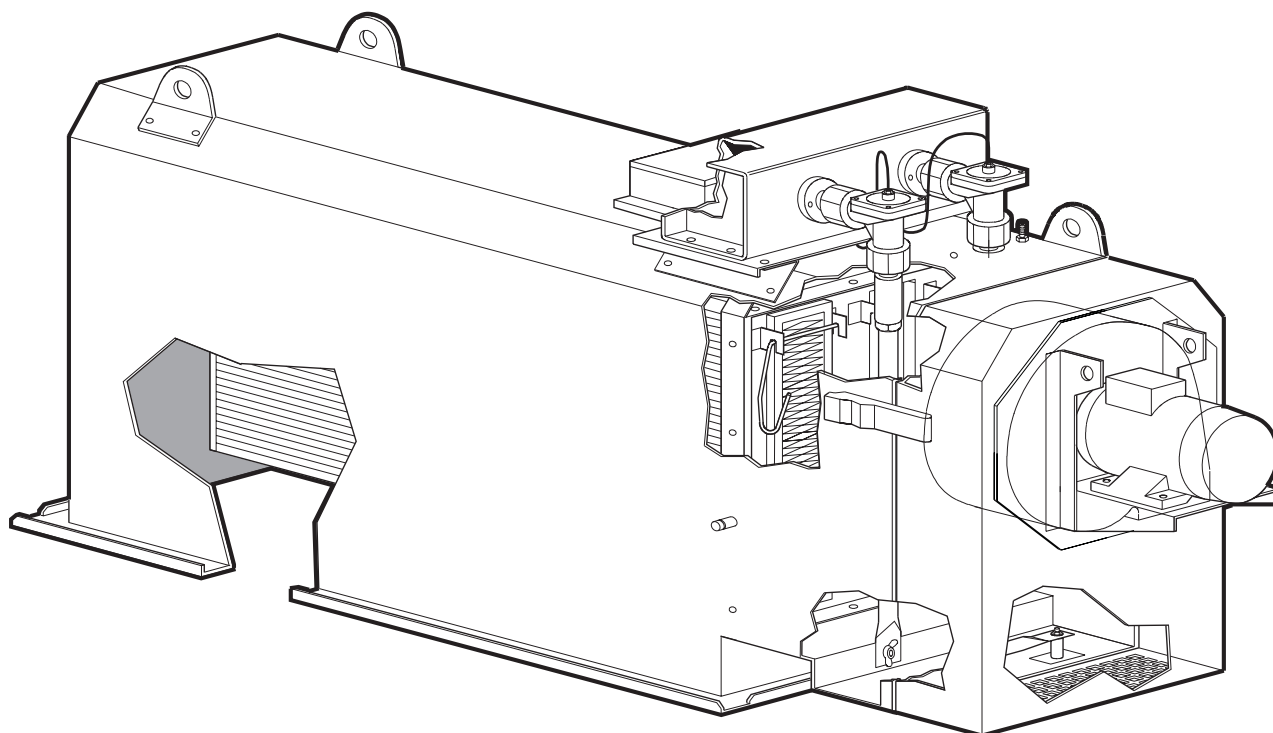




Donaldson®
FILTRATION SOLUTIONS

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Spotair Dust Filters Series SA-F and SA-C



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SAFETY RECOMMENDATIONS

Applications having a risk of sparks and fires

1. Good Housekeeping

Accumulation of potentially combustible dust, for example dust layers is considered a potential ignition source. Failure to keep the dust collector clean and empty the hopper / dust bins regularly will increase the risk of fires and/or explosions.

2. EU Directive 99/92/EC

A reinforced and/or vented dust collector must be used when handling dusts that have the potential to form an explosive atmosphere. If a non-reinforced and/or non vented dust collector is used on these applications then the end user must ensure an equivalent, secure, and fool proof basis of safety, which must be clearly documented in the end users Explosion Protection Document in line with Article 8 of EU Directive 99/92/EC.

3. Self Heating Materials

Please note that some materials have the potential to self generate heat and hence to become an ignition source, that could result in a fire and / or an explosion. For this reason ferrous and non-ferrous materials should not be extracted in to the same dust collector, as when combined they can create a violent thermite reaction that would ignite a fire and/or explosion.

4. Applications having a risk of sparks and fires

Where sparks are generated by the process, this must be considered as a potential ignition source which increases the risk of a fire or explosion. The filter can be supplied with an optional spark trap to help reduce the frequency of spark ignition and should be regarded as part of a risk reducing strategy.

The spark trap is not an extinguishment system and should never be relied upon to achieve spark eradication in processes where suppression requirements are absolute. The spark trap does not guarantee complete elimination of sparks and does not preclude the possibility of fire or explosion. Therefore, system redundancy and complementary measures should be taken in conjunction with the spark trap to further reduce the risk of fire and explosion from sparks in applications where there is potential for catastrophic combustion.

On these types of applications the enduser should carry out regular good housekeeping, such as:

- Periodically check for dust fall out in ducting and remove.
- Pulse down off line regularly to minimise retention of dust cake on filter cartridges.
- Empty dust bins frequently.

Other risk reducing strategies could include:

- Inject with an inert material.
- Consider additional spark detection and fire suppression equipment.

