



C400 MK4 Dust Collector



Operating & Maintenance Instructions

Serial No.	
Customer	
A/C No.	

Guyson International Limited
Snaygill Industrial Estate
Keighley Road
Skipton
North Yorkshire
BD23 2QR

Tel: 01756 799911

E-mail: info@guyson.co.uk

Website: www.guyson.co.uk



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1. Introduction

This manual should be regarded as part of the product and must be retained for the life of the machine. The manual must be passed to any subsequent owners of the machine.

Any amendments should be attached to the original manual. Machine identification and serial number can be found on the identification plate fixed to the machine body.

This manual covers all standard options for the C400. Some of these may not relate to your dust collector.

1.1 Safety recommendations

Users of Guyson equipment are advised to make sure they have identified any hazards associated with their specific blasting processes, including:

- Use of compressed air
- Fire/explosion risks, e.g. Aluminium dust
- Suitable procedures for dealing with fire hazards
- Production of carcinogenic or toxic dusts from media or component surface removal
- Any other known hazards

Users are responsible for ensuring that they have implemented any current regulatory requirements, e.g. COSHH, to deal with any potential risks and/or hazards associated with their processes.

ATEX ZONE DESIGNATION

The ATEX Directives 2014/34/EU (product requirements) and 99/92/EC (user requirements) are implemented by the Equipment and Protective Systems intended for use in potentially explosive Atmospheres Regulations 1996 (EPS) and the Dangerous Substances and Explosive Atmosphere Regulations 2002 (DSEAR) respectively.

We are able to provide equipment that is suitable for use in a hazardous area, and/or equipment that is suitable for use when a hazardous area is created within a system, but it is the end users' responsibility to classify the area in which the equipment is to be used and/or the explosivity of any internal atmosphere created within the system. This is defined in Section 2, Article 3 to 9 of the 99/92/EC Directive (ATEX 137).

Unless we have been advised otherwise, we have to assume that the equipment will be used in an area that is not classified as potentially explosive, and uses a process which will not create an explosive atmosphere within the equipment.

1.2 Electrical specification

Electrical wiring on Guyson equipment conforms to

BSEN 60204-1:2006
IEC 60204-1:2005



1.3 Explosion venting specification

Explosion relief is highly recommended wherever explosive or highly inflammable materials are being processed or explosive or highly inflammable dust is being produced.

1.3.1 Design parameters

The current UK code of practice for vent design is the Institution of Chemical Engineers' Guide to Dust Explosion Prevention and Protection, Parts 1 and 3.

All explosion relief panels in Dust Collectors supplied by Guyson International Ltd are sized in accordance with the current UK code of practice, but it is **ESSENTIAL** that the client's attention be drawn to the following:

- The explosivity of any dust is dependant upon a number of factors among which are natural combustibility, particle size, moisture content, and dust-in-air concentration. As the factors involved vary for each individual application it is important to consider the actual dust being handled.
- The explosive nature of any dust is expressed in the form of a constant (Kst), this being arrived at by testing. The correct sizing of explosion vents can only be determined once the Kst value of the dust is known.
- Guyson International Ltd request that clients requiring explosion venting advise the Kst value of their specific dust when ordering. Where units are supplied for "unspecified" dusts and it is requested that explosion vents be fitted, the following criteria will be used unless otherwise specified in writing:

Dust Classification	=	ST1
Kst Value	=	150 bar m/s
Vent areas will be calculated using Nomographs	where Pstat	= 0.1 bar g
	and Pred	= 0.2 bar g

1.3.2 Explosion relief ducts

Unless otherwise specified, explosion vents provided by Guyson International Ltd are not sized to allow the fitting of an explosion duct. Should the client wish to fit explosion ducting, detail of the ducting must be given to Guyson International Ltd to allow re-calculation of the area and vessel strength.

Bends, deflectors or blast walls must NOT be introduced without the written approval of Guyson International Ltd.

1.3.3 Safety cut-outs

It is strongly recommended that, on all equipment where combustible dust is present in sufficient quantities to explode, the electrical installation be such that, on occurrence of an explosion, the equipment be automatically isolated from electrical power thus minimising the risk of spread or further propagation of explosion or fire.



