

Unimaster Dust Collectors

Series UMA 40-750



IMPORTANT

PLEASE READ THIS MANUAL CAREFULLY BEFORE INSTALLATION.

**THIS MANUAL SHOULD BE READ IN CONJUNCTION
WITH THE CONTROLLER MANUAL, PUBLICATION IOM AK0303001,
SUPPLIED WITH THE DUST COLLECTOR.**

**FOR DETAILS OF THE OPTIONAL SECONDARY OR
ABSOLUTE FILTER MONITOR, REFER TO PUBLICATION 2920.**

**PRODUCT RELIABILITY, WARRANTY AND SAFE
OPERATION MAY BE COMPROMISED BY NOT FOLLOWING
THE GUIDANCE GIVEN IN THESE DOCUMENTS.**

EXPLANATION OF SYMBOLS USED



Indicates information on the efficient operation of the collector.



Indicates important information directed towards preventing damage.



Indicates an important warning, designed to prevent injury or extensive damage.

IMPORTANT



Improper operation of a dust control system may contribute to conditions in the work area or facility that could result in severe personal injury and product or property damage. Check that all collection equipment is properly selected, sized and operated for the intended use.

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GENERAL SAFETY REQUIREMENTS



The collector should be stored as supplied. Only remove packaging to install.

For the purposes of storage:

- Collector with specification for inside use = IP50.
- Collector with specification for outside use = IP54.



The dust collector should be used only when it is in a technically acceptable condition. Regular maintenance, as set out in this manual, is required to minimise technical failure. Third party supplied components (for example motors) should be maintained according to the manufacturer's instructions.



You should ensure any persons carrying out work on the supplied equipment follow any relevant recognised standards/codes, have received adequate training and are competent to do so. Areas requiring a competent person include:

- Maintenance on any component identified as a potential ignition source.
- Lifting and erection.
- Electrical installation, inspection and maintenance work.
- Any access to internal classified potentially explosive atmospheres where there may be a risk due to explosion.

During assembly/installation or dismantling of equipment, potential ignition sources may occur that were not considered in the risk assessment of the unit in operation (for example, grinding, welding sparks, etc.)



You should use the dust collector in full accordance with the conditions set out in the Order Acknowledgment and relevant Scope of Delivery. Failure to do so may compromise product reliability, warranty and safety. The Scope of Delivery is an integral part of the manual.



Other items of equipment, not supplied under the Scope of Delivery from Donaldson, should be installed, operated and maintained according to the documentation supplied with the respective equipment.



Any modification carried out on the 'as supplied' equipment may reduce reliability and safety, and will nullify warranty; such actions fall outside the responsibility of the original supplier.



The hopper should not be used as a storage vessel. To prevent damage to the collector, care should be taken to avoid an excessive build up of heavy materials.



Where necessary for safety, the dust collector is fitted with fixed guards. Removal of these guards and any subsequent work should only be carried out after adequate precaution is taken to ensure it is safe to do so. All guards should be refitted before re-energising.



The access door requires tools to open. To avoid danger from rotating fan impellor, ensure fan is isolated and allow sufficient time for fan to become stationary.

GENERAL SAFETY REQUIREMENTS



Where the equipment supplied is suitable for working within a potentially explosive atmosphere (as defined by Directive 94/9/EC) it will be according to the categories and conditions marked on the collector serial nameplate. You should ensure the equipment supplied by others is also suitable. If no marking is given on the serial nameplate then the supplied equipment is not suitable for use in potentially explosive atmospheres.



Care should be taken to ensure that any potentially explosive atmosphere is not present when performing operations that increase the risk of ignition (opening of controller for adjustment or electrical repair for example). Ensure the installation is always returned to its original state.



To reduce the risk of ignition when handling explosive or flammable materials, it is important that the accumulation of flammable deposits are prevented/removed, e.g. from within ducting etc.



If the collector is handling a potentially explosive dust or is placed in a potentially explosive atmosphere, then all motors should be connected to thermal protection devices to prevent them exceeding their maximum surface temperature. All electrical equipment should comply with a category according to EN 60079-0.



Where the dust being processed can ignite due to exothermic reaction, including self ignition, the collector **MUST** be fitted with a suitable explosion protection method (venting for example). The risk of ignition can be minimised by avoiding the accumulation of dust layers with regular cleaning.



The dust collector may be fitted with explosion protection in the form of a vent panel. Precautions, as set out in the Scope of Delivery, are used to minimise the risk of ignition of any dust clouds contained within the dust collector. The possibility of other ignition sources being introduced into the collector during periods where any dust cloud may be present should be minimised. Particular care should be taken to avoid introducing glowing particles via the collector inlet ducting.



The explosion relief assembly, where fitted, has been designed to provide adequate safety from an explosion initiated from within the collector, for the given dust explosion characteristics and collector arrangement as set out in the Scope of Delivery. You should ensure that explosions are not allowed to propagate into the dust collector (using suitable isolation devices) since pressures may be generated leading to unsafe equipment rupture.



Where applicable, equipment connected to the dust collector (for example, a cyclone) should be protected, using suitable isolation devices, against the transfer of flame and pressure if, in the event of an explosion initiating inside the dust collector, the connected equipment is not capable of safely withstanding these effects.

GENERAL SAFETY REQUIREMENTS



The explosion relief assembly, where fitted to the dust collector, is not suitable for use with dusts that are classified as poisonous, corrosive, irritant, carcinogenic, teratogenic or multigenic unless the dust released during the explosion venting process can be contained to a safe level.



In order to ensure the required venting efficiency is maintained, the explosion relief assembly, if fitted to the collector, should not be obstructed in any way.



It may be necessary to provide a facility to shut down the equipment in the event of an explosion (where collectors are fitted with explosion relief panels). The signal should be taken from the bursting panel detection device.



Part of the risk assessment on possible ignition sources for dust and gas mixtures with very low MIE, has considered the electrostatic risk from cone discharges. Here the basis of safety is based on using a conductive bin, dusts with a median particle size of less than 400µm and advising frequent emptying.



You may wish to consider the use of a sprinkler system when handling explosive or flammable materials.



None of the fan assemblies can be considered to be a fully sealed design, indeed most are arranged with either an open inlet or an open outlet. For this reason, the internal and external atmospheres can be considered the same in terms of any potentially hazardous classification.



Standard fan assemblies should not exceed 3000 rpm (50 Hz supply) on systems fitted with an inverter drive.



The filtration media is suitable for filtering particulate only (and not gas).



Some applications are prone to risk of fire. This risk can be reduced by pulse cleaning and emptying the dust container regularly.

- Any extinguishing technique and material used must be suitable for the flammable nature of the dust.
- A water sprinkler system can be fitted as a special option.

Materials handled by the dust collector may be hazardous (e.g. toxic). Conduct a Risk Assessment to ensure correct technique is employed.



The dust collector should be cleaned and put into a safe condition prior to decommissioning. All equipment decommissioning/removal is to be executed in a manner consistent with applicable codes, regulations and sound engineering practice.

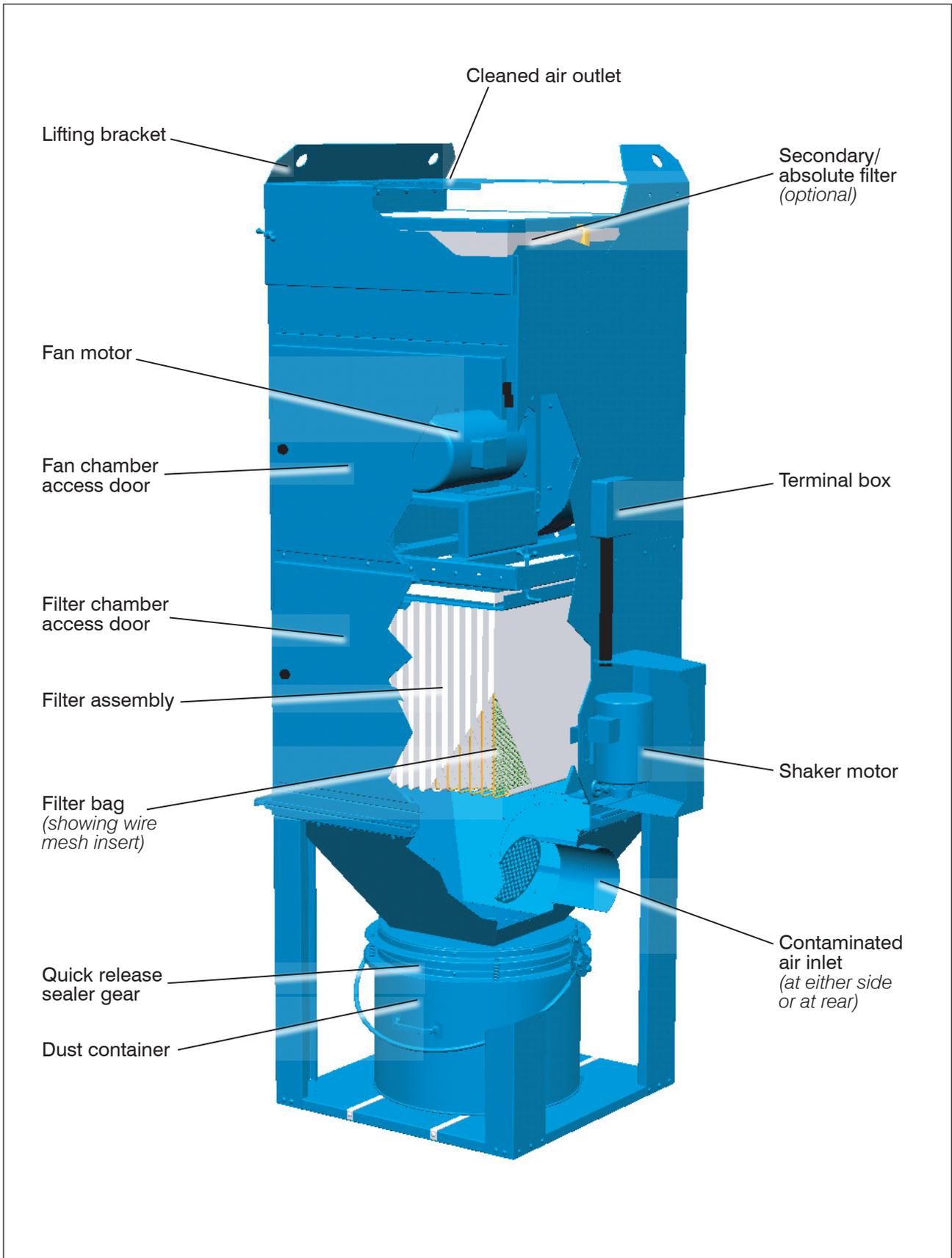


Figure 1 Unimaster dust collector. Model UMA 153 KV5 SF illustrated.
(For the complete series of models in the Unimaster range, refer to Publications 2723, 2724, 2725 and 2726)

INSTALLATION

 Where equipment is installed in a Potentially Explosive Atmosphere, care should be taken not to locate or use the collector where external ignition sources can be introduced, for example stray electric currents, lightning, electromagnetic waves, ionising radiation, ultrasonic waves.

 When handling explosive or flammable materials and the risk of a fire is high, then precautions such as fitting a sprinkler system and not locating the collector in a zone 21/1 area should be considered.

 When handling explosive or flammable materials the collector should be located so as to avoid external heat sources, e.g. from nearby processes or extreme direct sunlight.

 Where applicable, care is required when siting the dust collector to ensure that the effects (flame, pressure, noise and fire) produced during and after the explosion venting process do not put at risk personnel and nearby plant.

 The collector is not designed to support site-installed ducts, interconnecting piping or electrical services. All ducts, piping or electrical services must be adequately supported.

 All external equipment connected to the dust collector should be correctly sealed. This can be achieved by applying a continuous 5 mm bead of sealing compound to the mounting surface, along each side of the hole pattern. For non-Donaldson equipment please also check supplier's IOM manual for any specific requirements.

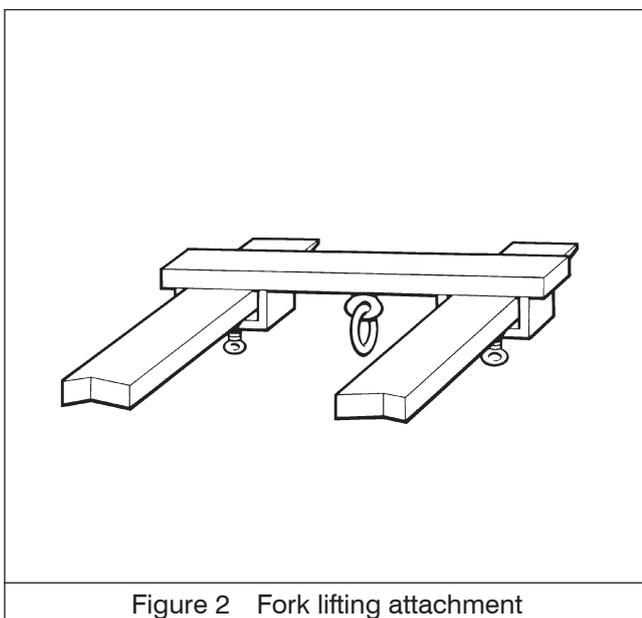


Figure 2 Fork lifting attachment

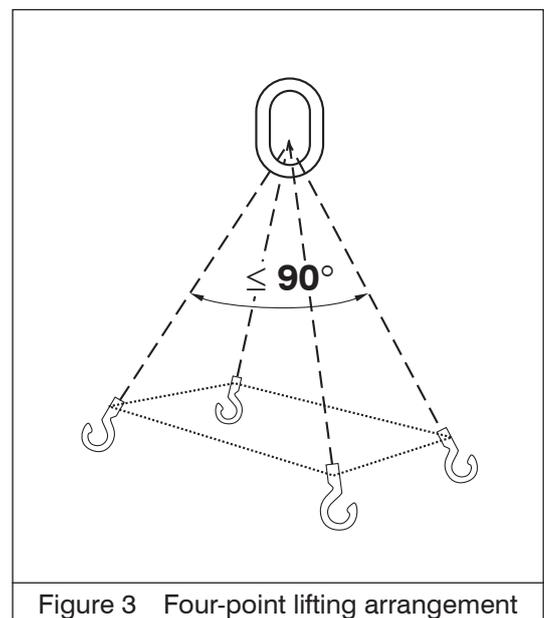


Figure 3 Four-point lifting arrangement

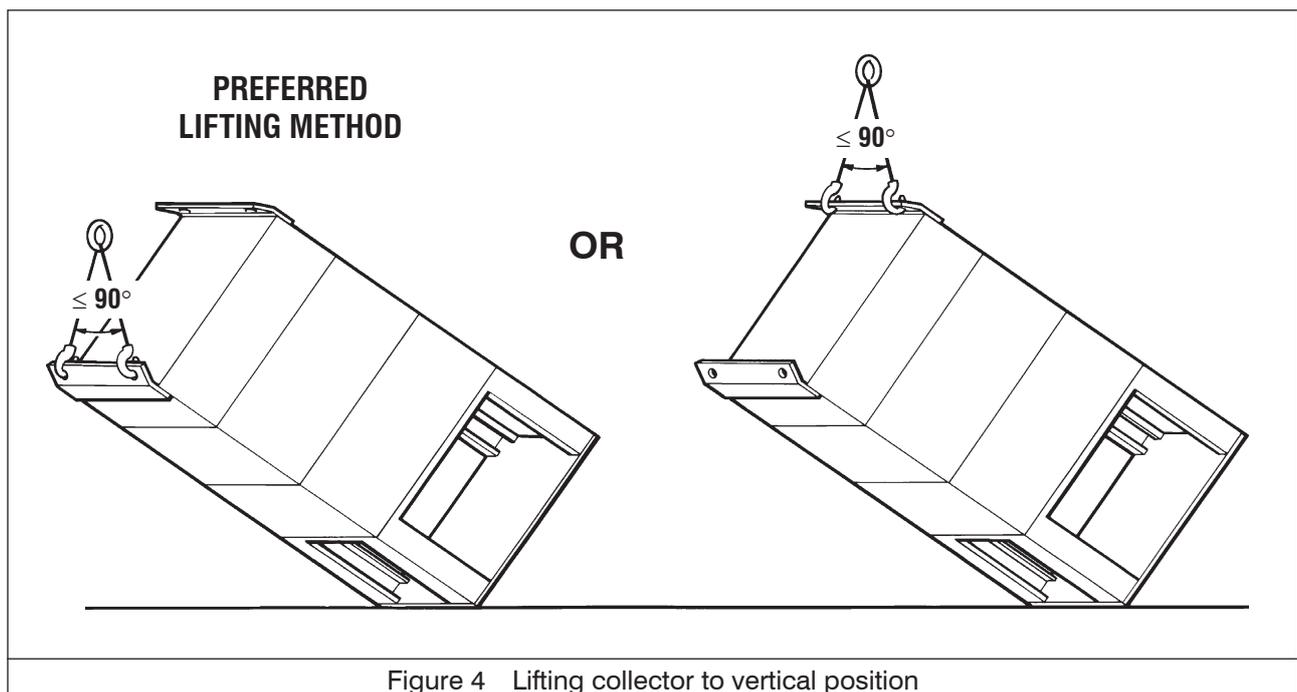
INSTALLATION

All collectors are delivered to site either upright or laid on their side, in one piece or in a number of pieces depending on their configuration.