INSTALLATION



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



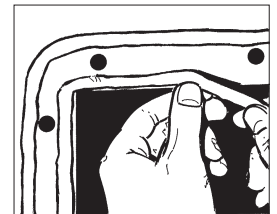
You should ensure any persons carrying out work on the supplied equipment follow any relevant recognised standards/codes and are competent to do so. Areas requiring a competent person include:

- *Maintenance on any component identified as a potential ignition source.*
- *Lifting and erection.*
- *Electrical installation, inspection and maintenance work.*
- *Pneumatic installation, inspection and maintenance work.*
- *Any access to internal classified potentially explosive atmospheres where the risks due to explosion and dust contact are reduced to a safe level*

The Spotair dust filter will be dispatched to site fully assembled.

Mounting over aperture

1. Check that the aperture and fixing holes are correct in size and position to suit the mounting-flanges of the Spotair dust filter (if required, details of mounting flange fixing positions are provided in the Data Sheet – Publication 2611).
2. Open the fan box door and remove the pack of sealing strip from the clean air chamber. Apply two continuous beads of sealing strip all round the aperture, on either side of the fixing holes, as shown.



3. Arrange lifting equipment to suit either horizontal or vertical mounting (see Fig. 2). The dust filter must be lifted using a four point lift (see Fig. 3).

Chains or slings should be used with an adequate SWL (Safe Working Load). (Refer to lifting label located adjacent to lifting bracket for weight of equipment supplied by Donaldson).

Chains must be long enough to ensure that the included angle between diagonal chains is not greater than 90°.



When lifting equipment for vertical mounting, care should be taken to avoid slings catching on the fan box door handles.

4. Lift and position the filter body until the mounting-flange is seated in position over the aperture. Match up fixing-holes, install bolts, washers and nuts and tighten down all round to form an airtight seal.



Fixing bolts etc. are not supplied by Donaldson.

Compressed air requirements

Spotair dust filters require an independent supply of clean, dry, oil-free compressed air. Details of atmospheric pressure and quantity are given in Table 6 (refer to 'Specification' section). A design label is also attached to each manifold. Where an existing factory mains system is to be used it may be necessary to install an additional moisture separator in the supply line to the dust filter. If a compressor is being installed to supply the Spotair, then the following conditions should be observed as far as possible:

Type of compressor

Use a compressor of ample capacity – an overloaded compressor may produce excessively contaminated, moisture-laden air.

Location of air intake

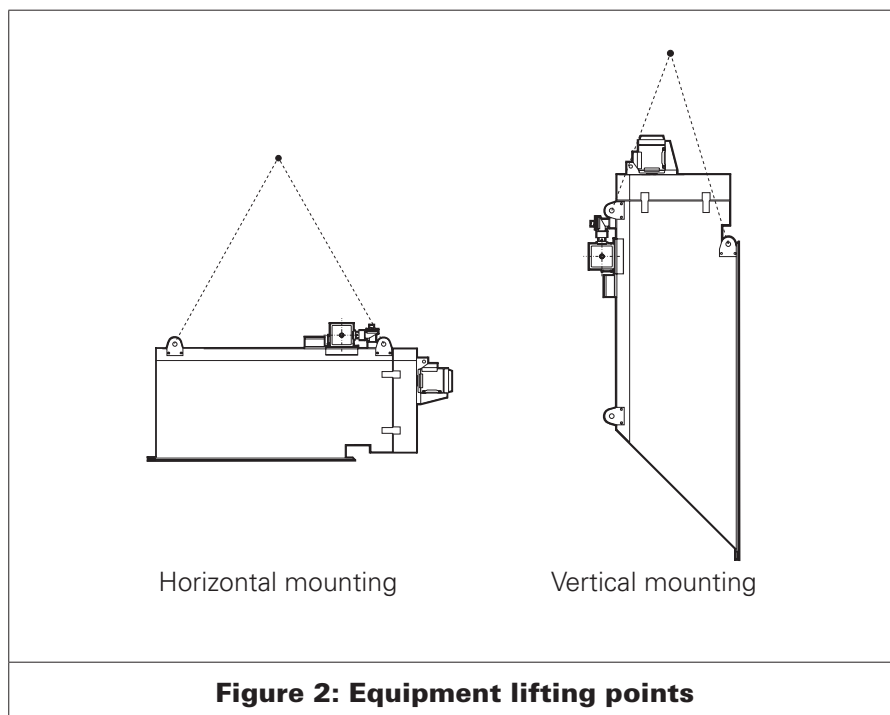
Avoid locating the air intake in an excessively polluted area and install an adequate air intake filter. The compressor air intake should be sited, if possible, on the north side of the building – fresh air drawn from the north side is usually cooler and denser, and therefore has a lower moisture content. (South of the equator the reverse will apply).