2. Data sheet

2.1 General information

Dust collector	C400 Mk4
Dust collector height (mm)	1628
Dust collector width (mm)	460
Dust collector depth (mm)	770
Dust collector inlet (mm)	100/150
Dust Collector outlet	Open exhaust
Measured airflow (with open inlet/outlet) (m ³ /min)	11
Number of primary filters	1
Number of secondary filters (where fitted)	1
Type of filter	Cartridge filter - Polyester element
Primary filter area (m ²)	10
Standard filter cleaning system	Manual
Optional filter cleaning system	Autopulsing

3. Installation

3.1 Location

The equipment must be located on a clean, dry surface.

Locate the cabinet in the required position and orientation; always allow sufficient room around the units to fully open doors and to give access for operation and maintenance.

Care should be taken to ensure all parts of the system are level

3.1.1 Explosion venting

Explosion vents **MUST** be sited so that they discharge to a **SAFE AREA**, which:

- must not be occupied or used as a passageway or transit area;
- must not contain combustible products and must be free from dust deposits which in the event of an explosion being vented into the area could be disturbed and ignite thus giving a secondary explosion;
- must be of adequate size to allow an explosion to vent adequately and not create back pressures into the equipment being used;

Unless otherwise specified, explosion vents provided by Guyson International Ltd are not sized to allow the fitting of an explosion duct. Should the client wish to fit explosion ducting, detail of the ducting must be given to Guyson International Ltd to allow re-calculation of the area and vessel strength.

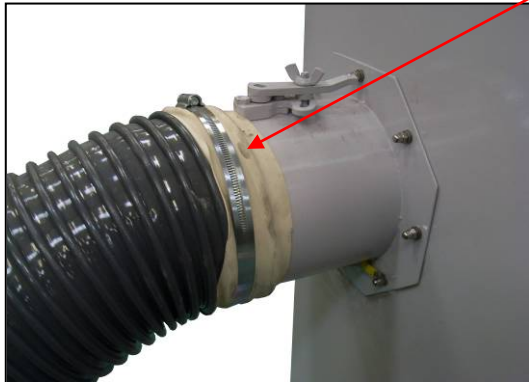
Bends, deflectors or blast walls must **NOT** be introduced without the written approval of Guyson International Ltd.



3.2 Assembly

Hoses with media flowing through them should only have flowing curves in them.

Connect the flexible extraction hose from the cabinet/cyclone to the inlet/blast gate on the dust collector using both a sealing band and a hose clamp



Blast gate



Standard Inlet

3.2.1 Compressed air connections

The air supply should be from a manual shut-off valve that will exhaust down-stream air and be clean, dry and oil-free.

The machine requires a compressed air supply between 40 and 80 psi and providing a minimum of 2 cfm at the filter inlet and pipework of adequate diameter to provide the flow rate.