Lifting brackets are provided on all collectors except the UMA 40 and 40MM. They are also fitted to the UMA 100 to 750 bottom assemblies when supplied separate to the main filter case. Where headroom is restricted, a fork lifting option is available on all collectors except for the UMA 750V. The UMA 750 fan type collectors have a lifting beam within the fan chamber, while the smaller collectors are lifted from underneath the seal frame after filter assembly removal.

General guidance to lifting

-  *During all lifting operations a crane or fork lift with an adequate SWL (safe working load) must be used. (Refer to lifting labels located adjacent to lifting fixture for weight of equipment supplied by Donaldson).*
-  *It may be necessary to guide the collector during lifting to prevent excessive swing.*
-  *If a fork lift is used to lift the collector using the lifting brackets, a suitable lifting attachment must be used to prevent the chains slipping off the forks (see fig. 2).*
-  *If chains or slings are used they must have an adequate SWL (safe working load). (Refer to lifting labels located adjacent to lifting brackets for weight of equipment supplied by Donaldson).*



INSTALLATION

Lifting collector to vertical position

UMA 70 to 450 collectors:

A two-point lifting method should be used to lift the collector from the horizontal to the vertical position. The lifting points are located on top of the collector at the sides.



The collector must be lifted as shown in figure 4 following the general guidance to lifting.

Four-point lifting method

The four-point lifting method can be used for all collectors except the UMA 40 and UMA 40MM.

The lifting points are located on top of the collector in all cases except for the UMA V when fitted with a side outlet box (in this case the lifting points for the collector are located within the outlet box and are accessed by removing the top access door).



The collector must be lifted as shown in figure 3, following the general guidance to lifting. Chains must be long enough to ensure that the included angle between diagonal chains is not greater than 90°.

Fork lifting method

UMA 40 to 450 collectors:

Remove filter assembly as described in the 'Maintenance' section. If the collector is fitted with a static earthing arrangement, the earthing bar attached to the seal frame will also need removing.

The collector can now be lifted by positioning the forks underneath the seal frame.



Care should be taken not to damage the seal frame rubber seal and the back of the collector.



The forks used should be long enough to reach the back of the collector and set as wide as possible. On UMA 40-250 collectors, the forks should be positioned centrally across the front. On UMA 450 collectors, the forks should be positioned as shown in figure 5. The collector must be lifted following the general guidance to lifting.



When replacing earthing bar, ensure earthing strap is reconnected (collectors fitted with static earthing arrangement).

INSTALLATION

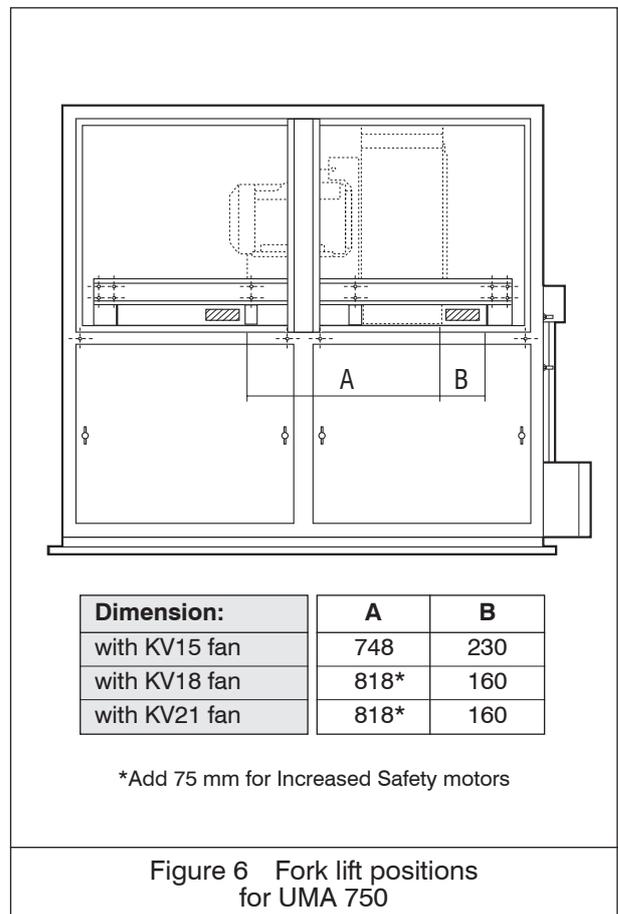
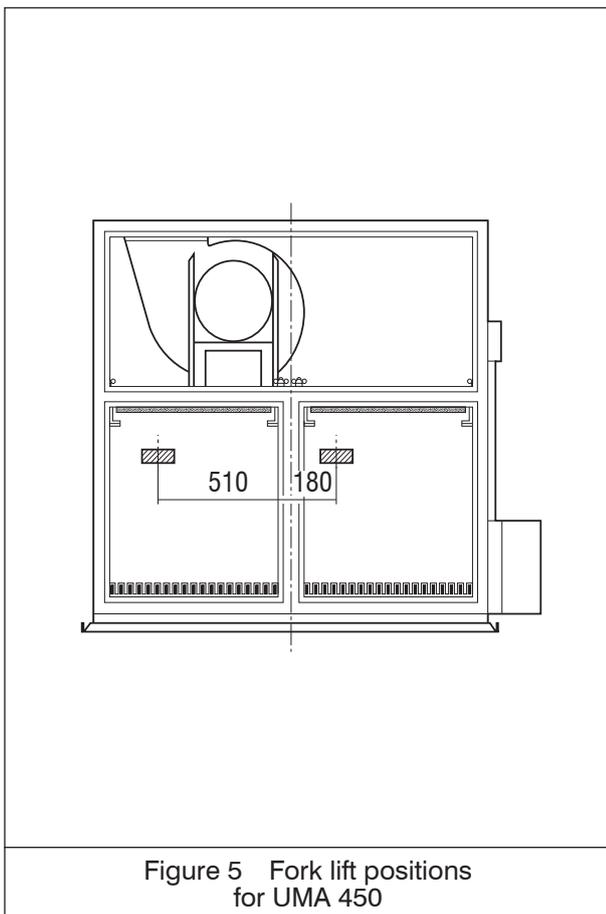
*UMA 750 collectors:
(fan type only – the venting type has no fork lifting facility)*

Remove the mattress support frame from its storage position inside the fan chamber.

The collector can now be lifted by positioning the forks underneath the lifting beams.

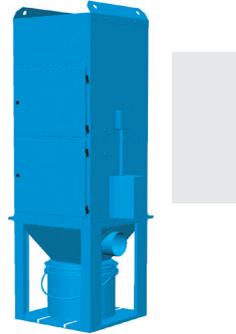


The forks should be positioned as shown in figure 6. The collector must be lifted following the general guidance to lifting.



INSTALLATION

Unimaster standard dust collectors with dust container



UMA 40, UMA 40MM and UMA 72

These collectors are supplied fully assembled.

For UMA 40 and 40MM collectors, lift into position using the fork lifting method.

For UMA 72 collectors, lift into position using either the four-point lifting method or the fork lifting method.

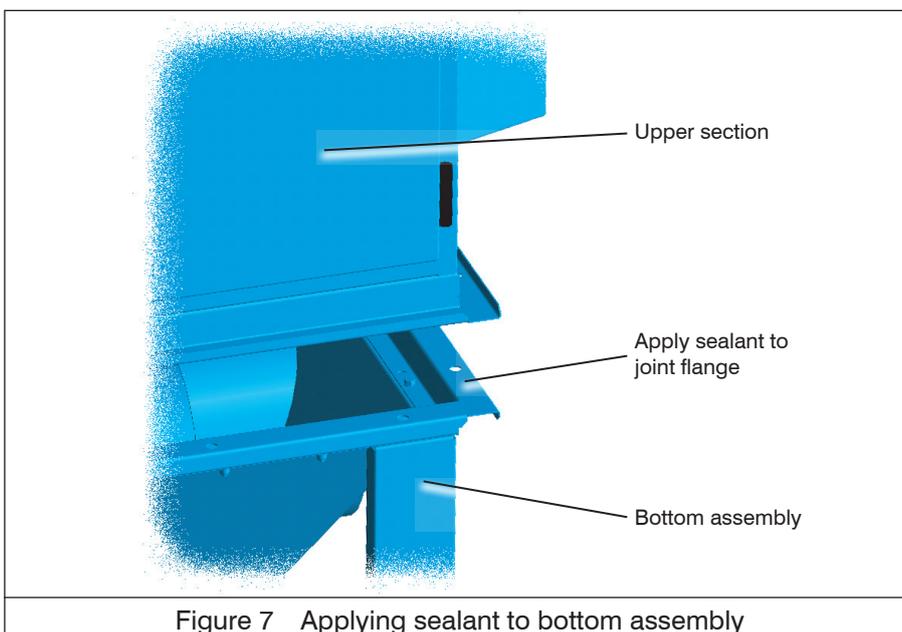


If the contaminated air inlet requires repositioning, make sure sealant is used when repositioning the inlet blanking plate, in order to ensure an effective seal.

UMA 103, UMA 153, UMA 253 and UMA 456

These collectors are supplied in two sections.

- 1 Using the four-point lifting method, lift the bottom assembly into position using the lifting brackets provided.
- 2 Using spirit levels, line up the bottom assembly both horizontally and vertically, using shims under legs where required.
- 3 Remove lifting brackets from the joint flange.



INSTALLATION

- 4 Using the sealant provided, apply two beads of sealant to the bottom assembly joint flange, one each side of the fixing holes (see fig. 7).
- 5 Lift the combined fan and filter section, using either the four-point lifting method or the fork lifting method, onto the bottom assembly.
- 6 Secure the two sections with the nuts and bolts provided and remove excess sealant.



When the collector is fitted with an explosion relief assembly, an earthing connection must be made between the bottom assembly and the upper section using the earthing strap provided (see fig. 8).



If the contaminated air inlet requires repositioning, make sure sealant is used when repositioning the inlet blanking plate, in order to ensure an effective seal.

UMA 756

These collectors are supplied in two sections.

- 1 Using the four-point lifting method, lift the bottom assembly into position using the lifting brackets provided.
- 2 Using plumb lines and spirit levels, line up the bottom assembly both horizontally and vertically, using shims under legs where required.
- 3 Drill through base holes and insert and tighten suitable expandable bolts (if required, details of foundation fixing positions are provided in datasheet of UMA 750).
- 4 Remove lifting brackets from the joint flange.
- 5 Using the sealant provided, apply two beads of sealant to the bottom assembly joint flange, one each side of the fixing holes (see fig. 7).
- 6 Lift the combined fan and filter section, using either the four-point lifting method or the fork lifting method, onto the bottom assembly.
- 7 Secure the two sections with the nuts and bolts provided and remove excess sealant.



When the collector is fitted with an explosion relief assembly, an earthing connection must be made between the bottom assembly and the upper section using the earthing strap provided (see fig. 8).



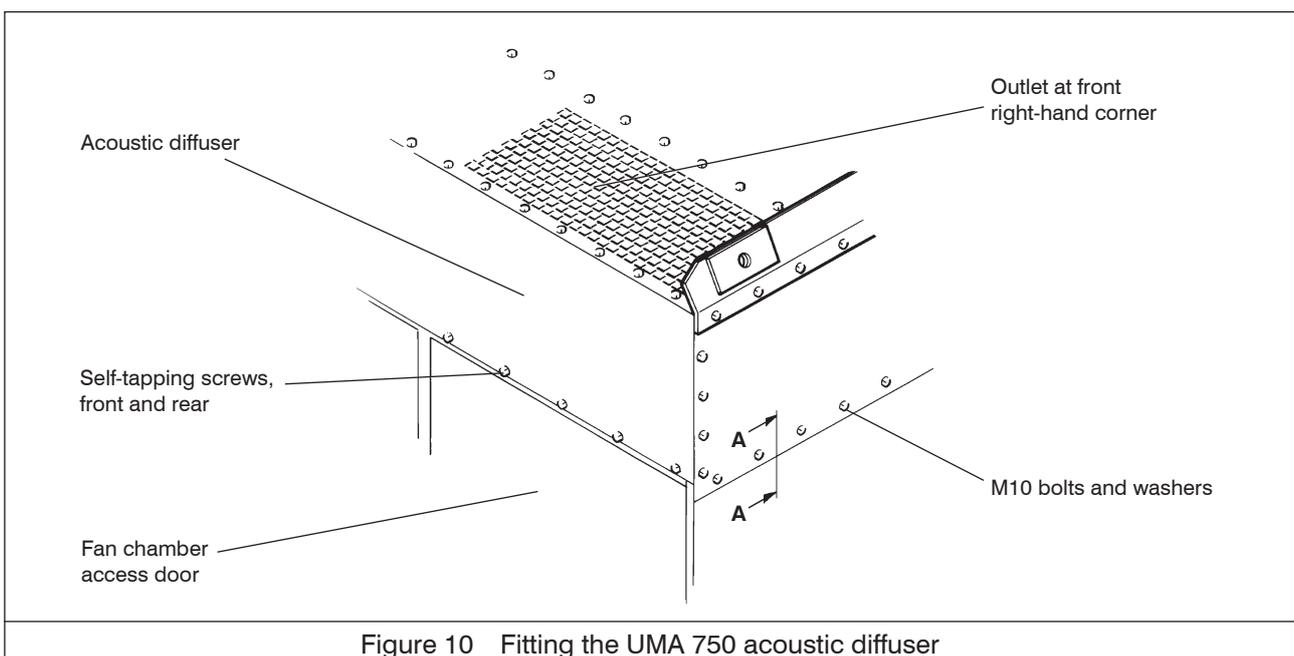
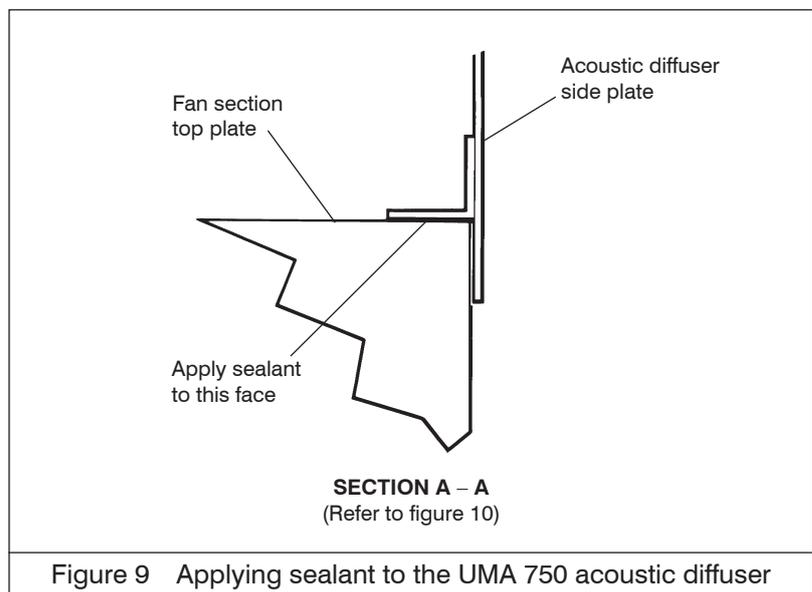
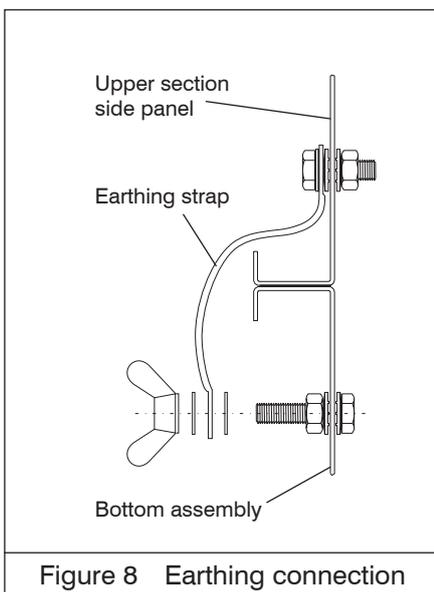
If the contaminated air inlet requires repositioning, make sure sealant is used when repositioning the inlet blanking plate, in order to ensure an effective seal.

