

LASERMET I-EXTRACT INSTRUCTION MANUAL



FUME EXTRACTION SYSTEM

Issue 2

LASERMET I-EXTRACT Instruction Manual

Contents

1	Safety Warnings.....	3
2	Concept.....	4
3	Assembly.....	5
4	Filter.....	6
4.1	Replacement Schedule.....	6
4.2	Filter Change	6
4.3	Pre-Filter Change.....	7
4.4	HEPA Filter Change.....	8
5	Specifications.....	9
6	Warranty.....	10
7	Contact Details.....	11

1 Safety Warnings

This device is intended to be used as part of a safety system which may be used to protect personnel and equipment from possible injury, damage, or loss.

As such it must be installed and wired according to these instructions and tested by suitably qualified persons. No attempt may be made to tamper with the parts, open them, or use them outside of the parameters contained herein.

The units are only designed to be fixed to surfaces using their inbuilt fixing holes. They must not come into contact with each other or any other moving part when in use. The parts should never be subject to impact or mechanical strain.

Safety switches should never be defeated or bypassed. It is imperative that all steps are taken to ensure that any spare actuators are made unavailable, such that they cannot be used to defeat the switch or reduce the protection offered by the system in any way.

2 Concept

I-Extract is Lasermet's fume extraction system specifically designed for the extraction and filtration of gases and emissions created by lasers during laser welding, laser cutting and laser cladding processes.

Designed as an integrated part of Lasermet's "Laser Castle" laser safety cabin, the I-Extract has ample power to extract the appropriate volume of emitted gases produced in the cabin.

The specific CFM (cubic feet per minute) figures are available for specific cabins.

A powerful, three phase electric motor powers the extraction fan.

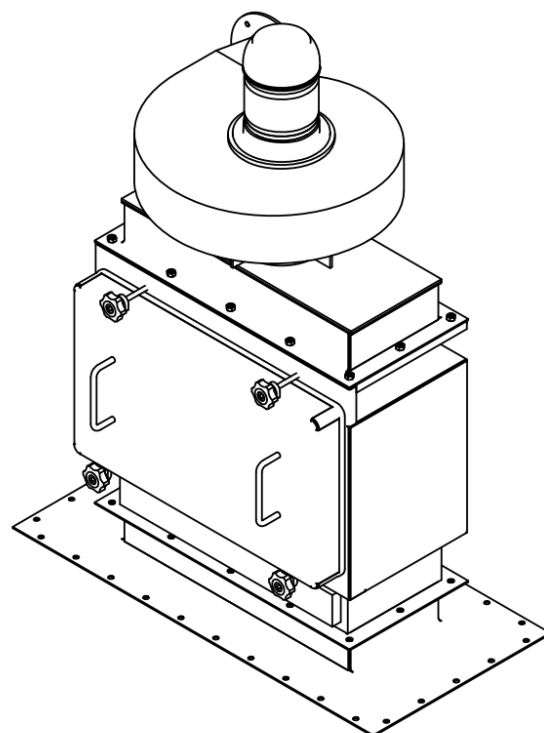
The overall enclosure is manufactured using galvanised sheet metal with a powder coated finish.

Lasermet provides a full range of laser interlock equipment including control systems, interlock switches, illuminated warning signs, laser shutters, door locks, external power supplies etc. which can be connected to provide a complete laser interlock system. Full support, design and installation is available from Lasermet, please contact us for any queries. Contact details are given at the end of this manual.

Filters

One HEPA Filter (High-efficiency particulate arrestance) individually tested to EN1822:2009 H3, and two further filters tested to EN779:2012 Filter Class M6.