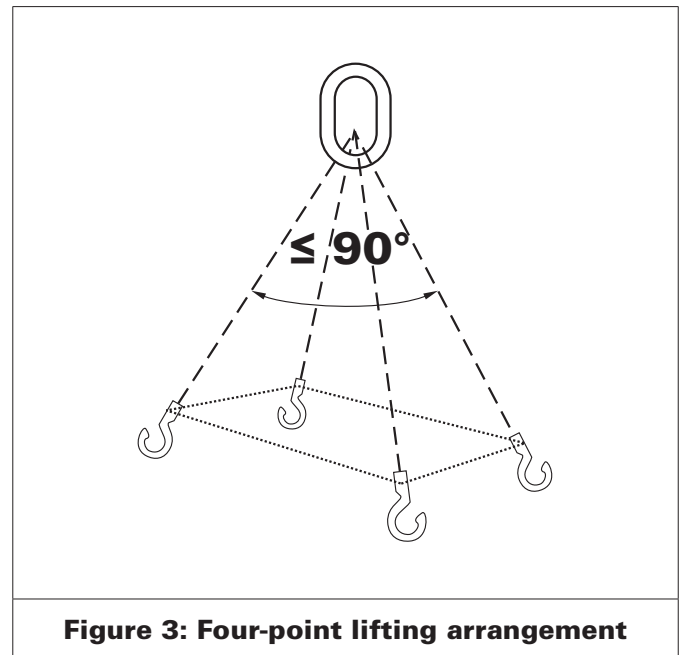
Layout and installation of air lines

The pipework between compressor and dust filter should be long enough to act as a cooling device for the compressed air. A typical requirement for the smaller installation would be 10m (30ft) of 12mm (½" NB) piping. For further details see Table 6. The piping should be installed to provide a fall in the direction of air flow to assist in the drainage of accumulated moisture. A moisture separator should be provided at the lowest point of the installation.

Pressure relief

The manifold has a maximum operating pressure of 6.2 bar (see Table 2 in 'Specifications' section). It is a requirement that adequate precaution is taken to avoid exceeding this pressure. Where a relief valve is supplied by Donaldson this device has a relief rating of 17 dm³/s at 6.9 bar. Extra system relief will be required if the connected supply can exceed this.





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.



Ensure all personnel carrying out electrical installation work on the equipment follow any relevant recognised standards/codes and are competent to do so.



Always isolate power before opening the controller.

Each Spotair dust filter is supplied with a factory fitted C-Controller to operate the reverse jet cleaning system.

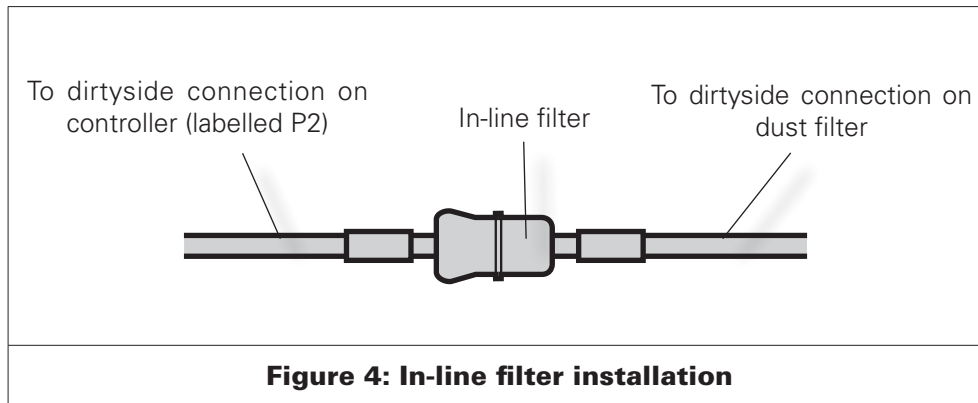


For C-Controller connections and set-up, refer to the C-Controller manual.

Explosion protection



When Spotair dust filters are supplied for use where there is a risk of explosion within the process, any protection fitted to the process should not generate pressure exceeding 0.3 bar (the strength rating of the filter).



EEx controls

When the dust filter is to be installed in a hazardous area, where there is a risk of fire or explosion, the filter will be marked for the area(s) it can be safely used within (refer to serial nameplate). In some instances the filter may be fitted with either of the following control systems:

- EExd solenoids and remote controller

When this option is fitted, the dust filter has its solenoid valves in an EExd IIb T6 enclosure mounted on to the filter body. A controller, housed in an IP66 box, is supplied loose. This must be installed in a safe area and connected to the solenoid valves on the dust filter using suitable cabling (not supplied).

It is recommended that cable with a core size of 2.5mm² is used.



The maximum length of cabling that can be used is 100m.

Instructions for setting up the controller are the same as those for the C-Controller.

The PT Controller is a pneumatically operated device which operates the diaphragm valves in sequence, therefore an electrical supply is not required.

The controller is supplied complete with air regulator and is normally bracket-mounted to the dust filter.



For PT Controller connections and set-up, refer to Publication 2697.

Antistatic earthing

It is particularly important on dust filters having antistatic features that the earthing post (located adjacent to the symbol, shown here) is properly connected to earth, using the brass screw provided, to prevent any static build-up (refer also to Fig. 1).



Overload protection

All feeder circuits should be adequately protected with suitably-rated fuses and contactors with integral overload protection.

Installation check list

- ☐ Ensure the Spotair dust filter is securely bolted over the aperture.
- ☐ Ensure compressed air supply is installed correctly and free from leaks.
- ☐ Ensure electrical supply is installed correctly and complies to local legislation.