When the UMA 756 is supplied with the optional secondary or absolute filter, the acoustic diffuser is supplied separately and should be assembled as follows:

- 1 Remove lifting brackets from the combined fan and filter section.
- 2 With the aid of a colleague, lift the acoustic diffuser onto its back, taking care not to damage the paintwork.

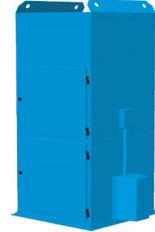
INSTALLATION

- 3 Using the sealant supplied in the fixing pack, seal all around the underside of the seating flange (see fig. 9).
- 4 Lay the acoustic diffuser down so that the lifting brackets are uppermost.
- 5 Using the four-point lifting method, lift the acoustic diffuser into position on top of the fan section, so that the diffuser outlet is at the front, right-hand corner of the top plate (see fig. 10).
- 6 The acoustic diffuser can now be fixed in position using M10 bolts and washers at the sides, and self-tapping screws at the front and rear.



INSTALLATION

Unimaster hopper type dust collectors



UMA 40H, UMA 40MM H, UMA 70H, UMA 100H, UMA 150H, UMA 250H, UMA 450H and UMA 750H

These collectors are supplied fully assembled.



When the collector is fitted with an explosion relief assembly, the explosion relief area is suitable for the collector volume only. Additional protection may be required when mounting onto other vessels.

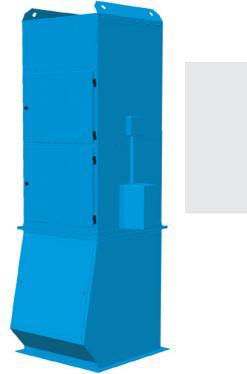
- 1 Using the sealant provided, apply two beads of sealant to the site seating flange, one each side of the fixing holes, as shown in figure 11 (if required, details of mounting flange fixing positions are provided in datasheet of UMA 40,UMA 70-250,UMA450 and UMA 750).
- 2 For UMA 40 and 40MM collectors, lift the collector using the fork lifting method, onto the site seating flange.
For UMA 70-750 collectors, lift the collector using either the four-point lifting method or the fork lifting method, onto the site seating flange.
- 3 Secure the joint with fixings to suit the application and remove excess sealant.

When the UMA 750H is supplied with the optional secondary or absolute filter, the acoustic diffuser is supplied separately and should be assembled as follows:

- 1 Remove lifting brackets from the collector.
- 2 With the aid of a colleague, lift the acoustic diffuser onto its back, taking care not to damage the paintwork.
- 3 Using the sealant supplied in the fixing pack, seal all around the underside of the seating flange (see fig. 9).
- 4 Lay the acoustic diffuser down so that the lifting brackets are uppermost.
- 5 Using the four-point lifting method, lift the acoustic diffuser into position on top of the fan section, so that the diffuser outlet is at the front, right-hand corner of the top plate (see fig. 10).
- 6 The acoustic diffuser can now be fixed in position using M10 bolts and washers at the sides, and self-tapping screws at the front and rear.

INSTALLATION

Unimaster sack tipping units



UMA 100STU, UMA 150STU and UMA 250STU

These collectors are supplied in two sections.



When the collector is fitted with an explosion relief assembly, the explosion relief area is suitable for the collector volume only. Additional protection may be required when mounting onto other vessels.

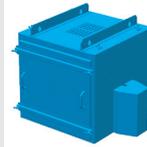
- 1 Using the sealant provided, apply two beads of sealant to the site seating flange, one each side of the fixing holes, as shown in figure 11 (if required, details of mounting flange fixing positions are provided in datasheet of UMA 70-250).
- 2 Using the four-point lifting method, lift the bottom assembly using the lifting brackets provided, onto the site seating flange.
- 3 Secure the joint with fixings to suit the application and remove excess sealant.
- 4 Apply two beads of sealant to the top joint flange of the assembly, one each side of the fixing holes.
- 5 Lift the combined fan and filter section, using either the four-point lifting method or the fork lifting method, onto the bottom assembly.
- 6 Secure the two sections with the nuts and bolts provided and remove excess sealant.



When the collector is fitted with an explosion relief assembly, an earthing connection must be made between the bottom assembly and the upper section using the earthing strap provided (see fig. 8).

INSTALLATION

Unimaster venting type dust collectors



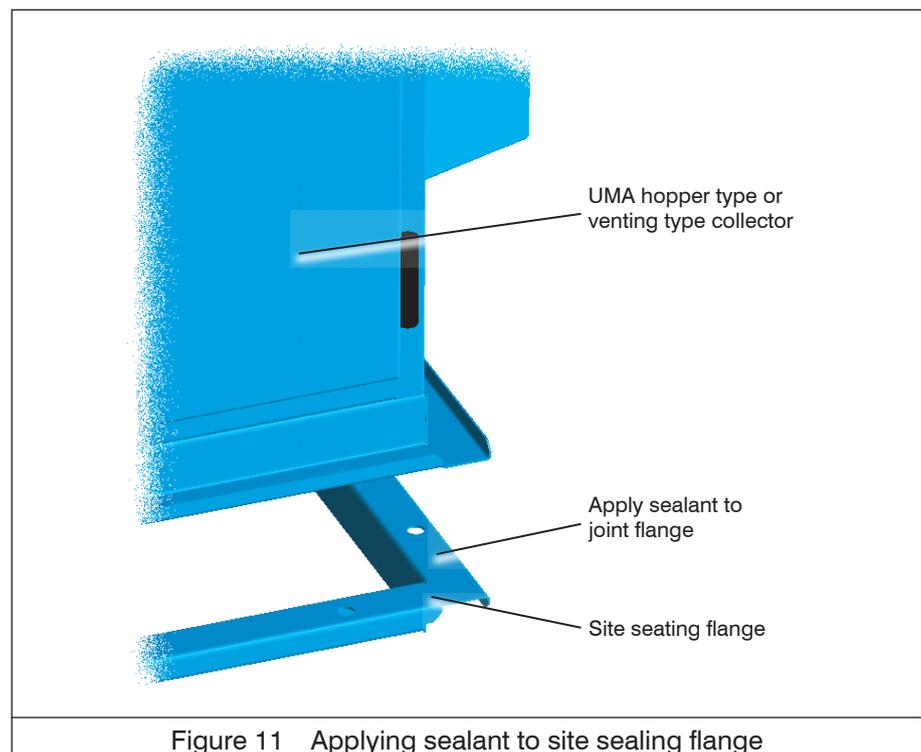
UMA 70V, UMA 100V, UMA 150V, UMA 250V, UMA 450V and UMA 750V

These collectors are supplied fully assembled.



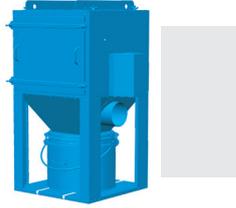
When the collector is fitted with an explosion relief assembly, the explosion relief area is suitable for the collector volume only. Additional protection may be required when mounting onto other vessels.

- 1 Using the sealant provided, apply two beads of sealant to the site seating flange, one each side of the fixing holes, as shown in figure 11 (if required, details of mounting flange fixing positions are provided in datasheet of UMA 40,UMA 70-250,UMA450 and UMA 750).
- 2 Lift the collector using either the four-point lifting method or the fork lifting method, onto the site seating flange.
- 3 Secure the joint with fixings to suit the application and remove excess sealant.



INSTALLATION

Unimaster venting type dust collectors with dust container



UMA 72V, UMA 103V, UMA 153V, UMA 253V and UMA 456V

These collectors are supplied fully assembled.

Lift collector into position using the four-point lifting method or the fork lifting method.



If the contaminated air inlet requires repositioning, make sure sealant is used when repositioning the inlet blanking plate, in order to ensure an effective seal.

UMA 756V

These collectors are supplied in two sections.

- 1 Using the four-point lifting method, lift the bottom assembly into position using the lifting brackets provided.
- 2 Using plumb lines and spirit levels, line up the bottom assembly both horizontally and vertically, using shims under legs where required.
- 3 Drill through base holes and insert and tighten suitable expandable bolts (if required, details of foundation fixing positions are provided in datasheet of UMA 750).
- 4 Remove lifting brackets from the joint flange.
- 5 Using the sealant provided, apply two beads of sealant to the bottom assembly joint flange, one each side of the fixing holes (see fig. 7).
- 6 Lift the filter section, using the four-point lifting method, onto the bottom assembly.
- 7 Secure the two sections with the nuts and bolts provided and remove excess sealant.



When the collector is fitted with an explosion relief assembly, an earthing connection must be made between the bottom assembly and the upper section using the earthing strap provided (see fig. 8).



If the contaminated air inlet requires repositioning, make sure sealant is used when repositioning the inlet blanking plate, in order to ensure an effective seal.

INSTALLATION

Controller



It is a requirement of the Supply of Machinery (Safety) Regulations 1992 to provide adequate isolation and emergency stop facilities. Due to the varied nature of site installations this cannot be provided by Donaldson but instead is the responsibility of the customer.



Always isolate power before opening the controller.



The controller must not be mounted on the side of the collector.

Each Unimaster dust collector can be supplied with a controller, which is designed to operate the fan and/or shaker in the correct sequence, to ensure that effective cleaning of the filter fabric is achieved.

The controller contains either a direct-on-line or star/delta fan starter, dependant on fan size, and a direct-on-line shaker starter. Star/delta versions are standard for the UMA 750.

Controllers for venting type collectors, contain a shaker starter only.



For controller connections and set-up, refer to Publication IOM AK0303001.



Details of standard fan motor supply voltage are given in Table 6 (refer to 'Specification' section).

Unimaster optional extras

Castor bases

UMA 40 and 40MM collectors are supplied with the castor base fitted.

UMA 70-250 collectors should be lifted into the castor frame using either the four-point lifting method or the fork lifting method. No additional fixing is required.

Pressure balance pipe

When this option is fitted, the dust container may be lined with a polythene bag which can be closed and sealed before lifting out of the container to assist in the safe removal of toxic or noxious dusts. The containers supplied for this purpose are fitted with a detachable pressure balance pipe to prevent the bag from being drawn up into the collector.

To assemble the pressure balance pipe, the following procedure should be used:

- 1 Slide the pressure balance pipe over the pipe connection on the dust container and secure with the hose clip provided.
- 2 Slide the other end of the pressure balance pipe over the bin balance spigot assembly on the side of the collector and secure with the hose clip provided.

INSTALLATION

Secondary or absolute filter monitor

The optional secondary or absolute filter monitor is supplied fitted to the collector.



For secondary or absolute filter monitor connections and set-up, refer to Publication 2920.

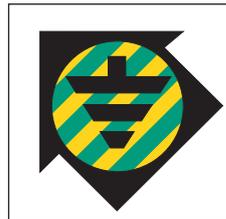
Weather bends and cowls

The weather bend, if required, is supplied as a separate piece for site assembly. It should be secured around the collector outlet with self tapping screws and sealed around the joint. On certain collectors the lifting brackets need to be removed to facilitate assembly.

Weather cowls on venting type collectors are factory fitted.

Antistatic earthing

It is particularly important on collectors having antistatic features and/or explosion relief, that the earthing boss (located adjacent to the symbol, shown opposite) is properly connected to earth, using the brass screw provided, to prevent any static build-up.



Explosion relief



Explosion panels, if fitted, must be relieved to a safe area in accordance with local relevant recommendations. The explosion relief area is suitable for the collector volume only. Fitment of the collector to larger vessels will require additional explosion protection to be fitted to the vessel. This protection should ensure that pressures developed during an explosion are lower than the collector strength. Consult Donaldson for specific collector design pressures. Refer to Table 1 for predicted flame lengths during an explosion.



Refer to Publication 2713 for explosion relief assembly installation.

**TABLE 1 – PREDICTED FLAME LENGTHS
(calculation based on VDI 3673)**

Type:	UMA 40	UMA 40MM	UMA 70	UMA 100	UMA 150	UMA 250	UMA 450	UMA 750
Flame length:	5.21 m	5.21 m	6.68 m	7.08 m	7.59 m	8.77 m	11.63 m	13.28 m

INSTALLATION

Installation check list

- Ensure all collector section joints made on site are secure and that UMA 750 collectors with dust container are securely bolted to the floor.
- If the filter assembly has been removed during installation, ensure it has been replaced and clamped correctly (check top frame is against sealing rubber, figs. 17 and 18).
- Ensure collectors fitted with antistatic filter bags and/or explosion relief are suitably earthed.

COMMISSIONING



It is a requirement of the Supply of Machinery (Safety) Regulations 1992 to provide adequate isolation and emergency stop facilities. Due to the varied nature of site installations this cannot be provided by Donaldson but instead is the responsibility of the customer.

Before putting the Unimaster dust collector into service the following items should be checked. Similar checks, as appropriate, should be made after any major overhaul.

Commissioning check list

- Ensure all collector section joints made on site are secure and that UMA 750 collectors with dust container are securely bolted to the floor.
- Ensure controller overloads are correctly set (refer to Publication IOM AK0303001).
- Ensure all ducting is complete, all detachable panels are in position and fixed guards are secure.
- If the filter assembly has been removed during installation, ensure it has been replaced and clamped correctly (check top frame is against sealing rubber, figs. 17 and 18).
- Ensure collectors fitted with antistatic filter bags and/or explosion relief are suitably earthed and the earthing straps between assembled sections are connected.
- Where fitted, ensure explosion relief panels vent to a safe area.
- Ensure door seals are intact, then close and secure the doors.
- Check sealer gear seal, then replace bin and close sealer gear.
- Ensure electrical power is available.
- Check fan motor for correct rotation (refer to fan rotation label located on the fan case).
- Verify operation of the interlocks, and visual or audible warning systems fitted.

If any of the above check boxes are not ticked, then the reasons why should be investigated. (Refer to fault location table in 'Maintenance' section).

COMMISSIONING

Start-up sequence



Refer to Controller manual, Publication IOM AK0303001, for further details.

All collectors except venting type

The collector is started by depressing the 'start' button on the controller; the fan will then run.

Venting type collectors

There is no start function for a venting type collector as the air flow is generated by external sources.

Shut-down sequence



Refer to Controller manual, Publication IOM AK0303001, for further details.

All collectors except venting type

The collector shut down sequence is initiated by depressing the 'clean' button on the controller. This will stop the fan and allow a time delay for fan run down. The cleaning cycle will then operate automatically and, when finished, the collector is off and ready for restarting.

Venting type collectors

There is no shut down operation for a venting type collector; however it should be cleaned at regular intervals by depressing the 'clean' button on the controller.



Still air conditions must exist inside the venting type collector for effective cleaning.

OPERATION

Unimaster standard collectors with dust container and Unimaster hopper type collectors

Contaminated air from the dust generation source is drawn through the inlet to the collector by the fan. Initially some pre-separation takes place as heavier dust particles lose momentum and fall into the dust container or hopper. Finer dusts are carried up to the filter elements where they are retained on the outer surface of the filter fabric. The cleaned air is then passed through the filter fabric into the fan chamber and discharged. When the fan is switched off the filter fabric cleaning cycle is automatically activated. The collected dust is then dislodged from the filter elements and falls into the dust container or hopper below. On most applications the optimum interval between cleaning cycles is four hours.