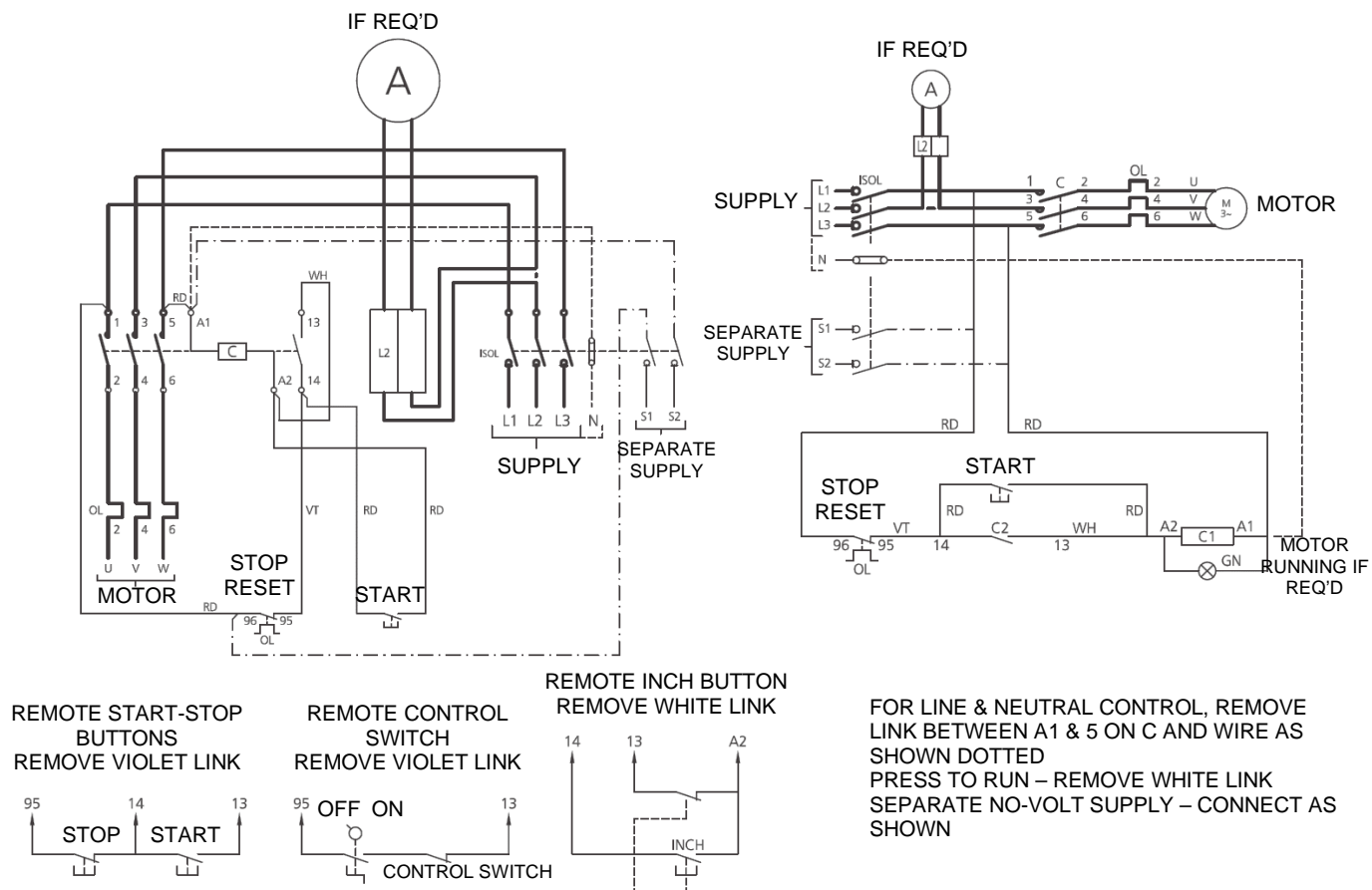
Each cleaning pulse consumes 7 litres of air (the volume of the manifold).

Connect an air supply to the dust collector.



Take care that any jointing material (e.g. PTFE tape) does not enter the pipework.

3 PHASE



When fitting a new motor starter, the overload will have to be set to the required full load current. Use the table at the start of this section to select the correct value, and adjust the overload accordingly. If a problem occurs with installation then Guyson can be contacted to provide support.



To adjust, pull out selector and slide to required position

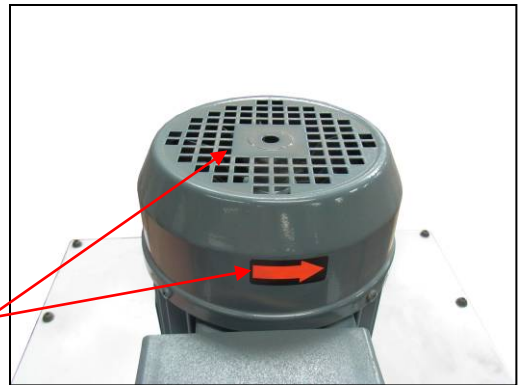
4. Testing installation

After completing all the connections, the dust collector operation should be checked.