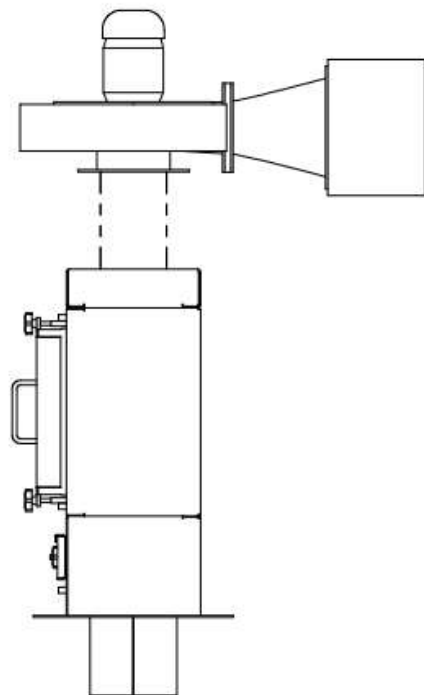
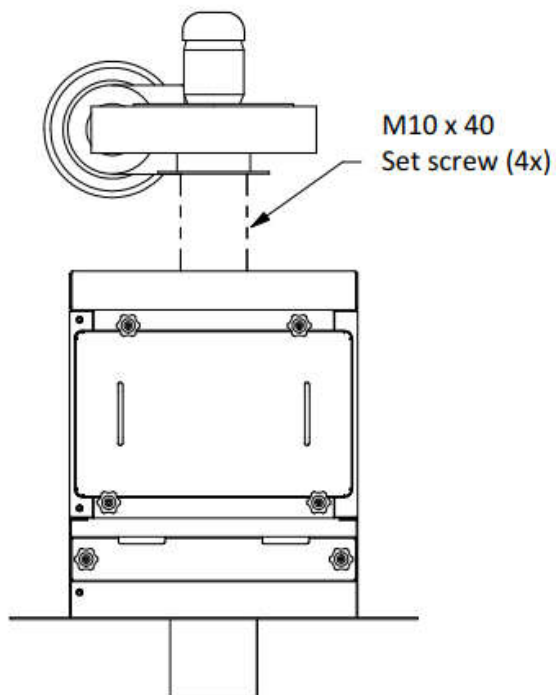
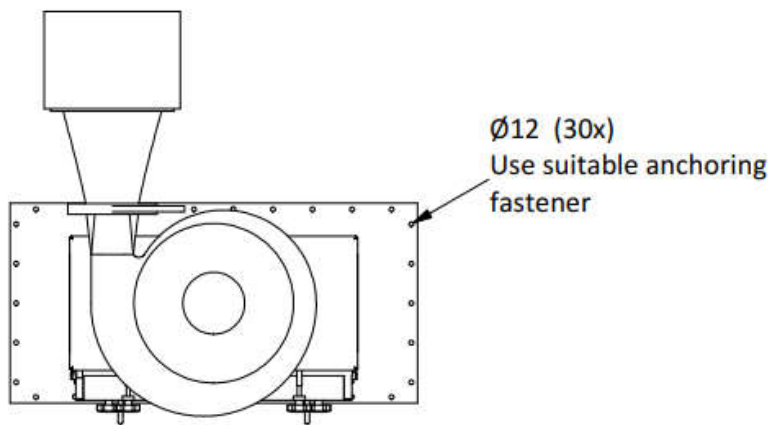
Approvals



I-Extract
High Efficiency Laser Fume Extraction System
– complete unit

3 Assembly

- 1) Lift, position and secure filter section
- 2) Lift, position and secure fan assembly and silencer. Use mastic sealer between flanges.



4 Filter

The Lasermet filter assembly has two-stage filtration.

1) EN779 Class M6 Pre-Filter 50mm deep

- Ordering information Lasermet Part Number LMFP-50

2) EN1822 Class H13 HEPA Filter Cell 292mm deep

- Ordering information Lasermet Part Number LMFH-292

4.1 Replacement Schedule

It is recommended that the differential pressure is monitored across each filter stage and the filters replaced when the first of the following occurs:

- 1) The M6 reaches final pressure drop 250Pa. The H13 reaches final pressure drop 600Pa
- 2) Each filter reaches 2.5 times its initial pressure drop.
- 3) The pre-filter has been installed for 1 year, the final filter 3 years.