Unimaster sack tipping units

When the quick-release sack tipping door is removed from the hopper, the unit fan can be switched on. Air is entrained through the hatch preventing dust escaping while sacks are being emptied. Airborne dust is carried up and retained on the filter fabric. On completion of the sack tipping, the fan may then be switched off and the door replaced. The cleaning cycle mechanism will then automatically be activated – depositing the collected dust directly into a hopper chute or conveyor beneath. Units fitted with explosion relief are fitted with a swing door that does not require removal.

Unimaster venting type collectors

Venting type collectors usually operate above atmospheric pressure. No fan is supplied as the air flow is provided by the blower or fan associated with the system. The product laden air should enter the receiving vessel in a way that allows pre-separation of the bulk product from the conveying air before it reaches the filter. Dust is collected on the filter fabric as previously described. On completion of the delivery operation, the blower or fan must be allowed to run down before the cleaning mechanism is operated. Collected dust is deposited directly into the silo or, on venting type collectors with dust container, the dust will be deposited in the collection facility for disposal later.

Cleaning

Approximately every four hours or when operating pressure drop reaches 100-150 mm WG, depending on dust type and volume, the filter assembly should be cleaned.

On all collectors, fans or blowers should be allowed to run down before cleaning mechanism operation, otherwise dust penetration of the filter media can occur, reducing media service life. The Donaldson controllers for all collectors except venting type, have an automatic time delay after the cleaning cycle has been initiated. The controllers on venting type collectors do not have this facility due to

OPERATION

their functional requirements. It is therefore the customer's responsibility to ensure that sufficient time is allowed for the air flow to have ceased before cleaning is initiated, fitting interlocks if necessary.

Before restarting the collector, the dust container, if fitted, should be checked for dust quantity and emptied if necessary.



Refer to Controller manual, Publication IOM AK0303001, for further details.

Dust disposal



For safe handling of the dust container an assessment must be made to satisfy the requirements of the European Directive 90/269/EEC on manual handling.



Dust containers may require regular emptying. If the dust being handled is explosive, then care should be taken to ensure that dust spillage is kept to a minimum to avoid the creation of potentially explosive atmospheres and secondary hazards.

Dust containers should be securely replaced and resealed prior to collector restart. This is a good time to check the dust container for damage, which may lead to a dust leak or flame emission in the rare instance of an internal explosion.

Dust container:

- 1 On UMA 40 and 40MM collectors, release the dust container by undoing the two toggle fasteners located at the sides of the container and slide it out. On all other collectors, release the container by raising the sealer gear handle.
- 2 Remove and empty the container.
- 3 Replace container by sliding it back to the locating stops.
- 4 On UMA 40 and 40MM collectors, reseal the container by fastening the toggle clips. On all other collectors, lower the sealer gear handle.

Dust container with pressure balance:

- 1 On UMA 40 and 40MM collectors, release the dust container by undoing the two toggle fasteners located at the sides of the container and slide it out. On all other collectors, release the container by raising the sealer gear handle and slide the container out.
- 2 The polythene bag liner can be sealed in a manner to suit the toxicity of the dust and then removed.
- 3 Fit a new polythene bag into the dust container and slide the container back to the locating stops.
- 4 On UMA 40 and 40MM collectors, reseal the container by fastening the toggle clips. On all other collectors, lower the sealer gear handle.

MAINTENANCE



A platform should be used when carrying out maintenance where the position of the technician's feet is greater or equal to 2 metres above ground level.



Before any work is carried out, ensure the equipment is adequately isolated and safe.



For ancillary equipment not manufactured by Donaldson, refer to manufacturer's instructions.



If it is unavoidable to work on the equipment while a potentially explosive atmosphere is present, care should be taken to avoid introducing ignition sources not present during expected operation. Non-sparking tools should be used.



Access to the dirty air chamber of the equipment may create risks and hazards that under normal circumstances are not present and as such this work must be carried out by competent personnel. These risks include inhalation of dust and potential explosion hazards. Appropriate personal protection equipment (PPE) should be used, e.g. dust mask, safety hat, gloves etc.



In order to maintain the original collector specification and to ensure the same level of safety, only genuine spare parts should be fitted.



Every care has been taken to avoid the risk of ignition of a flammable atmosphere. The measures taken to avoid ignition should not be altered since this may result in unsafe operation. Particular care should be taken during maintenance and component replacement to ensure the same level of safety is maintained. When replacing fan impellers, avoid any rubbing of components (to prevent mechanical sparks).



Care should be taken during cleaning and maintenance to avoid creating static discharges that have the potential to ignite a flammable atmosphere.



When carrying out maintenance always follow typical best practice to local regulations .

Routine inspection

To maintain the optimum performance of any Unimaster dust collector, a routine inspection should be made to minimise down-time in the event of equipment malfunction and to ensure the equipment is maintained to its original supply condition.

Any abnormal change in pressure differential across the filter assembly indicates a change in operating conditions and a fault to be rectified. For example, a fault in the cleaning mechanism will cause an excessive build-up of dust on the filter bags, resulting in a greatly increased pressure drop.

MAINTENANCE

Filter resistance can be checked by connecting a U-tube manometer or differential-type pressure gauge to tapping points (if fitted) on the unit casing. This will give a continuous indication of the state of the filter. Normally a resistance of 75 to 125 mm WG may be expected for all collectors except the UMA 750, depending on the air volume and the characteristics of dust being handled, increasing slightly until the collector is cleaned. For UMA 750 collectors, a resistance of 125 to 175 mm WG may be expected.

The secondary or absolute filter monitor, if fitted, will provide a constant indication of the state of the secondary or absolute filter element.

It is recommended to periodically inspect the general casing integrity.

It is recommended that door fastener threads are lubricated at regular intervals (applicable to collectors fitted with explosion relief).



Ignition minimising fans are fitted with a lining inside the casing. As this may only offer protection for a limited period, any upset condition leading to rubbing, the fan must be switched off immediately and the condition corrected.

Servicing schedule

A record of all pressure checks should be kept in a log book to aid the speedy diagnosis of faulty operation.

Weekly

Measure the pressure drop across the filter assembly (use tapping points, if fitted). Record the figure in the log book. If the pressure drop increases significantly over two or three successive checks, e.g. 50% (a variation of up to 10% is permissible) check the filter as described in Table 3.

If the collector is fitted with a secondary or absolute filter, then the pressure drop across this filter should also be checked if a filter monitor is not fitted. The filter should be changed when the pressure drop reaches 100 mm W.G.



Unimaster collectors fitted with an explosion relief assembly should be inspected weekly to ensure the bursting panels are intact and clear of obstruction. During winter, particular care must be taken to prevent build-up of snow or ice on explosion panels.

Six-monthly

The fan impellor has been dynamically balanced and the fan assembly vibration level should be in line with category BV-3, ISO 14694. An assessment of vibration should be made every six months, or after a significant emission, or after any misuse and a record kept of measured values. Excessive vibration levels should be investigated and corrected immediately.



Vibration monitoring is mandatory on category 2G, 3G and 2D fan assemblies.

MAINTENANCE

Every 1000 working hours the following parts should be checked:

- 1 Filter bag – for wear.
- 2 Rubber seals – for tears and over-compression.
- 3 Shaker mechanism (see fig. 12) with particular attention to:
 - tightness of mounting bolts.
 - play in eccentric.
 - splits in diaphragm.
 - broken locators on shaker bar.
 - torn shaker bar support strap(s).
 - eccentric bearing: check for lubrication; any absence may lead to excessive heat being generated during operation.

Any defective parts should be replaced.

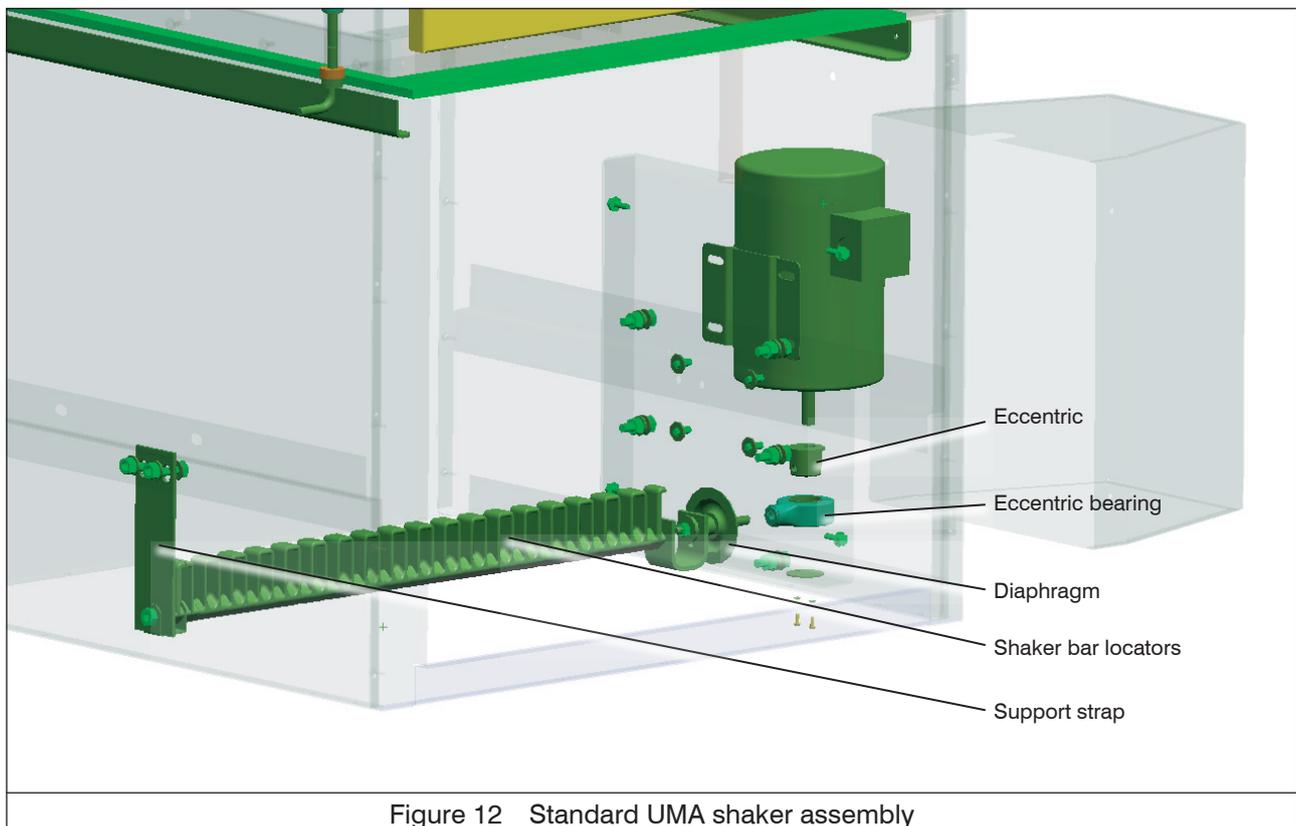
Annually

- 1 Flameproof maintenance – It is important that all flameproof enclosures, motors and cable glands are inspected for corrosion and tightness on an annual basis.



In particularly aggressive environments, this period should be more frequent.

- 2 Antistatic earthing (if fitted) – Check collector earthing continuity.



MAINTENANCE

- 3 Explosion risks – Check measures taken to avoid ignition sources are still in place.
- 4 Fan maintenance – Inspect the fan thoroughly. This is achieved on UMA 40 collectors by removing acoustic diffuser, if necessary, and looking through cleaned air outlet; on UMA 40MM collectors by unbolting and removing fan power pack and inspecting; on all other collectors by unbolting and rotating fan assembly and looking through fan inlet eye.

If necessary, remove all residual dust accumulation. (Although the fan is located on the clean side of the collector, it is possible for low quantities of dust to migrate through the filter media).



The fan should be inspected immediately after any period of significant dust emission, i.e. due to damaged filter media or seal etc.



The fan should be inspected immediately if there is any unexpected noise, temperature or vibration.



The fan should be inspected every twelve months or immediately following any misuse.



If inspection reveals any damage then the fan must not be put back into service until properly repaired or replaced.

Three-yearly

Lubrication – Under normal operating conditions the UMA 40MM power unit will operate for 6,000 hours (or approximately three years at 40 hours per week) without attention. After this period the fan bearings should be re-packed with Shell Alvania ET3 grease (or equivalent) to ensure reliability.



The motor bearings are sealed and therefore do not require lubrication.

UMA 40MM

Filter assembly removal

- 1 Isolate electrical supply and remove filter chamber access door.
- 2 To gain access to the four wing nuts securing the filter assembly, which are located in the fan chamber, remove the cleaned air outlet cowl or, where fitted, the absolute filter.
- 3 Fully slacken the wing nuts and withdraw the filter assembly horizontally through the front of the collector.

(Filter bag assembly renewal)

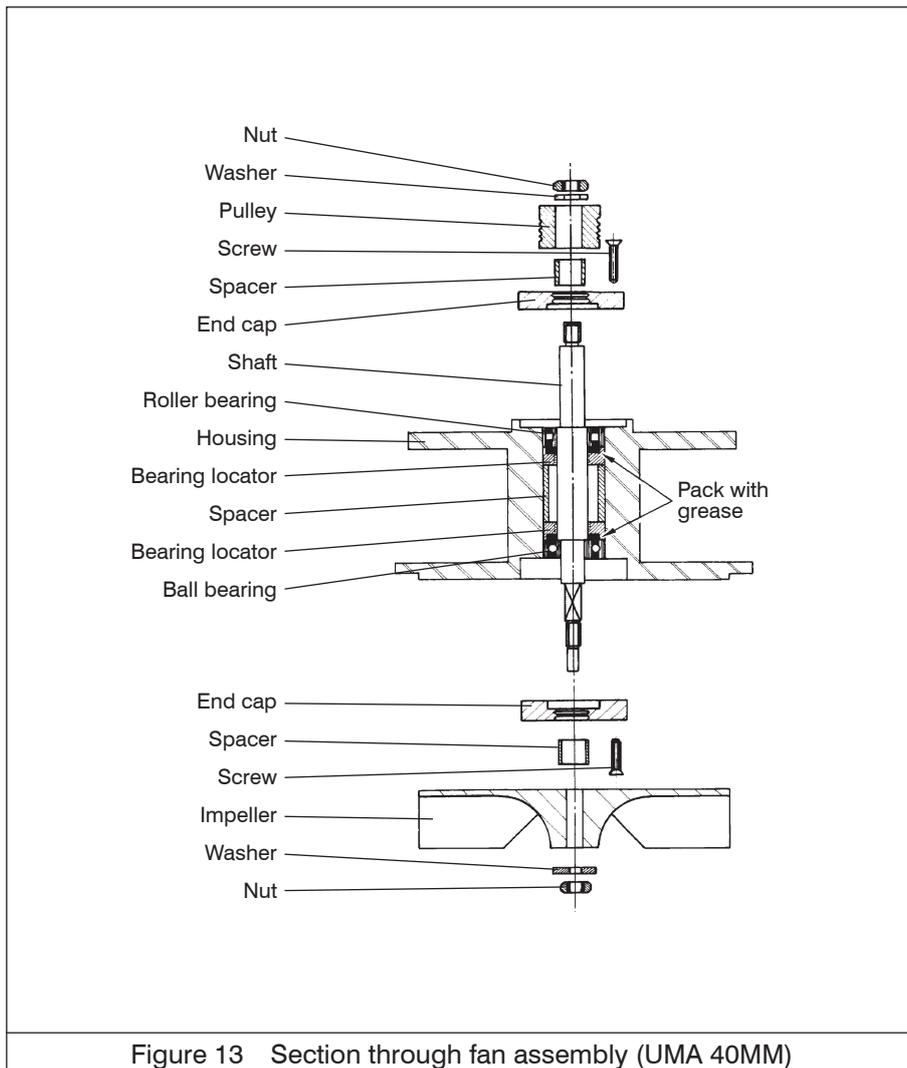
- 4 Remove wire mesh insert frames from individual filter bags. These should be checked for broken mesh and worn material edgings, especially around the area of any filter bag damage.
- 5 Detach filter bag assembly from supporting frame.