- Switch on main electrical power supply
- Turn on the air supply to the dust collector
- Start the dust collector
 - The direction of the impellor motor should be checked visually against the arrow on the motor. If rotation is in the wrong direction, then on a 3 phase motor two of the input phase lines should be changed over. Guyson International should be contacted for more info if it is a single phase motor

NOTE: Air will flow from the outlet even if the fan rotation is wrong, but only at a low level, so rotation must be checked visually.

The best way to do this task is by starting then stopping the dust collector and watch the fan as it slows down. On a C400 dust collector the motor is on the outside and can be easily checked.



- Set pressure regulator to required 50 psi
- Depress the filter cleaning push button
 - If an automatic pulse controller is fitted then set it as required (see section [7.1.2](#))
- Listen for the manifold discharging its contents and check for possible leaks



5. Machine settings

The air-flow must be sufficient to create a slight negative pressure inside the cabinet to prevent dust from blowing out. The airspeed must also be high enough to carry the blast media and dust out of the cabinet and up the extraction hose to the inlet of the cyclone. This varies with the size and weight of blast media.

The suction in the dust collector should be such that a minimum amount of media is transferred into the dust collection system.

This is altered with the damper/blast gate on the dust collector outlet/inlet:

- Opening the damper/blast gate increases the suction
- Closing the damper/blast gate reduces the suction.

When setting the dampers/blast gates always keep the extraction air-flow to the minimum needed to avoid pressurisation of the cabinet during blasting. Over time the filters in the dust collector will become clogged with dust, and an increased air-flow may be necessary between filter changes and maintenance. In systems with a cyclone the extraction should be set so that a minimum amount of media is transferred into the dust collection system.

Always check the waste bin for good media when adjusting any settings.



Slide damper



Blast gate

The dust collector must be started before and stopped after the cyclone unit (if fitted) in order to clear the system of dust after the blasting operation

The dust collector should be checked to see how much reusable media has been transferred and the settings adjusted accordingly.

Never try to extract reusable media for reuse in the machine.

6. Operation

6.1 Operating principle

An impeller, driven by an electric motor, creates an airstream through a cartridge filter; in turn this airstream creates a negative pressure at the inlet port of the dust collector. The inlet port is connected directly (or indirectly via a cyclone reclaimator) to a blast cabinet where the negative pressure produced by the dust collector extracts airborne particles of broken-down abrasive media and of debris removed from the objects being blast cleaned.

The airstream then carries these airborne particles (through a cyclone where installed) to the dust collector where the finer dust is trapped in the fabric filters and heavier dust falls into the dust collection drawer.

At regular intervals the motor in the dust collector and in the cyclone (if fitted) is stopped so as to interrupt the airflow; the filter cleaning mechanism is operated to dislodge dust from the fabric filters whence it falls in the dust collector drawer. The draw is emptied at regular intervals to ensure that it never fills to more than half its capacity to avoid spillage.

The dust collector is operated independently to the rest of the system and the electrical supply should be controlled by a switch-fuse unit.

The airflow through the dust collector is controlled by a slide damper on the exhaust outlet. If a motorised cyclone is supplied, a butterfly valve is fitted at the entry to the dust collector which controls the balance between cyclone and dust collector. Initially the damper should be opened gradually to maintain a negative pressure in the cyclone/blast cabinet but not to the extent that good media is being carried over into the dust collector drawer.

6.2 Operating procedure

- Perform Daily maintenance tasks (see section [7.1](#))
- Switch on main electrical power supply
- Switch on air supply



THE DUST COLLECTOR MUST BE STARTED BEFORE AND STOPPED AFTER THE CYCLONE UNIT (IF FITTED) IN ORDER TO CLEAR THE SYSTEM OF DUST AFTER THE BLASTING OPERATION CEASES.

7. Maintenance

Dust collectors are subject to wear. The wear can be minimised by regular maintenance and monitoring settings particularly those effecting localised wear.

The frequency of any maintenance schedule and the replacement of parts are determined by the amount of use, media used and operating conditions. Maintenance intervals will be determined by experience of machine-use over time.

The following periods are recommended for initial trial periods until wear patterns are established; maintenance may be required more or less frequently depending upon usage of the machine.