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.



Ensure all personnel carrying out electrical inspection work on the equipment follow any relevant recognised standards/codes and are competent to do so.

Commissioning check list

- ☐ Ensure the Spotair dust filter is securely bolted over the aperture.
- ☐ Open fan box and ensure seal is intact, then close and secure fan box.
- ☐ Ensure dust filters fitted with antistatic filter elements are suitably earthed.
- ☐ Ensure controller is connected to the correct voltage and that the pulse interval and duration settings are correct. For 24V DC ensure polarity is correct. It is essential that the controller is earthed for both AC and DC connections.
- ☐ Ensure electric power is available.
- ☐ Ensure the compressed air manifold has sufficient protection for overpressure.
- ☐ Start the compressor and check that the air supply is maintained at the recommended pressure.
- ☐ Switch on the controller and check that all valves operate in sequence (look and listen for exhaust pulses). As each valve operates, the air pressure reading should drop to approximately 50% of the initial setting and then return to the initial value.
- ☐ Ensure fan starter is fitted with suitable overload (refer to Table 7).
- ☐ Start up fan, if fitted. Check fan for correct rotation and that the full load current is not exceeded. (Refer to the fan rotation label located on the fan box).

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).

Start-up sequence

Having completed all the necessary checks, the equipment may be put into operation. A typical installation should be started up as follows:

1. Start up compressed air supply.
2. Set the equipment being served, if applicable, in motion.
3. Switch on controller.
4. Start fan (if fitted).

Shut-down sequence



When lifting equipment for vertical mounting, care should be taken to avoid slings catching on the fan box door handles.

1. Stop main fan only, leaving controller and compressed air supply switched on to allow filter to be cleaned 'off-line'.



To enable off-line cleaning, refer to controller manual.

2. After 10-15 minutes, switch off controller and compressor but leave discharge equipment running to ensure that it is emptied.
3. After a further 5 minutes, switch off the discharge equipment if applicable.

Adherence to the above procedure will ensure that a Spotair dust filter installation is maintained at optimum efficiency.

OPERATION

Principle of operation

The dust laden air enters the chamber containing the filter elements, where it impinges on all their outer surfaces. A layer of dust builds up on the outside of the elements as the air itself passes through the media (see Fig 5a). The clean air emerges from the outlet header of each filter element into the cleaned air chamber and from there it is discharged, normally via the fan, to atmosphere.

At regular intervals, governed by the controller, each filter element in turn receives a short burst of compressed air from its respective jet tube (see Fig 5b). The jet tube has a series of small-diameter jet orifices positioned adjacent to the outlet header of each filter element. These orifices are of an optimum size and distance from the filter element, ensuring that a large volume of ambient air is induced by each injection of compressed air. This causes a brief, powerful reversal of airflow through the filter element, effectively dislodging the dust layer.

In this way the pressure drop across the whole dust filter is kept at a virtually constant level, enabling the Spotair to operate continuously, twenty-four hours a day.

