

# Martindale

## **INSTRUCTIONS FOR USE OF MARTINDALE FITTA AND DIN-40 RANGES OF FILTERS**

When used in conjunction with a negative pressure or powered respirator, Martindale Fitta and Din-40 range filters are designed to remove particulate and/or gaseous contaminants from the air, providing the wearer with clean air at the breathing zone.

Please read these Instructions carefully before using the filters. Please also refer to the instructions supplied with the respirator.

### **LIMITATIONS OF USE**

Filters must not be used in oxygen deficient (Less than 17%) or enriched atmospheres (Greater than 23%), nor in confined spaces, nor against levels of contaminants greater than the Protection Factor of the respirator/filter combination multiplied by the OEL (Occupational Exposure Limit) of the contaminant. The minimum oxygen content of the air should be 17% by volume. Martindale Fresh Air breathing equipment should be used in confined spaces such as tanks, wells, containers, etc., where there is a possibility of oxygen levels falling below 17%. These filters are not recommended for use in explosive atmospheres.

Three types of filter are available - dust, gas, and combination dust/gas.

Dust filters are available in two types;

- (i) to protect against particles and water based aerosols only, and
- (ii) to protect against particles, water based aerosols, and other liquid based aerosols.

The first type will not protect against aerosols based on liquids other than water.

Unless marked otherwise on the filter label, Martindale dust filters are of the second type, and will protect against all liquid based aerosols.

Gas filters are divided into types for use against specific groups of gases, and may not protect against gases other than those within the group for which they are designed.

The correct type of filter must be selected for the purpose required. Dust filters do not protect against gases and gas filters do not protect against particles. For protection against both contaminants a suitable combination filter should be selected.

### **Storage / Shelf Life / Transportation**

All filters are labelled with an expiry date after which they should not be used. Din-40 filters and Fitta particle filters have a shelf life of 5 years from date of manufacture, Fitta combination filters have a shelf life of 3 years. Once the individual packaging of a gas or combination filter is opened the filter should be discarded within six months, even if unused. Filters should be stored in the packaging provided in dry conditions avoiding extremes of humidity and temperature. (Limits of storage conditions are -10°C to + 50°C R.H. < 60% for Fitta filters, -5°C to + 55°C R.H. < 95% for Din-40 filters). Filters should be stored and transported in the original supplied packaging. . Note: Storage in conditions other than those specified by the manufacturer may affect the shelf life of the mask / filter.

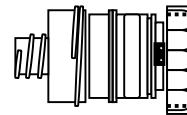
### **Pre-use checks**

Ensure that the filter is not damaged in any way. For Fitta filters, ensure that the filter seal is in position pushed up against the rim on the filter edge and that it is not twisted.

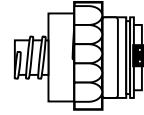
### **Fitting the filters**

Easiflow Plus Full Face Mask

**Fitta Filters:** Screw filter holder (M22FF) into front of full face mask. Unscrew the retaining ring from the filter holder and insert the filter with the louvre facing outwards (see Dia A) so that the rubber sealing ring on the filter rests against the rim of the filter holder. Replace the retaining ring and screw it up securely (See Dia B) . Do not over tighten the ring. The louvre protrudes through the retaining ring. In the case of combination filters the labelled portion of the filter and the louvre protrude through the ring.

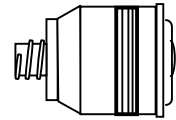


Dia A



Dia B

**Din-40 Filters:** Din-40 filters may be screwed directly (clockwise) into the front of the mask. Check that the gasket is still intact in the bottom of the threaded part you intend to screw the filter into. Remove seals from top and bottom of filter before fitting to mask.



Centor & Centor X

**Fitta Filters Only:** Unscrew the retaining ring from the filter holder and insert the filter with the louvre facing outwards so that the rubber sealing ring on the filter rests against the rim of the filter holder. Replace the retaining ring and screw it up securely. Do not over tighten the ring. The louvre protrudes through the retaining ring. In the case of combination filters the labelled portion of the filter and the louvre protrude through the ring.

Magnum 8500

**Fitta Filters:** Unscrew the retaining ring from the filter holder and insert the filter with the louvre facing outwards so that the rubber sealing ring on the filter rests against the rim of the filter holder. Replace the retaining ring and screw it up securely (see Dia A). Do not over tighten the ring. The louvre protrudes through the retaining ring. In the case of combination filters the labelled portion of the filter and the louvre protrude through the ring. Screw filter holder (M22FF - see Dia B) clockwise into the Magnum unit. Check that the gasket is still intact in the bottom of the threaded part you intend to screw the filter into.