ENSURE ALL AIR SUPPLIES ARE TURNED OFF AND THE SYSTEM IS FULLY EXHAUSTED BEFORE PERFORMING ANY MAINTENANCE



THE DUST COLLECTOR SHOULD BE FULLY ISOLATED BEFORE PERFORMING ANY MAINTENANCE. A LOCK-OUT AND TAG PROCEDURE SHOULD BE IN PLACE TO PREVENT THE MACHINE FROM BEING STARTED PRIOR TO THE COMPLETION OF MAINTENANCE.



PPE: GUYSON RECOMMENDS THAT AS A MINIMUM, OPERATIVES SHOULD USE A DUST MASK AND SAFETY GLASSES WHEN PERFORMING MAINTENANCE OF ANY SORT. REFERENCE SHOULD BE MADE TO THE MATERIAL SAFETY DATA SHEET OF THE MEDIA BEING USED FOR ANY SPECIFIC PPE REQUIRED.

7.1 Daily

- Empty dust collector bin and check contents for quality of media, ensure good media is not being wasted (see section [7.1.1](#))
- Clean the filters every four working hours (see section [7.1.2](#))

7.1.1 Empty dust collector bin

The dust collector bins should be emptied twice daily. They should also be checked for good media. If this is present then the dust collector/cyclone settings will need adjusting.



**CARE SHOULD BE TAKEN WHEN HANDLING THE WASTE BINS AS THEY
MAY BE HEAVY**



The bin on the C400 is compressed against the filter chamber of the dust collector by a lifter cam. To lower the bin; use the handle on the side. Then slide the bin out

7.1.2 Filter cleaning

7.1.2.1 Manual pulsing

Filter cleaning must be carried out on a regular basis. Initially this should be carried out every four hours, until a working pattern is reached.

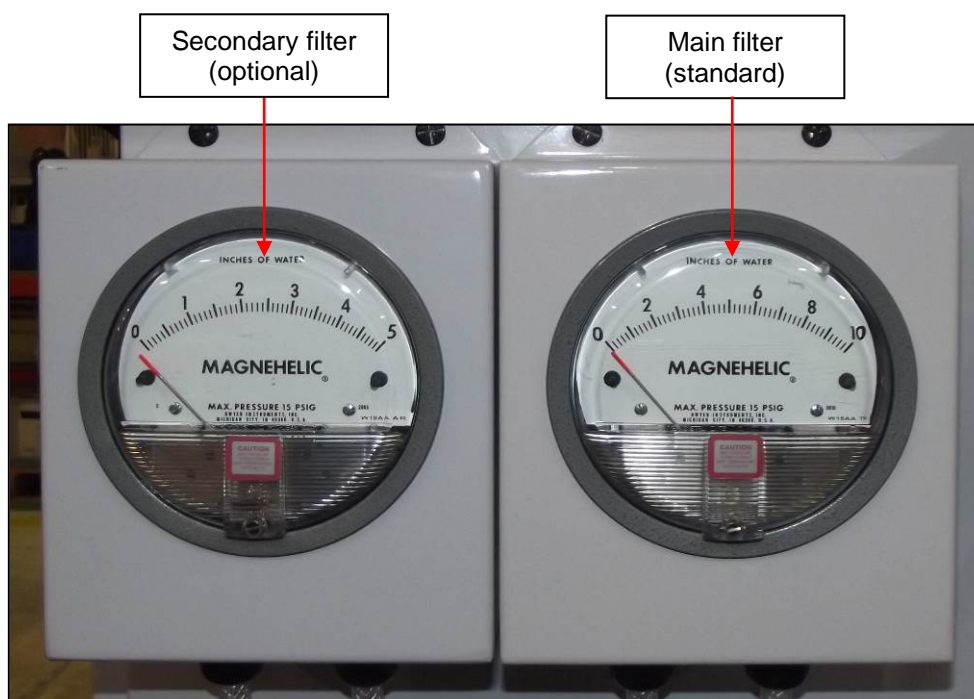
The filter cleaning system is manual. Push the button to release the compressed air from the pressure vessel to knock the dust from the filter.