MAINTENANCE

- 6 Fit new filter bag assembly into supporting frame, feeding individual filter bags between locating bars, and fold collar over peripheral sealing flange.
- 7 Prior to fitting wire mesh inserts, any material edgings that need replacing should be fitted around the three edges of the insert that do not have the insert frame joint. The inserts should then be fitted, edging first, into the filter bags.

(Filter assembly replacement)

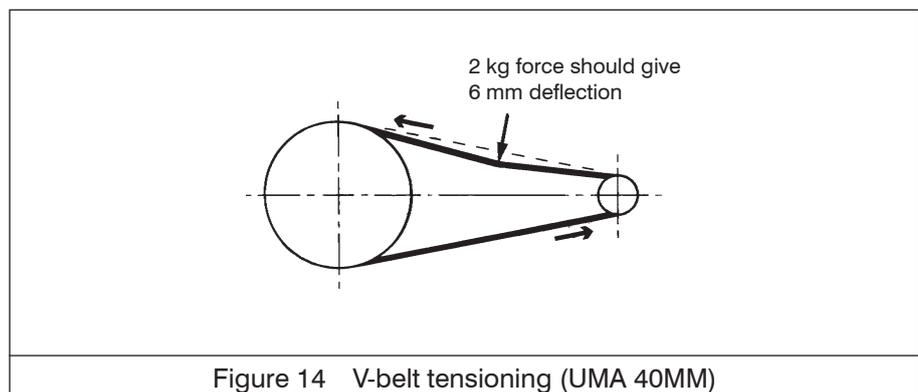
- 8 Slide filter assembly into the collector using the guides until the bottoms of the filter bags make contact with the shaker bar.
- 9 Locate individual filter bags in shaker bar.
- 10 Slide filter assembly fully home and tighten securing wing nuts to form an airtight seal. Check top frame is against sealing rubber (see fig. 17).
- 11 Replace access door and discharge cowl (or, if fitted, the absolute filter).
- 12 If in doubt regarding the safe disposal of the used filter bag assembly, consult your local regulations.



MAINTENANCE

Renewal of fan bearings (fig. 13)

- 1 Isolate electrical supply and remove fan chamber lid.
- 2 Disconnect electrical wiring to terminal box.
- 3 Remove the four bolts securing the motor drive bed-plate and withdraw the complete assembly from the unit case.
- 4 Loosen, but do not remove, the four socket screws in the base flange and withdraw drive cover.
- 5 Remove drive belt.
- 6 Remove the six nuts securing flange of bearing housing to the bed-plate and withdraw the housing.
- 7 Remove fan pulley and the six bolts securing the fan case.
- 8 Remove fan impeller and fan case.
- 9 Remove end caps and spacers from fan bearing housing.
- 10 Remove fan bearings.
- 11 Fit new bearings, ensuring that the fan end bearing is flush with bearing housing.
- 12 Flush out bearings with a degreasing solvent (a special high temperature grease is required as step '14').
- 13 When inside of bearings is dry, apply a small amount of light oil to the bearings and spin the shaft round.
- 14 Repack with Shell Alvania ET3 grease (or equivalent) as shown in figure 13.
- 15 Secure bearing end caps and reassemble all other items to shaft, tightening up securely.
- 16 Refit fan unit to bed-plate. (Air discharge towards motor).
- 17 Tension drive belt as shown in figure 14.
- 18 Replace drive cover and tighten four socket screws.
- 19 Reconnect electrical wiring to terminal box.
- 20 Recheck fan rotation (see fig. 14).



MAINTENANCE

V-belt drive tensioning

The Polyvee drive belt has been pre-stretched and tensioned during assembly but will require checking for correct tension after the first day of operation, when it will have fully seated into its grooves. Tension should be as shown in figure 14 and is adjustable by loosening (not removing) the four bolts securing the motor. Slot holes in the motor baseplate permit the necessary adjustment.



Incorrect tensioning can be harmful to the belt and also impair the operating efficiency of the dust collector itself.

UMA 40 to 450

Filter assembly removal

- 1 Isolate electrical controls and open fan and filter chamber access doors.
- 2 Fully slacken the four captive wing-nuts located in the fan chamber, on the top plate of venting type collectors or in the side outlet box.
- 3 With the aid of a colleague, withdraw the complete filter assembly through the front of the filter chamber.

(Filter bag assembly renewal)

- 4 Remove wire mesh insert frames from individual filter bags. These should be checked for broken mesh and worn material edgings, especially around the area of any filter bag damage.
- 5 Detach filter bag assembly from supporting frame.
- 6 Fit new filter bag assembly into supporting frame, feeding individual filter bags between locating bars, and fold collar over peripheral sealing flange.
- 7 Prior to fitting wire mesh inserts, any material edgings that need replacing should be fitted around the three edges of the insert that do not have the insert frame joint. The inserts should then be fitted, edging first, into the filter bags.

(Filter assembly replacement)

- 8 With the aid of a colleague, slide filter assembly into the guides until bottom corners of filter bags make contact with the shaker bar.
- 9 Locate individual filter bags in shaker bar.
- 10 Slide filter assembly fully home and tighten securing wing nuts to form an airtight seal. Check top frame is against sealing rubber (see fig. 17).
- 11 Close and fasten access doors.
- 12 If in doubt regarding the safe disposal of the used filter bag assembly, consult your Environmental Health Officer.

MAINTENANCE

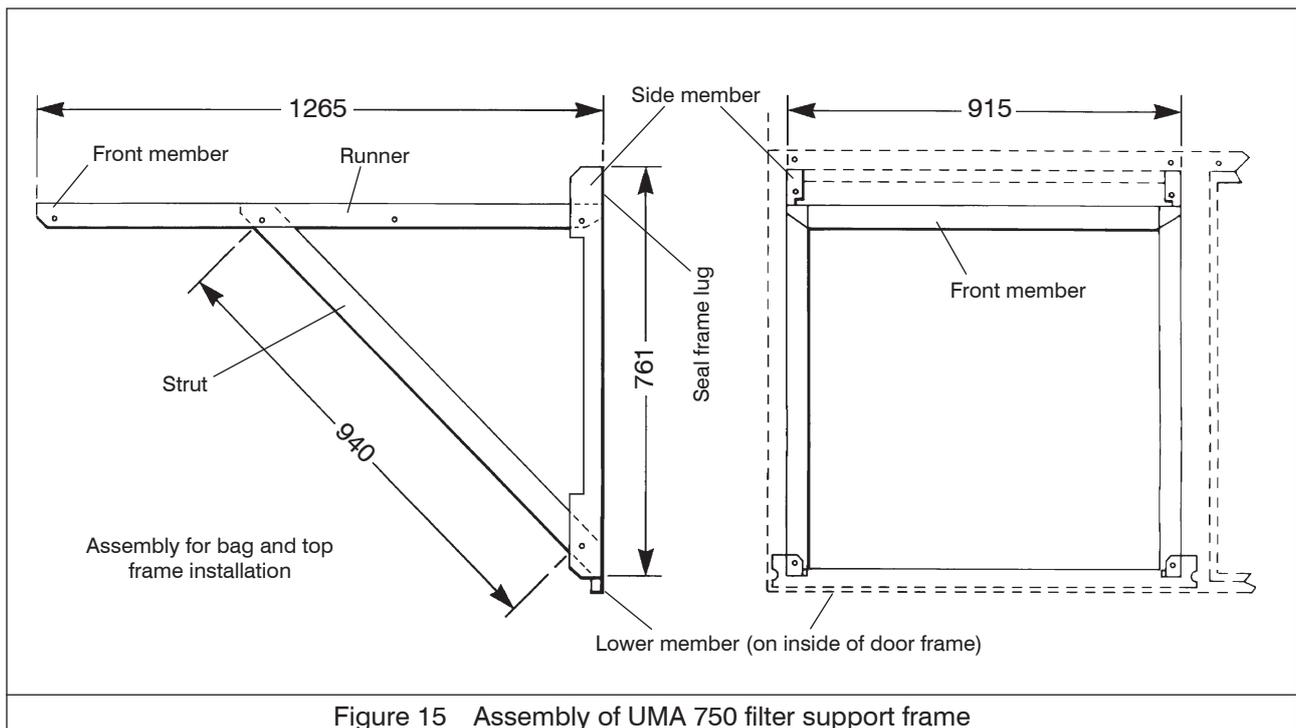
UMA 750

Filter bag assembly renewal



Due to the weight of the mattress assembly, it should not be removed without using the support frame provided.

- 1 Isolate electrical controls and open front access doors.
- 2 Remove the mattress support frame from its storage position in the fan chamber or on the top plate of venting type collectors, and assemble into door frame (see fig. 15).
- 3 Lower the mattress assembly using the extended nuts on the front of the door frame.
- 4 Slide the mattress assembly out of the collector onto the mattress support frame.
- 5 Remove wire mesh insert frames from individual filter bags. These should be checked for broken mesh and worn material edgings, especially around the area of any filter bag damage.
- 6 Detach filter bag assembly from supporting frame.
- 7 Fit new filter bag assembly into top frame, feeding individual filter bags between locating bars, and fold collar over peripheral sealing flange.
- 8 Prior to fitting wire mesh inserts, any material edgings that need replacing should be fitted around the three edges of the insert that do not have the insert frame joint. The inserts should then be fitted, edging first, into the filter bags.



MAINTENANCE

- 9 Slide filter assembly into the guides until bottom corners of filter bags make contact with the shaker bar.
- 10 Locate individual filter bags in shaker bar.
- 11 Slide filter assembly fully home and raise mattress assembly with extended nuts to form an airtight seal. Check top frame is against sealing rubber (see fig. 18).
- 12 Dismantle mattress support frame and replace in storage position.
- 13 Close and fasten access doors.
- 14 If in doubt regarding the safe disposal of the used filter bag assembly, consult your Environmental Health Officer.

Secondary or absolute filter replacement

- 1 Open secondary/absolute filter door.
- 2 UMA 40MM – Lift bar to release sealing mechanism.
UMA 100-450 – Undo clamping nuts or clips as appropriate and remove retaining mesh or frame.
UMA 750 – Undo clamping nuts sufficient to allow element removal.
- 3 Remove used element, place it directly into a plastic bag and then seal the bag.
- 4 Slide the new element into the housing, with the element seal against the secondary/absolute filter seal frame, until it reaches the backstop.
- 5 Clamp element in position using the arrangement provided.
- 6 Close secondary/absolute filter door.
- 7 If in doubt regarding the safe disposal of the used element, consult your Environmental Health Officer.

Fan assembly removal/replacement (UMA 70-750)



Isolate electrical power supply.

- 1 Open fan access door.
- 2 On UMA 750 collectors only – Remove door frame centre member, remove mattress support frame from its storage position and remove fork lifting beam.
- 3 Disconnect electrical cables from terminal box.
- 4 Remove fan outlet grille cover plate.
- 5 Remove fan securing bolts.
- 6 The fan assembly can now be removed using a suitable lifting arrangement.

MAINTENANCE

Renewing fan impeller and/or motor:

Refer also to Table 2.

- 1 Make a note of the distance from either impeller back plate to fan case (preferred) or inlet eye to impeller front plate, as this will assist with replacement. If required, refer to Donaldson for exact dimensions.
- 2 From front of fan assembly (non motor end) remove impeller inlet eye from fan casing by removing outer circle of bolts and pulling away the plate.
- 3 Undo grub screw that holds hub onto motor shaft.
- 4 Undo and remove bolt in end of motor shaft holding the hub retaining washer.
- 5 Remove motor key by easing it out from keyway.
- 6 Using the location grooves machined into hub, pull impeller from motor shaft and out through the front of fan case.
- 7 Slide spacer off motor shaft.
- 8 Remove the 4 nuts, bolts and washers holding motor to pedestal.
- 9 The motor can now be removed using suitable lifting equipment, taking care not to damage sealing washer placed between motor endplate and fan casing.
- 10 Place the new motor on support pedestal and locate rubber sealing washer between fan case and motor.
- 11 Position motor on pedestal and secure loosely by replacing the 4 nuts, bolts and washers.
- 12 Locate motor key into keyway on motor shaft.
- 13 Push motor shaft spacer onto motor shaft.
- 14 Align keyway of impeller hub onto key and slide impeller onto motor shaft.
- 15 Replace hub retaining washer and shakeproof washer. Apply thread lock to motor end shaft bolt and replace bolt, ensuring impeller is pushed back onto spacer.
- 16 Apply thread locks to grub screws holding hub and tighten into place.
- 17 Locate impeller, according to the dimension taken during removal, by moving motor along pedestal, ensuring motor remains square to fan case.
- 18 If the measurement was taken from impeller back plate to fan case, adjust to suit and tighten motor fixing fasteners through pedestal and motor feet. Replace inlet eye, using a bead of sealant between the plate and fan case and replace outer circle of bolts.
- 19 If the measurement was taken from inlet eye to impeller front plate, then replace inlet eye, using a bead of sealant between the plate and fan case and replace outer circle of bolts. Adjust impeller to suit and tighten motor fixing fasteners through pedestal and motor feet.
- 20 If a measurement was not taken, then replace inlet eye, using a bead of sealant between the plate and fan case and replace outer circle of bolts. Adjust impeller so that there is approximately 2 mm clearance between inlet eye and front of impeller and tighten motor fixing fasteners through pedestal and motor feet. For ignition minimising fans the minimum clearance must be >1% of the relevant contact diameter.
- 21 Rotate impeller by hand, adjusting where necessary, to ensure that impeller runs freely.

MAINTENANCE

Replacing the fan assembly:



If the equipment has been supplied for use in a potentially explosive atmosphere, then a check should be made to ensure earthing continuity after replacing each panel.

- 1 Lift fan assembly into the fan chamber.
- 2 Loosely replace fan securing bolts.
- 3 Replace fan outlet grille cover plate.
- 4 Tighten fan securing bolts.
- 5 Reconnect motor cable.
- 6 On UMA 750 collectors only – Refit fork lifting beam, mattress support frame and door frame centre member.
- 7 Switch on electrical power.
- 8 Ensure correct fan rotation (refer to fan rotation label located on the fan case).

TABLE 2 – TORQUE VALUES FOR BOLTS WITH ISO METRIC THREAD

Nominal diameter	Thread pitch	Stress area	Torque value*		
			Grade 8.8	Grade 10.9	Grade 12.9
8 mm	1 mm	20.1 mm ²	10.4 Nm	15.3 Nm	17.9 Nm
7 mm	1 mm	28.9 mm ²	17.2 Nm	25 Nm	30 Nm
8 mm	1.25 mm	36.6 mm ²	25 Nm	37 Nm	44 Nm
10 mm	1.5 mm	58 mm ²	50 Nm	73 Nm	86 Nm
12 mm	1.75 mm	84.3 mm ²	86 Nm	127 Nm	148 Nm
14 mm	2 mm	115 mm ²	137 Nm	201 Nm	235 Nm
16 mm	2 mm	157 mm ²	214 Nm	314 Nm	368 Nm
18 mm	2.5 mm	192 mm ²	306 Nm	435 Nm	509 Nm
20 mm	2.5 mm	245 mm ²	432 Nm	615 Nm	719 Nm
22 mm	2.5 mm	303 mm ²	592 Nm	843 Nm	987 Nm
24 mm	3 mm	353 mm ²	744 Nm	1060 Nm	1240 Nm
27 mm	3 mm	459 mm ²	1100 Nm	1570 Nm	1840 Nm
30 mm	3.5 mm	561 mm ²	1500 Nm	2130 Nm	2500 Nm

* For nuts and bolts to ISO 4017.