4.2 Filter Change

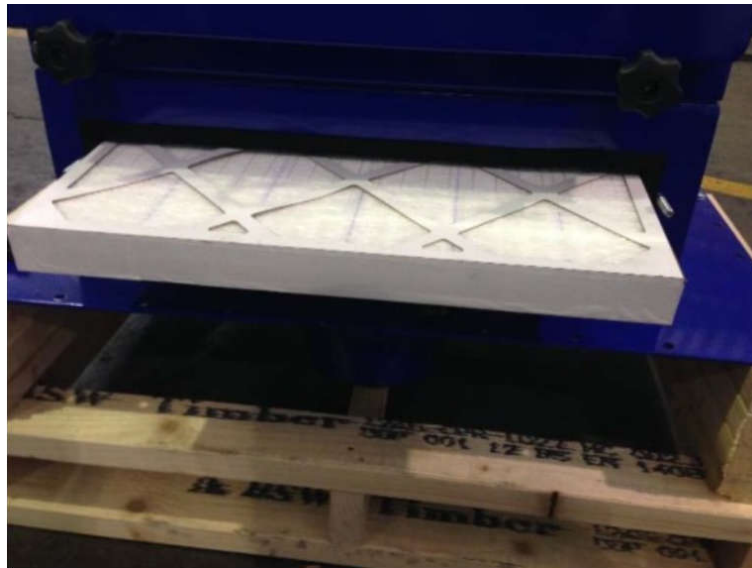
To remove the filter cells, it is necessary to remove the filter access doors. These are secured by hand knobs so no tools should be required to remove them.

It is recommended the person carrying out the filter change wears appropriate protective equipment e.g. overalls, dust mask, gloves.

Note: The fan should be isolated from power while the filter change is carried out.

4.3 Pre-Filter Change

- 1) Remove lower access door.
- 2) Pull out the old filter from the filter slide section and dispose of according to local regulations.
- 3) Check brush seal is in good condition and does not need replacing/reapplying.



- 4) Refit access door and tighten hand knobs until tight. Check door seal is good.



4.4 HEPA Filter Change

- 1) Remove upper access door.
- 2) Release the filter by dropping the lever arms of the clamps as shown.



- 3) Pull out the old filter from the filter section and dispose of according to local regulations.



- 4) Insert new filter taking care to respect any airflow indication arrow. The filter seal should face upwards to seal against the filter housing sealing face.



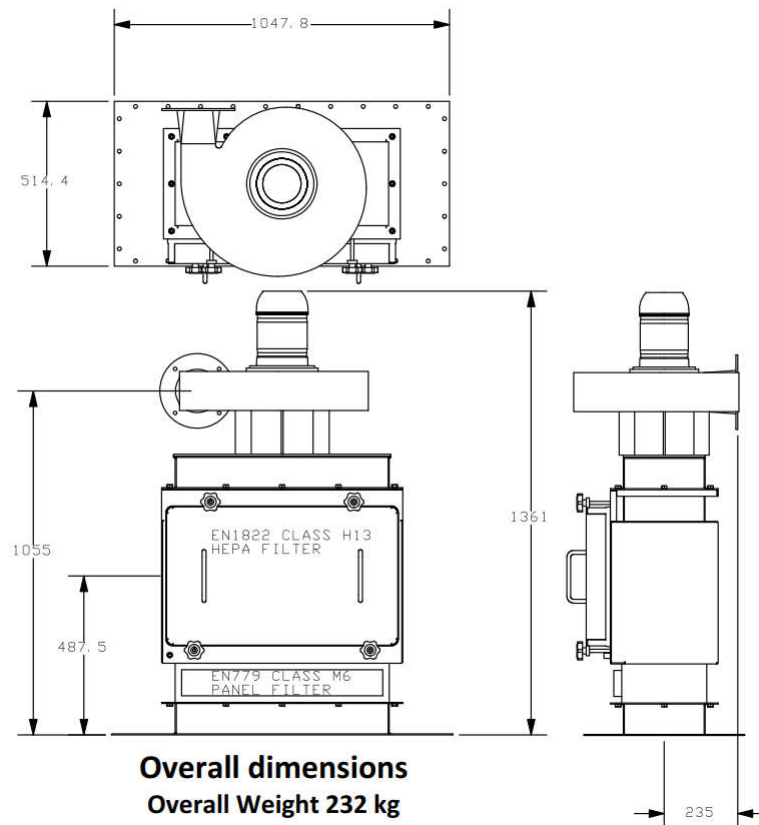
- 5) Clamp the new filter by pulling the lever arm of the cambars into the vertical position.
- 6) Refit access door and tighten hand knobs until tight.
- 7) Check door seal is good.