THE MOTOR SHOULD BE SWITCHED OFF WHEN USING THE CLEANING MECHANISM ON THE C400 DUST COLLECTOR

After approximately five hundred hours use the dust will have worked its way into the body of the filter and cleaning with the cleaning mechanism will no longer clean sufficiently to allow enough air through. This will be evident by poor visibility in the cabinet and/or failure to extract the dust even with the dust collector damper fully open. A filter change will be necessary at this point.

The dust collector is fitted as standard with a magnehelic manometer gauge. This measures the differential pressure across the main filters. When the pressure difference reaches 5" Water Gauge then a filter change will be necessary. The optional HEPA 14 filter has a separate gauge. When this reaches 2.5" Water Gauge then a filter change will become necessary.



7.1.2.2 Autopulse option

Using the DLUX auto pulsing timer

Filter cleaning must be carried out on a regular basis. Initially this should be carried out every four hours. This can be done by setting the DLUX pulse timer correctly. The pulse timer has two settings, the first being how long you want the machine to be pulsed for (discharge time), the other being the frequency in which you want the machine to be pulsed (interval time). The ON and OFF time on the DLUX timer can be programmed anywhere between 10 milliseconds and 99 hours.

To set these, follow the below instructions:

ON = Discharge Time

OFF = Interval Time



To change the ON time (discharge time), simply press the right 'on/arrow up' button and 'on' will appear briefly on the display. You can now press the 'off/arrow down' button to decrease the time or the right 'on/arrow up' button to increase the time. Once the desired ON time is set, simply don't press any buttons and the display will flash, indicating that the new time is being saved. Once saved, the unit will operate with the new time setting.

To change the OFF time press the left 'off/arrow down' button and 'off' will appear briefly on the display. You can now press the left 'off/down arrow' for decreasing the time or the right 'on/arrow up' for increasing the time. Once the desired OFF time is set, simply don't press any buttons and the display will flash, indicating that the new time is being saved. Once the new time is saved, the unit will start operating with the new settings.

The TEST button allows you to check the valve function.

Replacing the DLUX auto pulsing timer

NOTE: Before any installation or replacement occurs, depressurise the system.

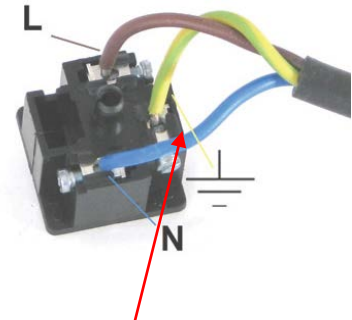
Having removed the old timer, follow the below instructions to install the new one.



Place the flat gasket over the coil connection pins.



Mount the timer on to the coil as shown above.



Connect your power cable to the connector as shown above.



Place the connector gasket on the connector, plug the connector on the timer as shown below and tighten the screw

You are now ready to start using the DLUX timer again. Restore normal system pressure and proceed to use the machine.

7.1.3 Replacing filters

7.1.3.1 Replacing the main filter cartridge

- Stop the dust collector
- Press the filter cleaning push button
- Turn off the air supply



Turn anti-clockwise to unlock.
Remove front cover.



For filter removal turn lifter cam 180° to the left.
The cam is now unlocked and the filter cartridge can be removed.



Replace with new filter cartridge (**Y1CA0049, standard filter, Y1CA0045 PTFE filter**).

Turn lifter cam 180° to the right to lock cartridge.

Replace front cover.