**Din-40 Filters:** Din-40 filters may be screwed directly (clockwise) into the Magnum unit. Check that the gasket is still intact in the bottom of the threaded part you intend to screw the filter into. Remove seals from top and bottom of filter before fitting to mask.

**Important** when using either Fitta or Din-40 filters with the Magnum Powered Respirator unit 3 filters of the same type must be fitted. If the center port is blanked this may be unblanked by unscrewing the blank (anti-clockwise) using a suitable coin.

### **Pre-filters**

Pre-filters are only available for the Fitta filter Range. It is not possible to use a pre-filter with the DIN-40 range of filters.

The Pre-filter is available as an optional item which sits in front of the main filter and removes coarse dust before it reaches the main filter. Pre-filters, in themselves, do not offer any respiratory protection and hence must only be used in conjunction with a main filter.

Frequent changing of the pre-filter will maximise the life of the main filter.

The pre-filter should be changed when it appears clogged, the filter becomes difficult to breath through or in the case of the Magnum unit immediately the clogged filter alarm or pre use flow check indicator indicates or immediately a drop in airflow is noticed

With the Fitta filter range the louvre forms a pre-filter holder on each filter. Lift the louvre at the 2-pin catch, open it, and insert a pre-filter M09PF in the recess on the top of the filter, ensuring that it lays flat. Close the louvre and secure it on the 2-pin catch ensuring that it is properly snapped shut.

### **Applications**

The chart shows the types and classes of filters available and their applications. It also gives Protection Factors for different combinations of respirators and filters. Dividing the concentration of a contaminant in the workplace atmosphere by the Occupational Exposure Limit of that contaminant will show you the minimum Protection Factor required. For example:

Concentration of contaminant x in workplace atmosphere = 200 ppm  
Occupational Exposure Limit of contaminant x = 10 ppm

Minimum Protection Factor required  $\frac{200}{10} = 20$

Martindale Din-40 Class 2 gas & combination canisters should not be used where the gas concentration exceeds 0.5% (5000ppm).  
 Martindale Class 1 Combination Fitta filters should not be used where the gas concentration exceeds 0.1% (1000ppm).

For details of OEL's and recommendations of filter types for specific contaminants refer to the Martindale "Guide to Selection and Use" contaminants chart.

When working with gaseous contaminants with an odour threshold below the OEL, or for users with an impaired sense of smell, the use of Martindale Fresh Air or Compressed Air (Airforce) breathing equipment is recommended.

The following chart details both 'Assigned' protection factors and 'Laboratory' protection factors (in square brackets).

Laboratory Protection factors are minimum requirements which have been achieved in the laboratory during certification testing.

Assigned protection factors are the protection factors as detailed by BS4275 which is based on workplace studies. These suggest that the assigned levels given are what could reasonably be achieved by at least 95% of people with correct training, fitting and maintenance in a work place environment. It is recommended that when deciding on product suitability the assigned protection factor is used.

**Note: When Fitta filters are used with the Magnum 8500 only the M09A1P2, M09B1P2, M09E1P2 & M09K1P2 type filters may be used and then only with the power unit fitted with P2 (TH2) headpieces. When using multiple Fitta or Din filters all filters must be of the same type.**

**Note: When DIN-40 filters are used with the Magnum 8500 they may only be used with the power unit fitted with a full face mask (M23FF or M23FF/8).**

**Fitta Filters**

Filter Type / part No.	Label Colour	Negative Pressure Standard	Application	Protection-Factor with Half Mask Assigned / [Laboratory]		Protection-Factor with Full Face mask (Easiflow Plus) Assigned / [Laboratory]		Protection-Factor with Magnum 8500 & TH2 (P2) Hoods Only Assigned / [Laboratory]
				Dust	Gas	Dust	Gas	EN 12941
M09P2	White	EN 143	Particles and Water based aerosols	10 / [12]	-	10 / [16]	-	Not Suitable
M09P3	White	EN 143	Particles and Water based aerosols	20 / [50]	-	40 / [1000]	-	Not Suitable
M09P3P	White	EN 143	Particles and Liquid based aerosols	20 / [50]	-	40 / [1000]	-	Not Suitable
M09A1P2	Brown/White	EN 141	Organic gases and vapours, Particles and Water based aerosols	10 / [12]	10 / [50]	10 / [16]	20 / [2000]	20 / [50]
M09B1P2	Grey/White	EN 141	Inorganic gases and vapours, Particles and Water based aerosols	10 / [12]	10 / [50]	10 / [16]	20 / [2000]	20 / [50]
M09E1P2	Yellow/White	EN 141	Acid gases and vapours, Particles and Water based aerosols	10 / [12]	10 / [50]	10 / [16]	20 / [2000]	20 / [50]
M09K1P2	Green/White	EN 141	Ammonia gas and vapours, Particles and Water based aerosols	10 / [12]	10 / [50]	10 / [16]	20 / [2000]	20 / [50]
M09A1P3	Brown/White	EN 141	Organic gases and vapours, Particles and Liquid based aerosols	10 [50]	10 [50]	20 / [1000]	20 / [2000]	Not Suitable
M09B1P3	Grey/White	EN 141	Inorganic gases and vapours, Particles and Liquid based aerosols	10 [50]	10 [50]	20 / [1000]	20 / [2000]	Not Suitable
M09E1P3	Yellow/White	EN 141	Acid gases and vapours, Particles and Liquid based aerosols	10 [50]	10 [50]	20 / [1000]	20 / [2000]	Not Suitable
M09K1P3	Green/White	EN 141	Ammonia gases and vapours, Particles and Liquid based aerosols	10 [50]	10 [50]	20 / [1000]	20 / [2000]	Not Suitable