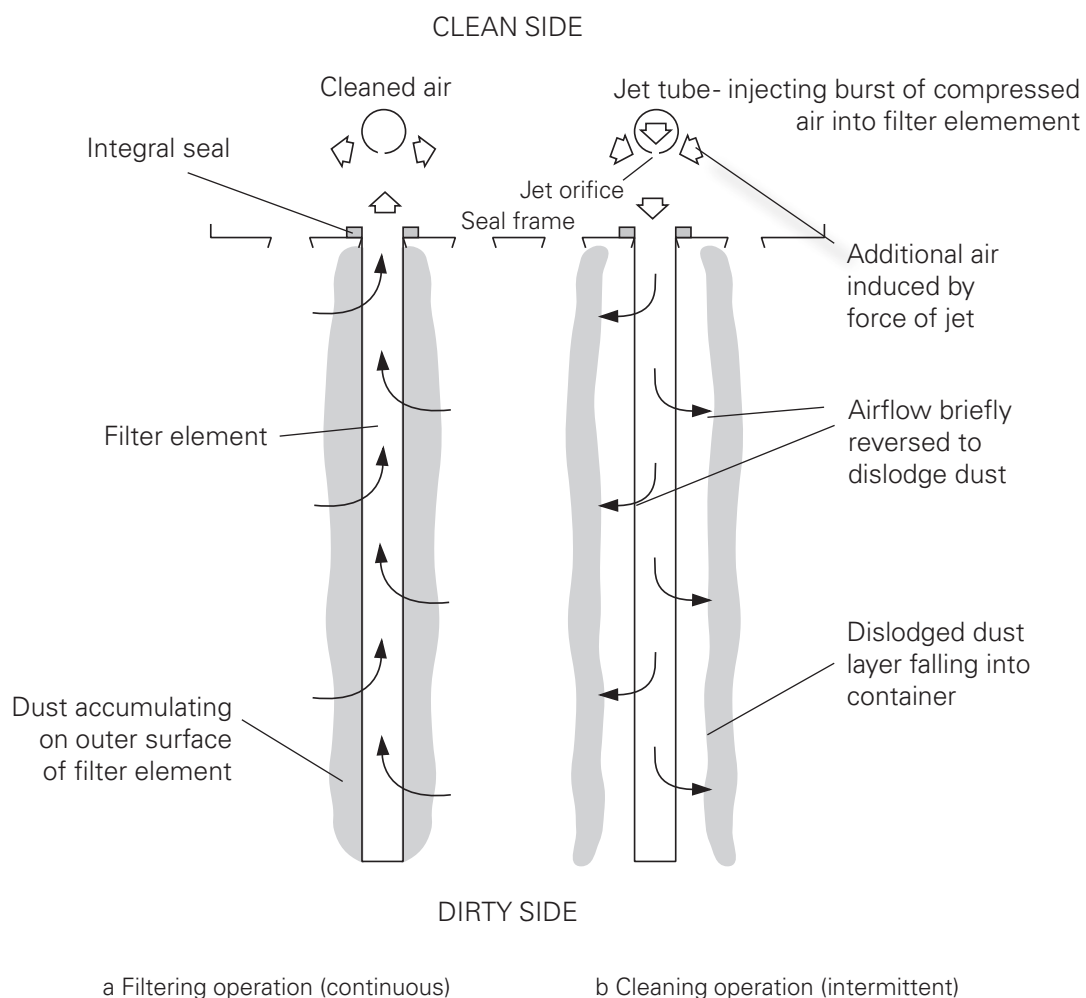


Figure 4: Section through seal frame and two filter elements, showing principle of operation

MAINTENANCE



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



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.



In order to maintain the original dust filter 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 potentially 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).



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.

Routine inspection

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

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

After the fault has been rectified, resumption of compressed air cleaning will usually return the filter to normal efficiency. However, it is advisable to operate the controller in still-air conditions for a short period to dislodge any accumulated dust before putting the Spotair dust filter into operation.

Filter resistance can be checked by connecting a U-tube manometer or differential-type pressure gauge to tapping points on the filter casing (see Fig. 1).

This will give a continuous indication of the state of the filter. Once running, the operating resistance will be relatively stable, the actual value depending on the air volume and the characteristics of the dust being handled.

It is recommended to periodically inspect the general casing integrity.



Do not operate above recommended compressed air pressure. Excessive pressure will reduce the working life of components.

Servicing schedule

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

Weekly

1. Open the valve at the bottom of the moisture separator bowl and allow the collected water to drain off, then close the valve.
2. Connect a manometer to tapping points (refer to Routine inspection) and measure the pressure drop across the filter.

Monthly

Check operation of solenoid and diaphragm valves. If it is found necessary to replace a diaphragm, use the following procedure (see Fig. 6):

Use service kit available from Donaldson.

1. Switch off fan and compressed air supply.
2. Remove nylon tube (A) by pulling out from valve – this will release the manifold pressure.
3. Remove the hexagon head set screws and shakeproof washers securing the valve bonnet (B).
4. The diaphragm and spring (if fitted) can now be replaced, first ensuring the 'bleed' hole pin is not blocked.
5. Ensure that diaphragm fits over 'bleed' hole pin and that the nylon sealing washer is inside throat of valve.
6. Position spring (if fitted) inside bonnet recess.
7. Refit bonnet ensuring spring (if fitted) locates over diaphragm disc shoulder and bonnet locates over 'bleed' hole pin.
8. Refit and tighten the hexagonal head set screws and shakeproof washers.
9. Push-fit nylon tube back into valve.
10. The dust filter is now ready to restart.

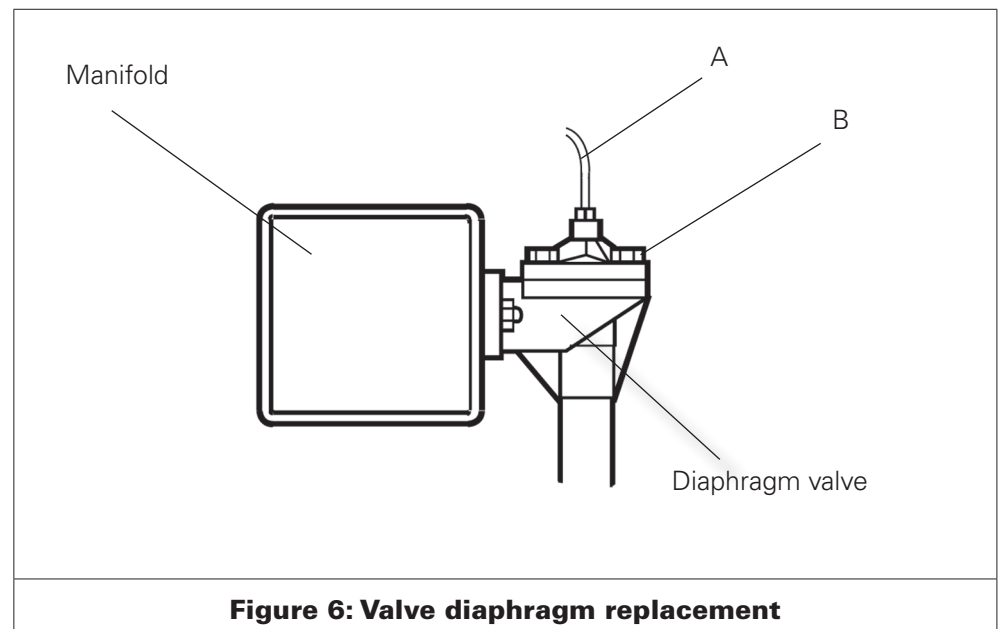


Figure 6: Valve diaphragm replacement

Annually

1. Moisture separator – Isolate the compressed air supply and release the manifold pressure via the moisture separator or as described in 2 of the previous section. Then remove and clean or replace the filter element.
2. Air manifold – Having isolated the compressed air supply and released the manifold pressure as previously described, remove the drain plug and air inlet connections and clean out any accumulated sludge and inspect to any current local legislation.