MAINTENANCE

TABLE 3 – FAULT LOCATION

Symptom	Possible cause	Action
1 Part loss of suction (excessive pressure differential).	1.1 Filter blocked.	<ul style="list-style-type: none"> a Filter not cleaned regularly enough. Initiate cleaning sequence. b Filter cleaned while fan in motion. Remove filter bags and clean by hand. c Check secondary/absolute filter elements if fitted. Replace if necessary. d Defective cleaning. Check operation of cleaner mechanism. Check controller.
	1.2 Motor speed low.	<ul style="list-style-type: none"> a Check line voltage, phases, fan motor connections. For Star/Delta applications, check motor is in Delta.
	1.3 Incorrect fan motor rotation.	<ul style="list-style-type: none"> a Check electrical connections and transpose if necessary.
2 Total loss of suction.	2.1 Fan motor stopped.	<ul style="list-style-type: none"> a Check controller. b Check motor connections and windings.
	2.2 Filter blocked.	<ul style="list-style-type: none"> a Filter not cleaned regularly enough. Initiate cleaning sequence. b Filter cleaned while fan in motion. Remove filter bags and clean by hand. c Check secondary/absolute filter elements if fitted. Replace if necessary. d Defective cleaning. Check operation of cleaner mechanism. Check controller.
	2.3 Ducting blocked.	<ul style="list-style-type: none"> a Check throughout and clear.
3 Visible effluent in clean air outlet.	3.1 Filter assembly not properly sealed.	<ul style="list-style-type: none"> a Check tightness of filter assembly clamping nuts.
	3.2 Damaged sealing gasket or filter bag.	<ul style="list-style-type: none"> a Identify and replace defective component(s) by following the procedure given in 'Maintenance' section under 'Servicing schedule'.
4 Dust container pressure balance not working.	4.1 Sock filter blocked.	<ul style="list-style-type: none"> a Clean sock filter.



Refer to Publication IOM AK0303001 for controller fault location.

SPECIFICATION

Description and range

The Unimaster dust collector is a compact, completely self contained fabric filter designed for intermittent duty, with filter cleaning automatically activated when the dust collector is turned off. The Unimaster is based on seven fabric areas between 4 m² and 70 m² with a range of standard components and optional extras which can be assembled in numerous combinations.

Equipment is available suitable for use in a potentially explosive atmosphere (Directive 94/9/EC) satisfying the requirements for group II category 2G or 2D and 3G or 3D T135°C.

Unimaster standard dust collector with dust container

Standard integral dust collector complete with fan, easy-access filter assembly, triple-inlet position hopper and dust container with quick-release sealer gear.



Unimaster hopper type dust collector

Dust collector with fan and filter assembly only, the base is flanged and can be bolted directly onto a purpose made dust container or hopper.

Unimaster sack tipping unit

For use in sack tipping operations this unit is a dust collector with fan, filter assembly and material discharge hopper incorporating quick release 'tipping' door.



Unimaster venting type dust collector

Filter assembly only, in flanged case, specifically designed for venting silos and other storage vessels or process machinery which is under positive pressure.

Unimaster venting type dust collector with dust container

Venting type dust collectors may be supplied with hopper and dust container when siting is required away from the dust source.



SPECIFICATION

Optional extras

Castors

The standard UMA 40 to 250 collectors are available with the collector base mounted on castors. This makes the collector suitable for portable applications and would generally require single phase motors. In which case, it should be noted that the maximum fan size available with a single phase motor is the K3, 1.5 kW (2 HP).

Weather bends and cowls

Weather bends and cowls are available to fit over collector outlets for outside locations.

Static earthing

An earthing arrangement can be fitted to collectors to prevent the build up of static charge within the collector – particularly important for reducing the risk of fires or explosions when handling flammable or explosive dusts.

TABLE 4 – UNIMASTER DUST COLLECTOR RANGE

Type	Filtration area	Designation
UMA 40	3.70 m ²	UMA = Unimaster 40, 70, 100 etc. = Collector size (filtration area in ft ²) 2, 3 or 6 = Collector with dust container (number represents dust container size) H = Hopper type collector V = Venting type collector (collector supplied for external fan fitment) STU = Sack tipping unit G1, K3, KV5 etc. = Fan size, if fitted SF = Secondary filter, if fitted AB = Absolute filter, if fitted W/C = Weather cowl, if fitted
UMA 40MM	3.70 m ²	
UMA 70	6.23 m ²	
UMA 100	9.29 m ²	
UMA 150	13.94 m ²	
UMA 250	22.67 m ²	
UMA 450	42.00 m ²	
UMA 750	70.00 m ²	

Examples:

- UMA 72V** = Unimaster, size 70, 55 litre (2 ft³) dust container, venting type.
- UMA 250STU** = Unimaster, size 250, sack tipping unit type (modified K3 fan fitted as standard).
- UMA 456 KV11 SF** = Unimaster, size 450, 2 x 80 litre (3 ft³) dust containers, KV11 fan, secondary filter.

SPECIFICATION

Explosion relief

Most carbonaceous dusts, plastics, fertilisers, pharmaceuticals, fossil fuels, chemicals, foodstuffs and certain metallic dusts present an explosion hazard for which explosion relief panels must be fitted. Expert advice must be sought from Health and Safety authorities where dust is thought to be explosive and toxic.



For applications where the dust collector is to be installed in a potentially explosive atmosphere, the electrical specification will be upgraded to suit. e.g. EEx motors, cabling and terminal box.



The classification of the hazard (Zone) must be specified when ordering the collector to ensure that it is to the correct specification.



Details on the explosion relief assembly can be found in Publication 2713.



Details of the controller can be found in Publication IOM AK0303001.

Acoustic diffuser

UMA 40 and 40MM collectors can be fitted with an acoustic diffuser to reduce noise levels. (UMA 70 to 750 collectors have acoustic diffusers fitted as standard). The acoustic diffuser for UMA 40 and 40MM collectors is mounted at the rear (or side if the collector has explosion relief).

Secondary or absolute filter (not available on UMA 40 or 70 collectors)

A secondary filter (see fig. 16) can be fitted to Unimasters handling hazardous dusts, enabling filtered air to be recirculated safely back into the working area. It also acts as a fail-safe device should the main filter element become damaged. For special applications, absolute (HEPA) filters are available (details on request). With certain dusts the filtered air must not be recirculated – if in doubt refer to Donaldson or the appropriate Health and Safety authorities. Each secondary filter panel is inserted through the front access door of its housing and sealed tightly

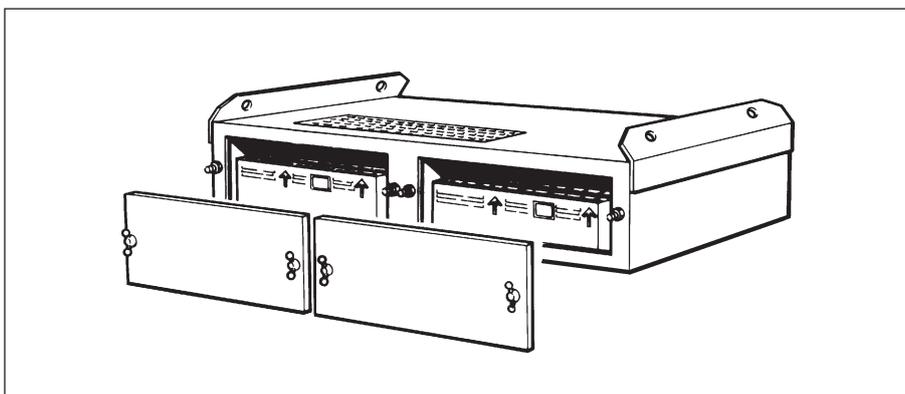


Figure 16 Secondary filter assembly (UMA 450 illustrated)

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in position by the locating mechanism. A secondary or absolute filter monitor can be supplied to measure the pressure drop across the filter elements which will indicate the filter condition, and when maintenance is required.

Pressure balance pipe

To assist in the safe removal of toxic or noxious dusts the dust container may be lined with a polythene bag which can be closed and sealed before lifting out of the container. The container is fitted with a detachable pressure balance pipe to prevent the bag from being drawn up into the collector.

Left-hand shaker

All the standard range of Unimaster dust collectors have the shaker motor and mechanism on the right-hand side of the collector when viewed from the front.

When site conditions call for collectors to be positioned side by side or there are space limitations, collectors may be supplied with the shaker motor positioned on the left-hand side when viewed from the front.

Half bags

On some Unimaster applications, for instance, when handling paper or cotton fluff, a filter assembly with every other pad removed may be advantageous to enable the filter to clean down more effectively. This reduces the cloth area of the collector by 50% and the collector designation is changed. e.g. The designation UMA 250H K3 becomes UMA 250/125H K3 – the figure 125 signifying the reduced cloth area in ft².

Construction

The Unimaster dust collector is constructed of sheet steel. Access to the various chambers, where necessary, is provided by front access doors. The sack tipping base also has the option of having a swing door. The fan chamber is mounted above the filter chamber with the discharge arrangements i.e. the dust container or sack tipping base positioned below. The shaker assembly is usually mounted on the right hand side of the filter chamber when looking from the front with access via a removable cover.

Acoustic diffusers are mounted above the fan section on all collectors except for the UMA 40 and 40MM where they are mounted at the rear or side.

Secondary and absolute filters are mounted above the fan section on all collectors except for the UMA 40MM and 750 where they are mounted between the filter chamber and the fan chamber. The secondary filter monitor, when supplied, is mounted on the right-hand side. (UMA 40 and 70 collectors are not available with secondary or absolute filters).

Collectors fitted with an explosion relief assembly have an explosion vent at the rear, additional door straps for added strength and additional earthing as required.

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The controller is supplied for remote mounting. On collectors with fan, the controller is connected to the fan and shaker motors via a terminal box usually mounted on the right-hand side of the fan chamber. On venting type collectors, controller connection is made directly to the shaker motor.



The controller must not be mounted on the side of the collector.

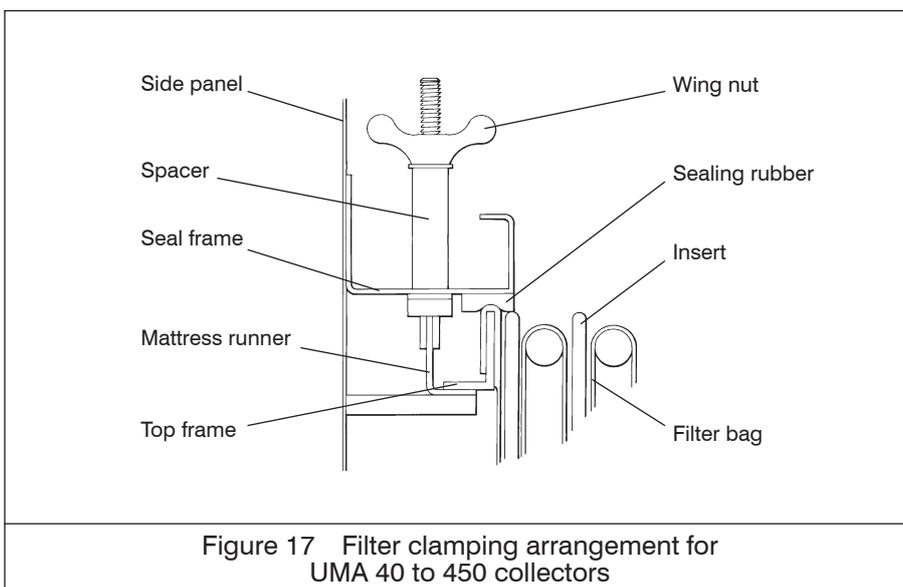
On collectors with dust containers, the contaminated air inlet is in the hopper and can be positioned at the rear or either side (two inlets are required on the UMA 450 and 750). The cleaned air outlet is at the top on all collectors except for the UMA 40 and 40MM, where it is at the rear or side, and the UMA V with a weather cowl, where it is at the side.

Filter assembly

The filter assembly consists primarily of a filter bag which can be made from a variety of materials to suit the application. The top of the bag is wrapped around a top frame which provides support and a rigid sealing face. The bag also has inserts placed in each individual pocket to maintain bag shape and help dislodge dust during the cleaning cycle.

Seal frame

The seal frame is a rigid structure fabricated out of sheet steel with a rubber seal attached to its underside. This provides a clamping face and seal for the filter assembly. The filter assembly clamping is provided by two mattress runners which fit underneath the top frame, each having two threaded bars protruding through the seal frame. These are secured on UMA 40-450 collectors by using wing nuts (see fig. 17), and on the UMA 750 by a clamping device, which is operated by extended nuts protruding through the door frame (see fig. 18).



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Shaker assembly

The shaker assembly is situated on the side of the collector. This consists of a motor which turns an eccentric mechanism to vibrate a shaker bar. The shaker bar has locators into which each filter pad is fitted, thus, vibrating the filter assembly clean.

Fan (not supplied on venting type collectors)

The fan assembly is fitted above the filter assembly. All fans have electrical connections via a terminal box on the side of the collector, except for the UMA 40 where electrical connection is made directly to the motor. All fan impellers are directly driven except for the UMA 40MM which is belt driven.

Controller

A controller, if required, is provided for remote mounting to suit site requirements.

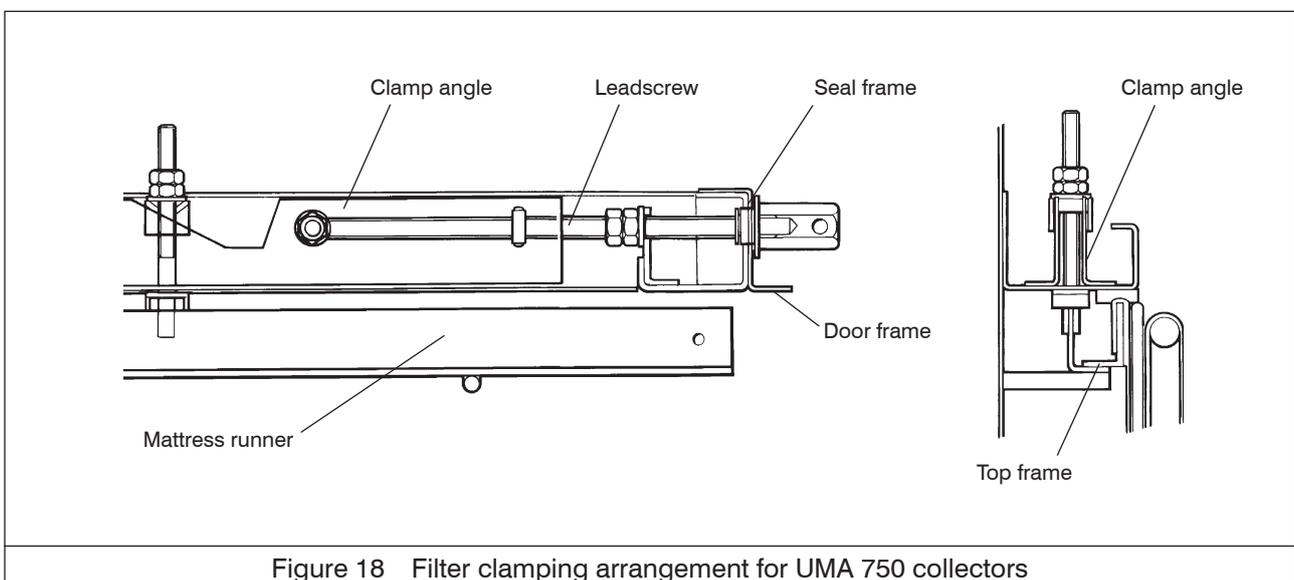


For controller specifications, refer to Publication IOM AK0303001.

Sealer gear (UMA 70-750 collectors with dust container only)

The sealer gear is fitted to the bottom of the hopper and, by lifting the handle, provides a quick-release seal on the dust container.

(On UMA 40 and 40MM collectors, the dust container is sealed by two toggle fasteners).



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TABLE 5 – DESIGN LIMITS

Temperature range:	-10° to +60°C
Pressure range:	-300 mm W.G. to +250 mm W.G.
	Collectors with fan: as fan performance curves from shut-off to ambient pressure (for UMA 40 and 40MM refer to datasheet of UMA 40; for UMA 70 to 250 refer to datasheet of UMA 70 to 250; for UMA 450 refer to datasheet of UMA 450; for UMA 750 refer to datasheet of UMA 750)
Maximum fan impeller and shaker motor speeds:	UMA 40-750 direct driven fan (50 Hz) = 3000 RPM UMA 40-750 direct driven fan (60 Hz) = 3600 RPM UMA 40MM belt driven fan (50 and 60 Hz) = 10000 RPM UMA 40-750 maximum shaker motor speed (50 Hz) = 1000 RPM UMA 40-450 maximum shaker motor speed (60 Hz) = 1200 RPM UMA 750 maximum shaker motor speed (60 Hz) = 900 RPM



The UMA 40MM is designed to handle a limited amount of air. If exceeded there is a serious danger of overloading the motor. The maximum volume handled should not exceed 425 m³/h

TABLE 6 – STANDARD FAN MOTOR SUPPLY VOLTAGE DETAILS

To comply with European standards the motor nameplate will display the following:

**3 Phase / 50 Hz
(IEC 60034-30)**

kW	Nameplate details	Range
0.75 – 1.5	230/3/50 D	220-240 D
	400/3/50 Y	380-420 Y
2.2 and above	400/3/50 D	380-420 D
	690/3/50 Y	660-690 Y

3 Phase / 60 Hz*

kW	Nameplate details	Range
0.75 – 1.5	250-280/3/60 D	250-280 D
	440-480/3/60 Y	440-480 Y
2.2 and above	440-480/3/60 D	440-480 D

*Some motors will be fitted with a second nameplate displaying 60 Hz details



The details above may not apply to non-standard motors.