5 Specifications

Duty	1200m ³ /hr or 706CFM @ 2788Pa (max)
Fan Type	CF1 Fan
Fan Motor (UK/EU)	1.1kW 400V / 3ph / 50Hz 2885RPM direct drive motor
Duty	1200m ³ /hr or 706CFM @ 2940Pa (max)
Fan Motor (US)	2.2kW 460V / 3ph / 60Hz 3443RPM direct drive motor
Housing	
Frame	Galvanised sheet metal
Finish	Powder coated
Gasket	EPDM, continuous Ø15mm
Filtration	
System comprises	1xH13 (16m²) + 2xM6 (2.9m² Filters)
Test Standard:H13	Individually tested to EN1822:2009
Type	HEPA Filter (High-efficiency particulate arrestance)
Media	Glass fibre
Separator	Hot-melt beads
Sealant	Polyurethane (2k sealant)
Filter Class according to MPPS Efficiency	EN1822:2009: H13 H13:>99.95%, H14:> 99.995%.
Maximum Pressure Drop	600Pa
Nominal Drop	250Pa
Temperature / Humidity	70°C / 100% RH
Dimensions	
Size	289W x 595H x 292D mm
Area	0.16m ²
Air Flow	1300m ³ /min
Volume	0.06m ³
Filter Weight	8.5kg
High-efficiency Compact Filter x 2 (M6)	
Frame	Water resistant cardboard
Media	Wet-laid glass fibre paper
Separator	Hot melt adhesive
Sealant	Polyurethane
Filter Class	EN779:2012 Filter Class M6
Temperature	70°C
Humidity	100% RH
Size	592W x 592H x 96D mm
Area	9.3m ²
Air Flow	2900m ³ /min
Volume	0.04m ³
Weight	4kg
Pressure Drop	70Pa
Recommended Final Pressure Drop	350 Pa
Economical Change Point	250 Pa

Dimensions



Dimensions are approximate. Values given as 'typical' are average values measured across a number of samples and are not guaranteed. Lasermet reserve the right to alter any specification without prior notice.



6 Warranty

Lasermet provide a 12-month warranty for defects in materials and manufacture, from the date of installation or delivery. Installations completed by Lasermet are covered against defects in workmanship for 12 months.

All filters in the fume extraction system must be replaced with Lasermet filters in accordance with the specification in this manual.

Damage or defects caused by other factors are not covered. For example, industrial contamination, incorrect cleaning, storm damage. Consequential loss is not covered under warranty. Compensation for indirect or direct loss or damage is expressly excluded. Rectification of the defects or a replacement does not initiate a new warranty period.

For all deliveries, payments and other legal transactions, English law takes precedence for any litigation.

7 Contact Details

Lasermet provide a full range of laser interlock equipment including interlock switches, illuminated warning signs, laser shutters, entry keypads with built-in fail-safe override timer, door locks, external power supplies etc. which can be interconnected to provide a complete system. We also supply equipment and consultancy covering all aspects of laser safety. Full support, design, and installation is available from Lasermet, please contact us for any queries.

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