It may be necessary to remove a diaphragm valve for internal inspection purposes.

3. Doors – Check the dust seals on all access doors for damage or ageing and ensure that they are properly seated to prevent entry of water. This is particularly important where the dust filter is located outside or in a wet atmosphere.



Faulty seals must be replaced.

4. Filter elements (Series SA-F filters) – Remove the jet tubes then remove each filter element and check the general condition of the bag. Clean each bag using a vacuum cleaner. If the dust is of an abrasive nature it is advisable to examine the elements more frequently.



Bags showing holes must be replaced.



When refitting filter elements, do not over-tighten. If elements are horizontally mounted, tighten bottom clamp first. (Recommended maximum torque 20 ft-lbs f or 27 Nm.)

5. Filter elements (Series SA-C filters) – Remove the jet tubes then remove each filter element and check the general condition of the media and integral header seal. Clean the outside of each element using a vacuum cleaner. If the dust is of an abrasive nature it is advisable to examine the elements more frequently.

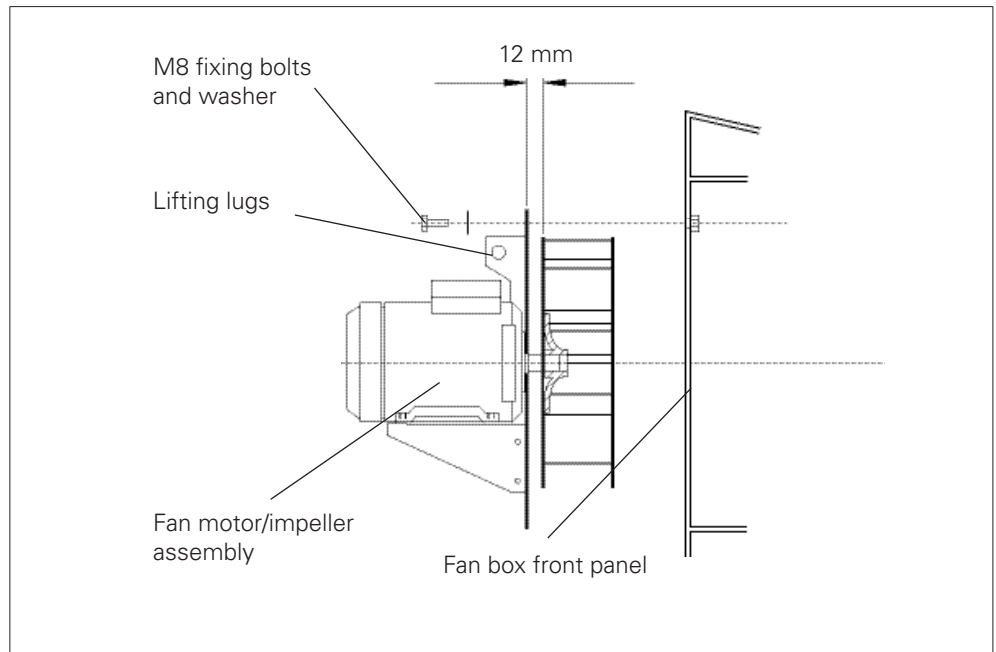
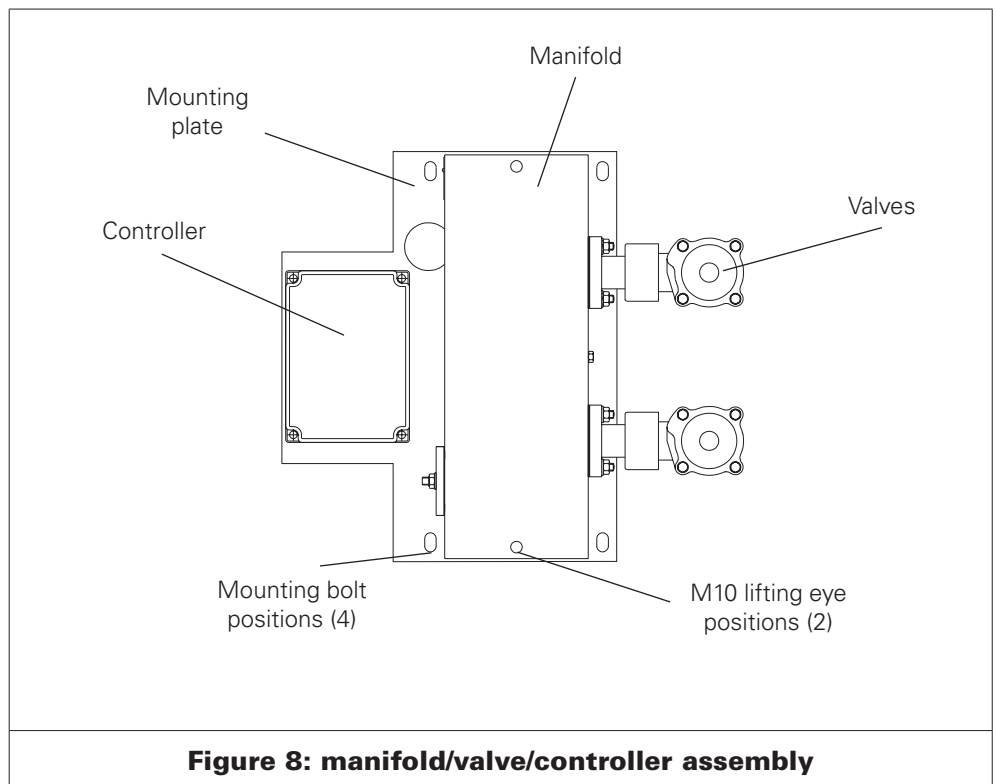