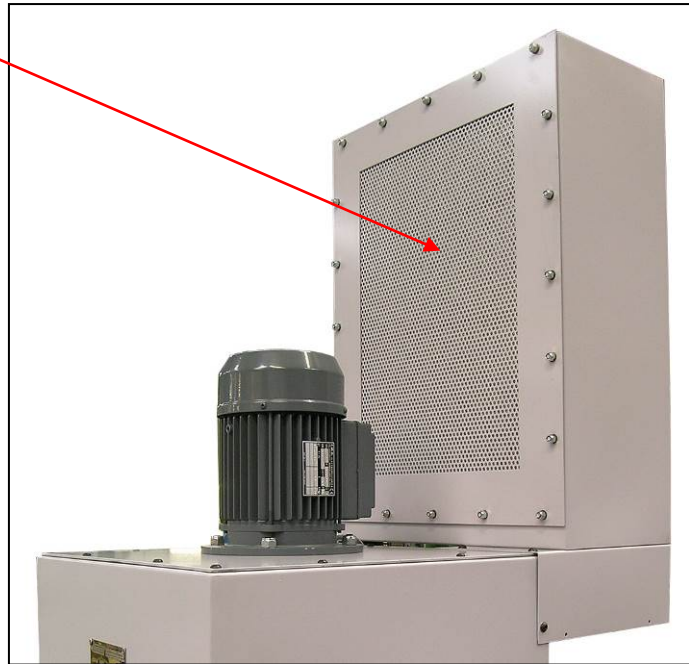


ENSURE THE FILTER IS CORRECTLY POSITIONED SO THAT DUST CANNOT BYPASS IT TO THE EXHAUST

7.1.3.2 Replacing the secondary filter cartridge

The optional secondary HEPA 14 filter ensures maximum air filtration, minimising the amount of air born particles exhausted by the system. The health of this filter is checked by using the magnehelic manometer gauge fitted to the side of the machine. This measures the differential pressure across the main filters. When the pressure difference reaches 2.5" Water Gauge then a filter change will be necessary.

- Undo the M6 Hex Screws from the filter lid and remove.
- Carefully lift the HEPA 14 panel filter from the frame and remove.
- Replace with a new HEPA 14 filter (part number **Y1CA0063**), ensuring that the air flow arrow on the filter match those on the inner frame.
- Replace the filter lid and tighten the M6 Hex screws.



7.2 Quarterly

- Inspect blast gate (if fitted) for internal wear (see section [7.2.1](#))

7.2.1 Blast gates

Inspect for excessive wear. If this wear is so excessive that you cannot set the blast gate correctly then it will need replacing. Contact Guyson International for more information.



8. FAQ's



FAULT-FINDING CHECKS SHOULD ONLY BE CARRIED OUT BY A FULLY QUALIFIED ENGINEER



IF REQUIRED THE DUST COLLECTOR SHOULD BE FULLY ISOLATED BEFORE PERFORMING ANY FAULT-FINDING CHECKS



IF REQUIRED ENSURE ALL AIR SUPPLYS ARE TURNED OFF AND THE SYSTEM IS FULLY EXHAUSTED BEFORE PERFORMING ANY MAINTENANCE

Questions for dust collectors

Fault	Inadequate suction	Action
Possible cause	Motor and fan running the wrong way	Check against arrow. Change input phase lines if necessary
	Panels or waste bin not seated correctly	Seat panels or waste bin correctly
	Choked filter	Use cleaning mechanism. If this doesn't work then replace filter
	Waste bin over filled	Empty waste bin
	A restriction on the extraction hose or dust collector exhaust	Remove restriction
	Filter contaminated with water or oil	Replace filter

If problems are ongoing please conduct a full maintenance service of the equipment or contact Customer Services to book a Guyson Service Engineer visit



9. Spares and servicing

A maintenance and service agreement for this system is available as an optional extra, for further details please refer to contact details below.

When ordering spares or accessories please quote the following information:-

Customer Account Number
Machine Serial Number
Product code of item required

If an item needs replacing that is not listed in the maintenance section of this manual and you are unable to identify from the assembly drawings in the appendix of this manual then please contact Guyson International on the details below for further help.

Customer Service Department

Guyson International Ltd

Snaygill Industrial Estate

Keighley Road

Skipton

North Yorkshire

BD23 2QR

Tel: 01756-799911

E-mail: info@guyson.co.uk

Website: www.guyson.co.uk

9.1 Spares list

Item	Item code	Recommended quantity
Dust Collector Cartridge Filter (standard)	Y1CA0049	1
Dust Collector Cartridge Filter (PTFE)	Y1CA0045	1
HEPA14 Cartridge Filter (where fitted)	Y1CA0063	1