluid flow line, pre- or post-pump to suit the application, using the threaded ports supplied.

If the Micromag is to be installed using flexible hoses, please ensure the unit is suitably supported using the bracket holes supplied on the lid.

The lid is engraved near its ports with 'inlet' and 'outlet' please ensure these directions are followed for correct performance.

For ease of installation remove the lid from the bowl.

If the system is subject to pressure surges install a pressure regulator set at 725 psi (50 bar) prior to the Micromag HP/50NPT.

- Seal mating piping joints effectively to reduce pressure/product loss
- Erect signage in the close proximity warning of hazards presented by permanent magnets, i.e. pace-makers and the dangers of opening the magnet housing whilst product is flowing
- Install in location with adequate free space to withdraw magnet cartridge from vessel for cleaning
- Consider manual handling regulations when deciding installation location

### 5.2 Connections

No external power sources required for this product

### 5.3 Setting of the operating parameter

No customer adjustment available to this unit

### 5.4 Cleaning

If operated and cleaned correctly your Micromag HP/50NPT will give many years of trouble free filtration with no consumable parts. The filter will remove even the smallest particle due to its high magnetic field strength. Cleaning should take no more than a few minutes.



- Turn off the fluid flow
- Isolate and relieve any line pressure
- Release the bowl using the spanner supplied
- Take the magnetic core out of the housing and move away to a suitable cleaning area. Insert the cleaning post into the opposite end of the core to the slots and using the cleaning tool wipe the contamination clear away from the slots over the post
- Re-assemble the magnet core into the body and re-fit the body
- Check the condition of the lid seal and replace if damaged. Turn on the material flow. After each clean the housing should be wiped over to avoid the build up of excessive dirt/dust

**Do not use corrosive substances to clean the equipment**

## 6 Maintenance

### 6.1 General notes

- Keep the system clean, especially the magnetic cores
- Regular check of the seal for defects
- Regular check of the housing and the magnetic core surface for wear
- Do not clean with aggressive cleaner!

## 7 Spare parts/service

### 7.1 Spare parts list

Pos.	Terms	Part No.
1	Magnetic core 5"	MM5/MC/HT
2	Magnetic core 10"	MM10/MC/HT
3	Magnetic core 20"	MM20/MC/HT
4	Lid Seal 'O' ring Dia. 100 x 4 section viton	Dia. 100 x 4 section viton
5	Core seal 'O' ring	Dia. 40 x 3 section viton
6	Cleaning post	MM/CP
7	Cleaning tool	MM/CTS

### 7.2 Service address

#### Manufacturer

#### Eclipse Magnetics Ltd

Atlas Way  
Sheffield  
S4 7QQ  
England

**T** +44(0)114 225 0600

**F** +44(0)114 225 0525

info@eclipsemagnetics.com

www.eclipsemagnetics.com

## 8 Shipping, preservation, waste disposal, transport, storage

### 8.1 Shipping, preservation, waste disposal

1. Suitable packaging should be selected according to the mode of transport (road/air/sea). The goods should be packed in such a way that under normal transport conditions no damage to the contents occurs.

2. National road freight should be packed in strengthened cardboard according to the size, weight and condition of the goods with air cushioning/shredded paper filling. Warning labels should be affixed to the outside of the package e.g. 'Caution! High energy magnet. Do not throw.' The package should be secured with tape and for packages over 50kg / 110lbs additional banding should be used.

2a. International road freight should be packed as national road freight. For larger/heavier packages wooden boxes should be used.

2b. International air freight should be packed accordingly in wooden boxes. When sending by air it is essential that the maximum magnetic field strength value of the goods is not exceeded (IATA Dangerous Medium Prescript "Cap. 3.9.1.1 Magnetised Material"; ICAO Instructions "Packing Instruction 902"). Permanent Magnets, where possible, should have keeper bars installed. Powerful magnetic components and assemblies need to be shielded so that magnetic fields will meet air shipment criteria. Any corrosion susceptible components should be protected with oiled paper, plastic film or anti-corrosion spray.



2c. Sea freight should be packed in seaworthy export crates. The size of the crates should accurately relate to the volume of the goods. The crates should be lined with seawater and corrosion resistant oiled paper. Additional protection of the goods should be provided by an anti-corrosion spray or protective plastic film.

To prevent movement within the crate the goods can be secured with wooden slats and additional screws.

The crates should be nailed/bolted together and can be additionally secured with safety tape.

It should be guaranteed that the packages are correctly and securely stowed. Details of the loading can be found on the waybill which should be provided by the carrier.

3. Waste disposal: Observe national waste disposal regulations.



## 8.2 Transport

- In order to avoid injury or damage to the unit it must be handled properly. In addition to following the instructions below, general health and safety good practice and specific accident prevention guidelines should be observed.
- For correct handling and storage comply with the following symbols:



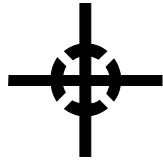
*Protect against moisture*



*Careful: glass*



*Up*



*Centre of gravity*

- Do not compress the side walls of the unit or any attached parts by pulling obliquely on ropes or chains.
- Only remove handling safeguards once all installation work has been completed.
- When handling in a loading area make sure the unit cannot topple over or slip.
- Damage caused during transportation must always be reported to the manufacturer.



## 8.3 Storage

- If possible the unit should be stored in a closed room until final installation.
- If the unit is stored in the open it must be covered over with tarpaulins and open underneath, to allow condensation to drain off.
- If the unit has been packed for transportation by sea the packaging must not be damaged or opened during transit and storage.
- For correct storage comply with all storage and handling symbols:



*Protect against moisture*



*Careful: glass*



*Up*