Elements showing excessive wear must be replaced.

6. Jet Tubes – Check that the jet tubes are clean and that the jet orifices are clear.
7. 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.

**Figure 7: Fan motor/impeller assembly****Figure 8: manifold/valve/controller assembly**

Removal of fan motor/impeller assembly

If it should be necessary to remove the fan motor/impeller assembly, use the following procedure (refer also to Fig. 7):



Isolate electric power supply.

1. Ensure the weight is first taken up using the two lifting lugs. (Refer to label located on fan box for weight of fan/impeller assembly).
2. Remove the M8 fixing bolts and washers. Withdraw assembly being careful when impeller comes through fan box front panel. Carry out maintenance on fan motor/impeller as required.
3. When refitting impeller to fan motor shaft ensure the dimension of '12mm' is adhered to.
4. Bolt assembly back in position and then relieve weight from lifting lugs.
5. Check impeller is clear and free to rotate.

Removal of manifold/valve/controller assembly

The manifold, valves and controller are mounted on a plate and may be removed as a complete assembly as follows (see Fig. 8):

1. Isolate compressed air and electrical supply.
2. Disconnect and remove electrical and compressed air connections.
3. Unscrew the valves to release them from the jet tube connectors protruding through the Spotair body top.
4. Remove the four mounting bolts.
5. Insert M10 lifting eyes into holes in the manifold top at both ends.
6. The assembly may now be lifted clear.



Lifting eyes are not supplied by Donaldson.

TABLE 1 - FAULT LOCATION

Symptom	Possible cause	Action
Part loss of suction (excessive pressure differential).	Compressed air malfunction.	If compressor stopped, rectify compressor fault; check interlocks (if fitted); check fan motor and supply; check drive.
		If compressor OK, check line pressure at entry to filter manifold.
		Clean filters, dismantle and clean moisture separator.
		Check for excessive water or oil in compressed air supply, and possible accumulation in manifold.
	No pulses of air to valves.	Refer to 'Fault location' table in controller manual supplied with dust filter.
	Filter blocked.	Run filter clear*, then remove each element in turn; vacuum-clean and renew any that are damaged.
	Fan motor speed low.	Check line voltage, phases, fan motor connections.
Total loss of suction.	Incorrect fan motor rotation.	Check electrical connections and transpose if necessary.
	Fan motor stopped.	Check motor supply overloads, fuses and interlocks (if fitted).
		Check motor connections and windings.
Visible effluent in clean air outlet.	Filter blocked	Run filter clear*, then remove each element in turn; vacuum-clean and renew any that are damaged.
		Damaged element can be identified by dust being present in clean air chamber. Withdraw element and renew.

*To run filter clear, switch off main fan only and allow the controller to perform several complete cleaning cycles before switching off compressor etc.

SPECIFICATION

Description and range

The Spotair dust filter is a compact venting filter designed for easy installation at any point in a material conveying system. The equipment is suitable for direct mounting onto elevators, conveyors, hoppers and day bins in all low air volume venting applications. It can be used as an integral part of a larger dust control system to ensure compliance with all relevant health and safety legislation.

The Spotair comprises two separate case designs to suit vertical or horizontal mounting. The vertical dust filter has a sloped hopper style design to prevent product retention in the casing. The design allows easy access to the filter elements, which achieve efficient dust release by the use of the electronically controlled reverse jet cleaning system. The Spotair uses two of Donaldson's proven filter media to give high efficiency, continuous operation filtration across a range of filter areas from 2 m² to 10 m² (refer to Table 3).

Machinery noise levels are an important consideration in the design and selection of new equipment. Several EC directives and national laws/regulations adopting these directives make reference to airborne noise emissions. Actions that employers are required to comply with if employees are subjected to a daily personal noise exposure Lep'd of 85 dB(A) or more are also specified. All Spotair dust filters are below this action limit.

The Spotair dust filter can be supplied, if required, suitably equipped for use in a potentially explosive atmosphere (Directive 2014/34/EU) satisfying the requirements for group II category 2G or 2D and 3G or 3D T135°C.