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TABLE 7 – WEIGHTED SOUND PRESSURE LEVELS

	UMA 40	UMA 40MM	UMA 70 to 250				
	STD (0.55 kW)	STD (1.1 kW)	G1 (0.75 kW)	K3 (1.5 kW)	KV5 (2.2 kW)	KV7 (3.0 kW)	G8 (5.5 kW)
Collector only	80 dB(A) [†]	80 dB(A) [†]	—*	—*	—*	—*	—*
With acoustic diffuser**	75 dB(A) [†]	75 dB(A)	65 dB(A)	67 dB(A)	69 dB(A)	69 dB(A) [†]	72 dB(A)
With secondary filter	—*	—*	—*	67 dB(A)	69 dB(A)	69 dB(A)	72 dB(A)
With absolute filter	—*	75 dB(A)	—*	67 dB(A)	69 dB(A)	69 dB(A)	72 dB(A)

	UMA 450		UMA 750		
	KV10 (5.5 kW)	KV11 (7.5 kW)	KV15 (11.0 kW)	KV18 (15.0 kW)	KV21 (18.5 kW)
Collector only	—*	—*	—*	—*	—*
With acoustic diffuser**	74 dB(A)	76 dB(A) [†]	77 dB(A)	79 dB(A) [†]	80 dB(A)
With secondary filter	74 dB(A)	76 dB(A)	77 dB(A)	79 dB(A)	80 dB(A)
With absolute filter	74 dB(A)	76 dB(A)	77 dB(A)	79 dB(A)	80 dB(A)

All readings were taken in normal industrial areas, i.e. semi-reverberant surroundings, with local equipment silent. Measurements were taken at maximum air flow conditions at 1.0 metre radius from the equipment housing and 1.6 metres above base level, using a precision sound level meter and octave filter. Noise levels of installed equipment may vary due to site conditions.

[†] Measured data. * Non-available option.

** An acoustic diffuser is fitted as standard on UMA 70 to 750 collectors.

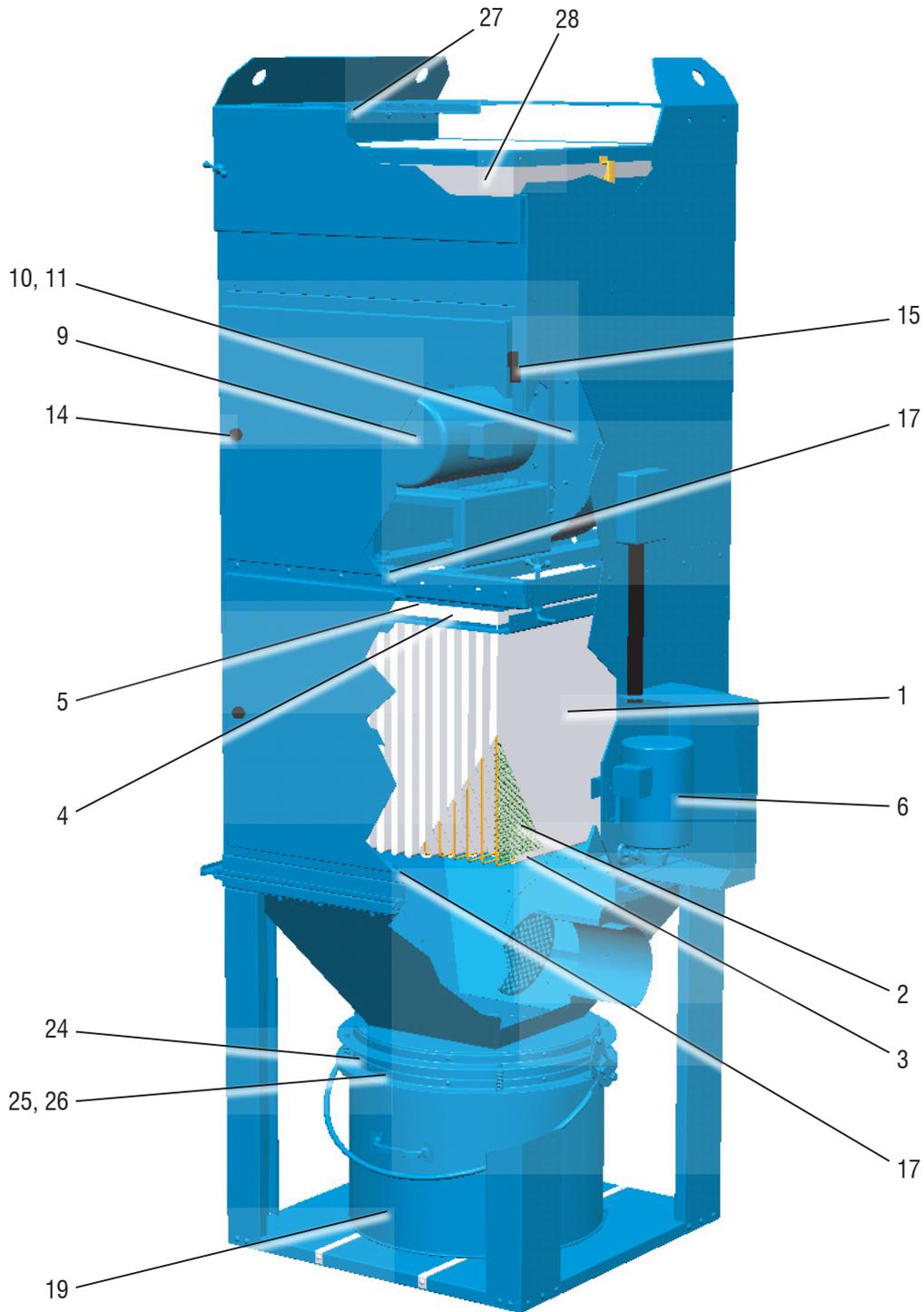
TABLE 8 – DUST CONTAINERS

Collector	Dust container supplied	Dust container size	Approx. weight (empty)	Dust	Typical density with 50% voidage
UMA 40 and 40MM	20 litre	20 litre	3 kg	Sander	0.13 kg/litre
UMA 70	55 litre	55 litre	5 kg	Graphite	0.80 kg/litre
UMA 100, 150, 250, 450* and 750*	80 litre	80 litre	7 kg	Sand	1.33 kg/litre
				Iron	3.58 kg/litre
				Steel	3.72 kg/litre

A reasonable total load for removal by hand would be 25 kg.

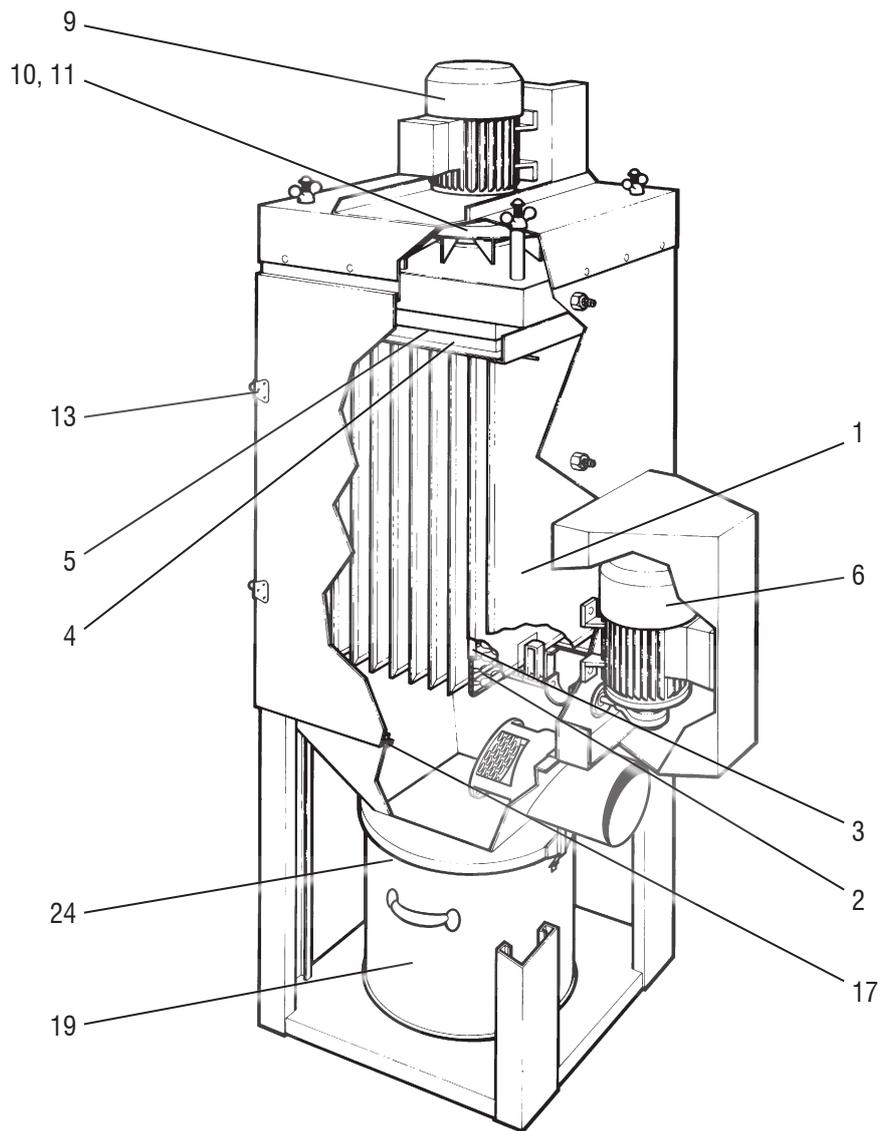
* UMA 450 and 750 collectors are supplied with two dust containers.

SPARE PARTS



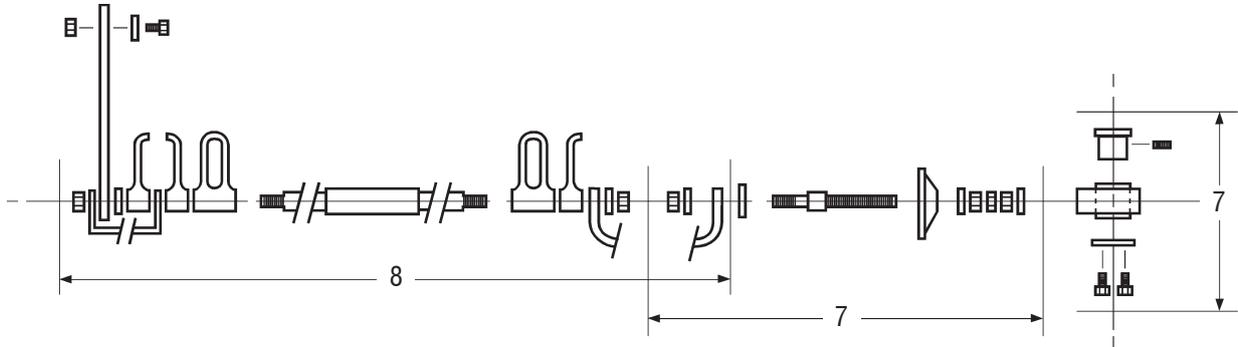
Unimaster UMA 153 K5 SF illustrated

SPARE PARTS

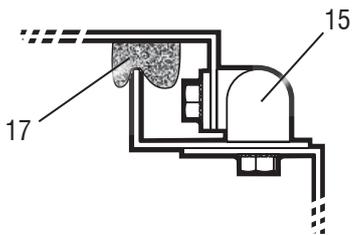


Unimaster UMA 40 illustrated

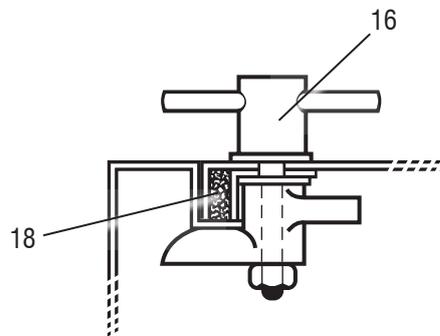
SPARE PARTS



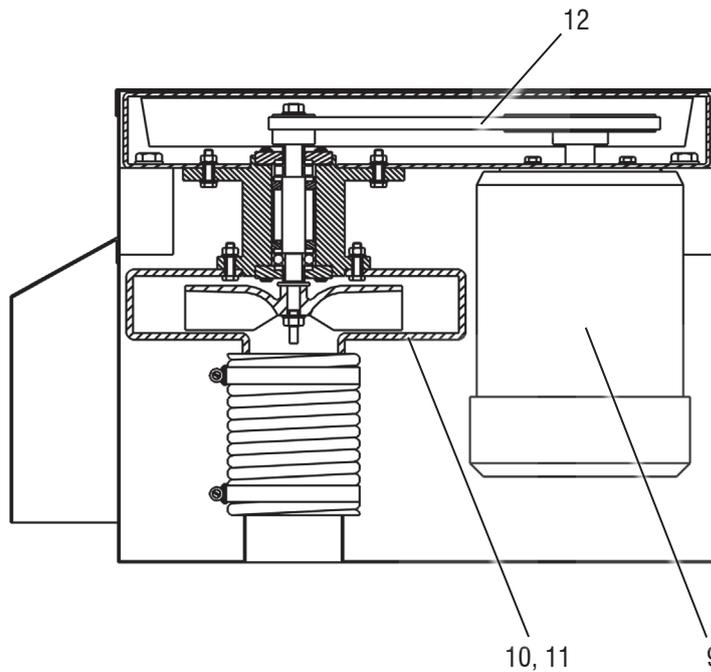
**Shaker mechanism assembly
(UMA 40-450 illustrated)**