**Din-40 Filters**

Filter Type / part No.	Label Colour	Negative Pressure Standard	Application	Protection Factor with Full Face mask (Easiflow Plus) Assigned / [Laboratory]		Protection Factor with Magnum 8500 & Full Face Mask Only Assigned / [Laboratory]
				Dust	Gas	EN 12942
M23A2	Brown	EN 141	Organic gases* and vapours	None	20 / [2000]	40 / [2000]
M23K2	Green	EN 141	Ammonia gases and vapours	None	20 / [2000]	40 / [2000]
M23A2B2P3	Brown/Grey/White	EN 141	Organic gases*, Inorganic gases and vapours, Particles and Liquid based aerosols.	20 / [1000]	20 / [2000]	40 / [2000]
M23ABEK2P3	Brown/Grey/ Green/Yellow/White	EN 141	Organic gases*, Inorganic gases, acid gases, ammonia gases and vapours, Particles and Liquid based aerosols	20 / [1000]	20 / [2000]	40 / [2000]
M23A2P3	Brown/White	EN 141	Organic gases* and vapours, Particles and Liquid based aerosols	20 / [1000]	20 / [2000]	40 / [2000]
M23B2P3	Grey/White	EN 141	Inorganic gases and vapours, Particles and Liquid based aerosols	20 / [1000]	20 / [2000]	40 / [2000]
M23AXP3**	Brown/White	EN 371	Organic gases and vapours with boiling point <65°C, Particles and Liquid based aerosols	20 / [1000]	20 / [2000]	40 / [2000]

\* with boiling point >65°C, \*\*note: AXP3 filters are single use only.

**Definitions of terms**

"Particles" include dusts, fibres and fumes. "gases" include gases and vapours. A "Liquid based aerosol" is a suspension of liquid droplets in air. "Water based aerosol" is one which is produced from a solution and/or a suspension of solid materials in water such that the only hazardous component is attributable to the solid material. A "combination filter" is one that offers protection in different types and classes; e.g. an A1P3 filter offers Type A, Class 1 protection against gases and Class 3 protection against particles (P).

**PICTOGRAMS**

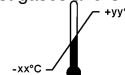
The following Pictograms may be used on the products and packaging. :



See information Supplied by the Manufacturer



End of Shelf Life



Temperature range of storage conditions



Maximum humidity of storage conditions

**Changing filters**

Dust filters should be changed when an increase in breathing resistance is noticed or in the case of the Magnum unit immediately the clogged filter alarm or pre use flow check indicator indicates or immediately a drop in airflow is noticed. Gas filters should be changed by pre-determined schedual and immediately any breakthrough of the contaminant is detected by smell or taste. Combination filters should be changed using either of the above criteria. Frequent changing of pre-filters will prolong the life of dust and combination filters. When using multiple filters all filters should be changed at the same time.

Actual life of filters is wholly determined by the individual circumstances in which they are used and is affected by type of contaminant, concentration of contaminant, circumstances of exposure, and many other factors.

\*\* AXP3 filters are **single use only** and should be disposed of at the end of a shift and not reused.

For disposal of the filter the filter should be sealed to avoid release of the contamination, either using the plugs provided originally with the filter or by sealing in a plastic bag. Dispose of the filter carefully in accordance with relevant environmental and health and safety legislation.

Fitta Filters EC Type-examination by BSI Product Services, Maylands Avenue, Hemel Hempstead, Herts, HP2 4SQ (Notified Body No 0086)

Din-40 Filters EC Type-examination by ITALCERT viale Sarca 336, Milano, Italy (Notified Body No 0426)