**Door hinge assembly
(not applicable to UMA 40)**



**Door fastener assembly for
Sack Tipping Unit base (standard door)**



**Fan chamber assembly
(UMA 40MM only)**

Item	Description	UMA 40	UMA 70	UMA 100	UMA 150	UMA 250	UMA 450	UMA 750	*
	Filter assembly								
1	Multiple filter bag, Dura-Life® standard – full bag	1A 2139 2414	1A 2139 2370	1A 2139 2371	1A 2139 2372	1A 2139 2373	1A 2139 2374	1A 2139 9013	✓
1	Multiple filter bag, Dura-Life® standard – half bag	1A 2139 2542	1A 2139 2544	1A 2139 2404	1A 2139 2405	1A 2139 2406	1A 2139 2408	1A 2139 9017	✓
1	Multiple filter bag, Dura-Life® antistatic [†] – full bag	1A 2139 2009	1A 2139 2076	1A 2139 2028	1A 2139 2043	1A 2139 2059	1A 2139 2096	1A 2139 9014	✓
1	Multiple filter bag, Dura-Life® antistatic [†] – half bag	1A 2139 2227	1A 2139 2179	1A 2139 2120	1A 2139 2139	1A 2139 2158	1A 2139 2244	1A 2139 9016	✓
1	Multiple filter bag, Dura-Life® oleophobic – full bag	1A 2139 2509	1A 2139 2518	1A 2139 2520	1A 2139 2522	1A 2139 2524	1A 2139 2528	1A 2139 2530	✓
1	Multiple filter bag, Dura-Life® oleophobic – half bag	1A 2139 2491	1A 2139 2517	1A 2139 2519	1A 2139 2521	1A 2139 2523	1A 2139 2527	1A 2139 2529	✓
1	Multiple filter bag, Dura-Life® oleophobic antistatic [†] – full bag	1A 2139 2589	1A 2139 2591	1A 2139 2593	1A 2139 2595	1A 2139 2597	1A 2139 2601	1A 2139 2603	✓
1	Multiple filter bag, Dura-Life® oleophobic antistatic [†] – half bag	1A 2139 2590	1A 2139 2592	1A 2139 2594	1A 2139 2596	1A 2139 2598	1A 2139 2602	1A 2139 2604	✓
1	Multiple filter bag, Tetratex®	1A 2139 7231	1A 2139 7232	1A 2139 7233	1A 2139 7234	1A 2139 7235	1A 2139 7236	1A 2139 7237	✓
1	Multiple filter bag, Tetratex® antistatic [†]	1A 2139 7238	1A 2139 7239	1A 2139 7240	1A 2139 7241	1A 2139 7242	1A 2139 7243	1A 2139 7244	✓
	[†] Fitting antistatic bags will not provide a full earthing arrangement without fitting an additional earthing bar and straps								
2	Bag insert	1A 2131 9007	1A 2131 9005	1A 2131 9005	1A 2131 9006	1A 2131 9006	1A 2131 9008	1A 2131 9010	✓
3	Insert edgings, polypropylene	1A 2139 2263	1A 2139 2261	1A 2139 2261	1A 2139 2264	1A 2139 2264	1A 2139 2266	1A 2139 2403	✓
4	Mattress frame assembly	1A 2131 0008	1A 2131 9002	1A 2131 9004	1A 2131 9000	1A 2131 9001	1A 2131 9003	1A 2131 9011	
5	Mattress frame seal	1A 2119 2029	1A 2119 2056	1A 2119 2055	1A 2119 2054	1A 2119 2077	1A 2119 2063	1A 2119 2100	
	Shaker assembly								
6	Shaker motor [†] , 1 phase, 0.18kW, 220-240V 50Hz	1A 2756 2522	–	–					
6	Shaker motor [†] , 3 phase, 0.18kW, 218-242V/380-420V 50Hz, 250-277V/440-480V 60Hz	1A 2757 2545	–						
6	Shaker motor [†] , 3 phase, 0.55kW, 380-420V/655-752V 50Hz	–	–	–	–	–	–	1A 2757 2547	
	+ Motors are IP55 rated. For other types/specifications/motors for hazardous areas consult Donaldson								
* Recommended spares for up to two years' operation									
Damaged safety related parts and safety components should be replaced only with genuine original spare parts									

Item	Description	UMA 40	UMA 70	UMA 100	UMA 150	UMA 250	UMA 450	UMA 750	*
6	Shaker motor†, 3 phase, 0.55kW, 440-480V 60Hz	-	-	-	-	-	-	1A 2757 2558	
7	Shaker mechanism parts – eccentric assembly, connecting rod assembly	1A 2181 7139	1A 2181 7139	1A 2181 7139	1A 2181 7140	1A 2181 7140	1A 2181 7140	1A 2181 7141	
8	Shaker mechanism parts – shaker bar assembly, support strap	1A 2181 9009	1A 2181 9002	1A 2181 9000	1A 2181 9000	1A 2181 9001	1A 2181 9010	1A 2181 9057	
Fan assembly									
9	Fan motor†, 71 frame, 1 phase, 0.55kW – UMA 40 ONLY 220-240V 50Hz 220-240V 60Hz	1A 2756 2541 1A 2756 2542	-	-	-	-	-	-	
9	Fan motor†, 71 frame, 3 phase, 0.55kW – UMA 40 ONLY 220-240V/380-420V 50Hz, 250-280V/440-480V 60Hz	1A 2757 2557	-	-	-	-	-	-	
9	Fan motor†, 80 frame, 1 phase, 1.1kW – UMA 40MM ONLY 220-240V 50Hz	1A 2756 2530	-	-	-	-	-	-	
9	Fan motor†, 80 frame, 3 phase, 1.1kW – UMA 40MM ONLY 220-240V/380-420V 50Hz 250-280V/440-480V 60Hz	1A 2757 2260 1A 3329 7037	-	-	-	-	-	-	
9	Fan motor†, G1 fan, 1 phase, 0.75kW 220-240V 50Hz	-	1A 2756 2529	1A 2756 2529	1A 2756 2529	1A 2756 2529	-	-	
9	Fan motor†, G1 fan, 3 phase, 0.75kW 220-240V/380-420V 50Hz 250-280V/440-480V 60Hz	-	1A 2757 2259 1A 3329 7036	-	-				
9	Fan motor†, K3 fan, 1 phase, 1.5kW 220-240V 50Hz	-	-	1A 2756 2540	1A 2756 2540	1A 2756 2540	-	-	
9	Fan motor†, K3 fan, 3 phase, 1.5kW 220-240V/380-420V 50Hz 250-280V/440-480V 60Hz	-	-	1A 2757 2263 1A 3329 7038	1A 2757 2263 1A 3329 7038	1A 2757 2263 1A 3329 7038	-	-	
9	Fan motor†, KV5 fan, 3 phase, 2.2kW 380/3/50Hz 220/3/60Hz	-	-	-	AK 0013221 AK 0013226	AK 0013221 AK 0013226	-	-	
† Motors are IP55 rated. For other types/specifications/motors for hazardous areas consult Donaldson									
* Recommended spares for up to two years' operation Damaged safety related parts and safety components should be replaced only with genuine original spare parts									

Item	Description	UMA 40	UMA 70	UMA 100	UMA 150	UMA 250	UMA 450	UMA 750	*
9	Fan motor†, KV7 fan, 3 phase, 3.0kW 380/3/50Hz 220/3/60Hz	- -	- -	- -	AK 0013231 AK 0013236	AK 0013231 AK 0013236	- -	- -	
9	Fan motor†, G8 fan, 3 phase, 5.5kW 380-420V/660-690V 50Hz 440-480V 60Hz	- -	- -	- -	1A 2757 2271 1A 3329 7041	1A 2757 2271 1A 3329 7041	- -	- -	
9	Fan motor†, KV10 fan, 3 phase, 5.5kW 380/3/50Hz 220/3/60Hz	- -	- -	- -	- -	- -	AK 0013241 AK 0013246	- -	
9	Fan motor†, KV11 fan, 3 phase, 7.5kW 380/3/50Hz 220/3/60Hz	- -	- -	- -	- -	- -	AK 0013251 AK 0013256	- -	
9	Fan motor†, KV15 fan, 3 phase, 11.0kW 380/3/50Hz 220/3/60Hz	- -	- -	- -	- -	- -	- -	AK 0013261 AK 0013266	
9	Fan motor†, KV18 fan, 3 phase, 15.0kW 380/3/50Hz 220/3/60Hz	- -	- -	- -	- -	- -	- -	AK 0013271 AK 0013276	
9	Fan motor†, KV21 fan, 3 phase, 18.5kW 380/3/50Hz 220/3/60Hz	- -	- -	- -	- -	- -	- -	AK 0013281 AK 0013286	
10	UMA 40 fan assembly (including motor†), 1 phase, 220-240V 50Hz 1 phase, 220-240V 60Hz	1A 2121 9207 1A 2121 9104	- -	- -	- -	- -	- -	- -	
10	UMA 40 fan assembly (including motor†), 3 phase, 220-240V/380-420V 50Hz 3 phase, 250-280V/440-480V 60Hz	1A 2121 9008 1A 2121 9009	- -	- -	- -	- -	- -	- -	
10	UMA 40MM fan assembly (including motor†), 1 phase, 220-240V 50Hz	1A 2129 9035	-	-	-	-	-	-	
10	UMA 40MM fan assembly (including motor†), 3 phase, 220-240V/380-420V 50Hz 3 phase, 250-280V/440-480V 60Hz	1A 2129 9036 1A 2129 9037	- -	- -	- -	- -	- -	- -	
	† Motors are IP55 rated. For other types/specifications/motors for hazardous areas consult Donaldson								
<p>* Recommended spares for up to two years' operation</p> <p>Damaged safety related parts and safety components should be replaced only with genuine original spare parts otherwise CE mark will become invalid</p>									

Item	Description	UMA 40	UMA 70	UMA 100	UMA 150	UMA 250	UMA 450	UMA 750	*
10	G1 fan assembly (including motor†), 1 phase, 220-240V 50Hz	-	1A 2121 9101	1A 2121 9101	1A 2121 9101	1A 2121 9101	-	-	
10	G1 fan assembly (including motor†), 3 phase, 220-240V/380-420V 50Hz 3 phase, 250-280V/440-480V 60Hz	-	1A 2121 9004 1A 2121 9016	-	-				
10	K3 fan assembly (including motor†), 1 phase, 220-240V 50Hz	-	-	1A 3321 9345	1A 3321 9345	1A 3321 9345	-	-	
10	K3 fan assembly (including motor†), 3 phase, 220-240V/380-420V 50Hz 3 phase, 250-280V/440-480V 60Hz	-	-	1A 3321 9190 1A 3321 9191	1A 3321 9190 1A 3321 9191	1A 3321 9190 1A 3321 9191	-	-	
10	KV5 fan assembly (including motor†), 380/3/50Hz 220/3/60Hz	-	-	-	AK 0012811 AK 0012816	AK 0012811 AK 0012816	-	-	
10	KV7 fan assembly (including motor†), 380/3/50Hz 220/3/60Hz	-	-	-	AK 0012861 AK 0012866	AK 0012861 AK 0012866	-	-	
10	G8 fan assembly (including motor†), 3 phase, 380-420V/660-690V 50Hz 3 phase, 440-480V 60Hz	-	-	-	1A 2121 9011 1A 2121 9012	1A 2121 9011 1A 2121 9012	-	-	
10	KV10 fan assembly (including motor†), 380/3/50Hz 220/3/60Hz	-	-	-	-	-	AK 0012911 AK 0012916	-	
10	KV11 fan assembly (including motor†), 380/3/50Hz 220/3/60Hz	-	-	-	-	-	AK 0012961 AK 0012966	-	
10	KV15 fan assembly (including motor†), 380/3/50Hz 220/3/60Hz	-	-	-	-	-	-	AK 0013011 AK 0013016	
10	KV18 fan assembly (including motor†), 380/3/50Hz 220/3/60Hz	-	-	-	-	-	-	AK 0013061 AK 0013066	
10	KV21 fan assembly (including motor†), 380/3/50Hz 220/3/60Hz	-	-	-	-	-	-	AK 0013111 AK 0013116	
	+ Motors are IP55 rated. For other types/specifications/motors for hazardous areas consult Donaldson								
<p>* Recommended spares for up to two years' operation Damaged safety related parts and safety components should be replaced only with genuine original spare parts</p>									

Item	Description	UMA 40	UMA 70	UMA 100	UMA 150	UMA 250	UMA 450	UMA 750	*
11	Impeller, UMA 40 fan, 50Hz	1A 2121 9041	-	-	-	-	-	-	
11	Impeller, UMA 40 fan, 60Hz	1A 2121 9076	-	-	-	-	-	-	
11	Impeller, UMA 40MM fan	1A 2129 3035	-	-	-	-	-	-	
11	Impeller, G1 fan, 50Hz	-	1A 2121 9061	1A 2121 9061	1A 2121 9061	1A 2121 9061	-	-	
11	Impeller, G1 fan, 60Hz	-	1A 2121 9060	1A 2121 9060	1A 2121 9060	1A 2121 9060	-	-	
11	Impeller, K3 fan, 50Hz	-	-	1A 3321 9137	1A 3321 9137	1A 3321 9137	-	-	
11	Impeller, K3 fan, 60Hz	-	-	1A 3321 9143	1A 3321 9143	1A 3321 9143	-	-	
11	Impeller, KV5 fan, 50Hz	-	-	-	AK 0013371	AK 0013371	-	-	
11	Impeller, KV5 fan, 60Hz	-	-	-	AK 0013381	AK 0013381	-	-	
11	Impeller, KV7 fan, 50Hz	-	-	-	AK 0013372	AK 0013372	-	-	
11	Impeller, KV7 fan, 60Hz	-	-	-	AK 0013382	AK 0013382	-	-	
11	Impeller, G8 fan, 50Hz	-	-	-	1A 2121 9099	1A 2121 9099	-	-	
11	Impeller, G8 fan, 60Hz	-	-	-	1A 2121 9047	1A 2121 9047	-	-	
11	Impeller, KV10 fan, 50Hz	-	-	-	-	-	AK 0013373	-	
11	Impeller, KV10 fan, 60Hz	-	-	-	-	-	AK 0013383	-	
11	Impeller, KV11 fan, 50Hz	-	-	-	-	-	AK 0013374	-	
11	Impeller, KV11 fan, 60Hz	-	-	-	-	-	AK 0013384	-	
11	Impeller, KV15 fan, 50Hz	-	-	-	-	-	-	AK 0013375	
11	Impeller, KV15 fan, 60Hz	-	-	-	-	-	-	AK 0013385	
11	Impeller, KV18 fan, 50Hz	-	-	-	-	-	-	AK 0013376	
11	Impeller, KV18 fan, 60Hz	-	-	-	-	-	-	AK 0013386	
11	Impeller, KV21 fan, 50Hz	-	-	-	-	-	-	AK 0013377	
11	Impeller, KV21 fan, 60Hz	-	-	-	-	-	-	AK 0013387	
<p style="text-align: center;">* Recommended spares for up to two years' operation Damaged safety related parts and safety components should be replaced only with genuine original spare parts</p>									

Item	Description	UMA 40	UMA 70	UMA 100	UMA 150	UMA 250	UMA 450	UMA 750	*
	Door assembly								
13	Toggle fastener and hook	1A 2111 7102	–	–	–	–	–	–	
14	Door latch and key	–	1A 2111 7103	1A 2111 7103	AD 3135301	AD 3135301	AD 3135301	AD 3135301	
15	Hinge assembly	–	1A 2111 3177	1A 2111 3177	AD 3135201	AD 3135201	AD 3135201	AD 3135201	
16	Door fastener assembly (for sack tipping unit base with standard door)	–	–	1A 2111 3100	1A 2111 3100	1A 2111 3100	–	–	
17	Door seal, filter and fan chamber	1A 1816 5647	1A 1816 5221	✓					
18	Door seal, sack tipping unit base (standard door)	–	–	1A 1816 5481	1A 1816 5481	1A 1816 5481	–	–	✓
	Dust container assembly								
19	Dust container	1A 2141 1007	1A 2141 1020	1A 6341 1001					
19	Dust container with pressure balance connection – Item not illustrated	1A 2141 1005	1A 2141 1011	1A 6341 1003					
20	Ø1½" flexible pipe (for pressure balance) – Item not illustrated	1A 1827 2311							
21	Socket filter (for pressure balance pipe) – Item not illustrated	–	1A 2139 7210						
22	Seal (for pressure balance pipe) – Item not illustrated	1A 2149 1050	1A 2149 1054	1A 2149 1055					
23	Polythene bag liner (for dust container with pressure balance) – Item not illustrated	1A 5995 5133	1A 5995 5133	1A 5995 5138					
24	Dust container sealer gear assembly – Includes items 25 and 26	–	1A 2141 2009	1A 2141 2046					
25	Canvas sleeve, dust container sealer gear	–	1A 2149 2002	1A 2149 2025	✓				
26	Seal, dust container	1A 1816 6684	1A 1816 5223	1A 2149 2047	✓				
	Secondary/absolute filter assembly								
27	Door seal, secondary/absolute filter	1A 1816 5482	–	1A 1816 5461	✓				
28	Secondary filter element	–	–	1A 2585 6800	1A 2585 6801	1A 2585 6801	1A 2585 6801	1A 2585 6801	
28	Absolute filter element	1A 2585 6703	–	1A 2585 6824	1A 2585 6818	1A 2585 6820	1A 2585 6820	1A 2585 6821	
<p style="text-align: center;">* Recommended spares for up to two years' operation Damaged safety related parts and safety components should be replaced only with genuine original spare parts</p>									



Item	Description	UMA 40	UMA 70	UMA 100	UMA 150	UMA 250	UMA 450	UMA 750	*
	Pressure measurement								
29	Magnahelic gauge assembly – Item not illustrated	1A 2151 9155							
	Controller								
	For controller spares information, refer to Publication IOM AK0303001								
	Explosion relief assembly								
	For explosion relief spares information, refer to Publication 2713								
	Secondary or absolute filter monitor								
	For secondary or absolute filter monitor spares information, refer to Publication 2920								
* Recommended spares for up to two years' operation Damaged safety related parts and safety components should be replaced only with genuine original spare parts									