Construction

The Spotair filter body is flanged and drilled for mounting over an aperture located at any point in a material conveying system.

Seal frame (Figs. 5, 10a or 10b)

The seal frame is a rigid, rectangular structure of sheet steel, slotted to accept the filter elements.

The filter elements for Series SA-F filters (see Fig. 10a) are inserted from the clean side of the equipment and secured by clamps fitted to mounting studs incorporated in the seal frame plate.

The filter elements for Series SA-C filters (see Fig. 10b) are inserted from the clean side of the equipment and are individually clamped by means of a steel angle frame and secured by two filter element clamps (quick release handles), thus eliminating the requirement of any tools for this operation.

An earthing boss is fitted to all antistatic versions of the equipment for antistatic earthing (see Fig. 1).

Jet tubes (Figs. 1, 10a or 10b)

Positioned in the 'clean side' of the dust filter is a series of full-length 'jet tubes' having small-diameter jet orifices located adjacent to the outlet header of each filter element. The 'open' end of each tube is connected by a rubber hose to a compressed air valve; the closed end is flattened and crimped, and is secured by a bolt and nut.

Filter elements – Series SA-F filters (Figs. 1 and 10a)

Each removable filter element is rectangular in shape and comprises a slim wire mesh frame or 'insert' for the filter bag, to which is welded a shaped steel outlet header with sealing flange. The filter bag itself consists of a rectangular pocket incorporating

a resilient sealing ring at the open end. The bag is pulled over the wire portion of the insert until the sealing ring meets the sealing flange. The ring is compressed when the element is clamped into the seal frame, effectively isolating the dirty side from the clean side of the dust filter. There are two sizes of element, designated 1.0 m and 1.25 m according to the length of filter bag and used as shown in Table 3.

Antistatic filter elements are available, together with stainless steel and brass securing bolts and washers, as an option for installations where the dust is potentially explosive. (See 'Installation' section).

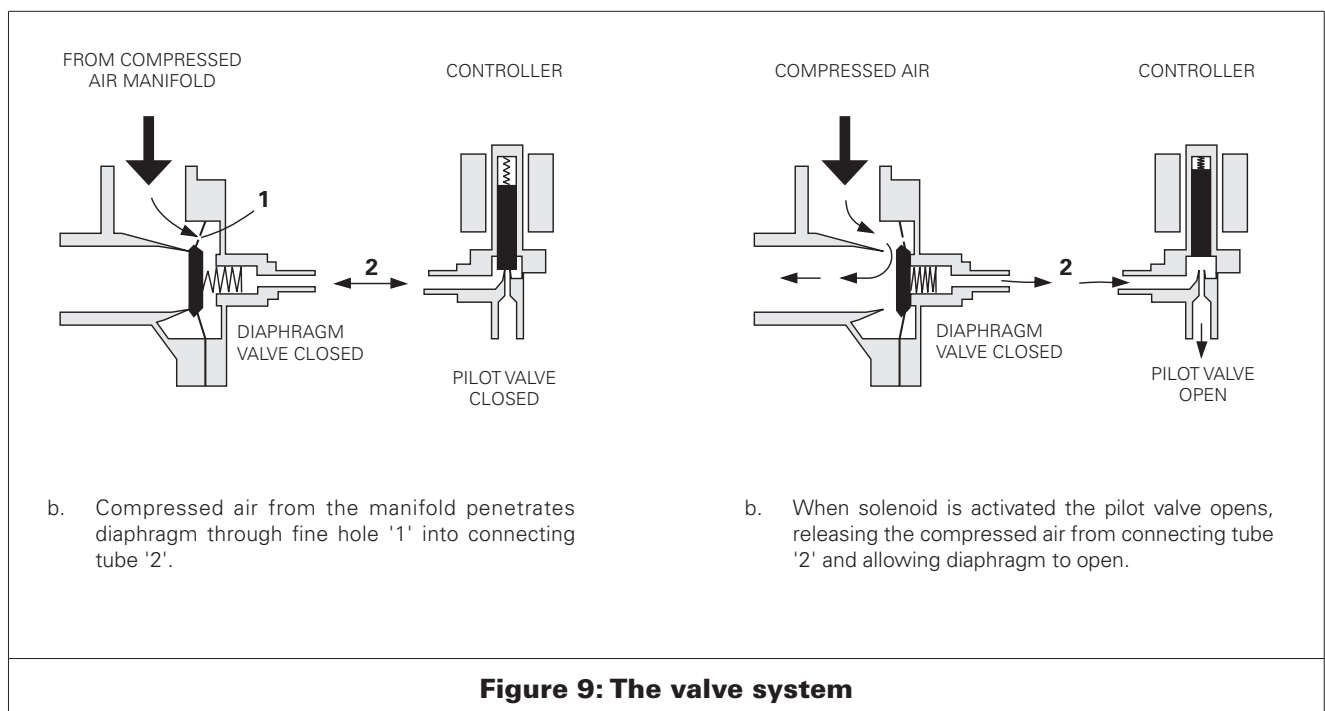
Filter elements – Series SA-C filters (Figs. 1 and 10b)

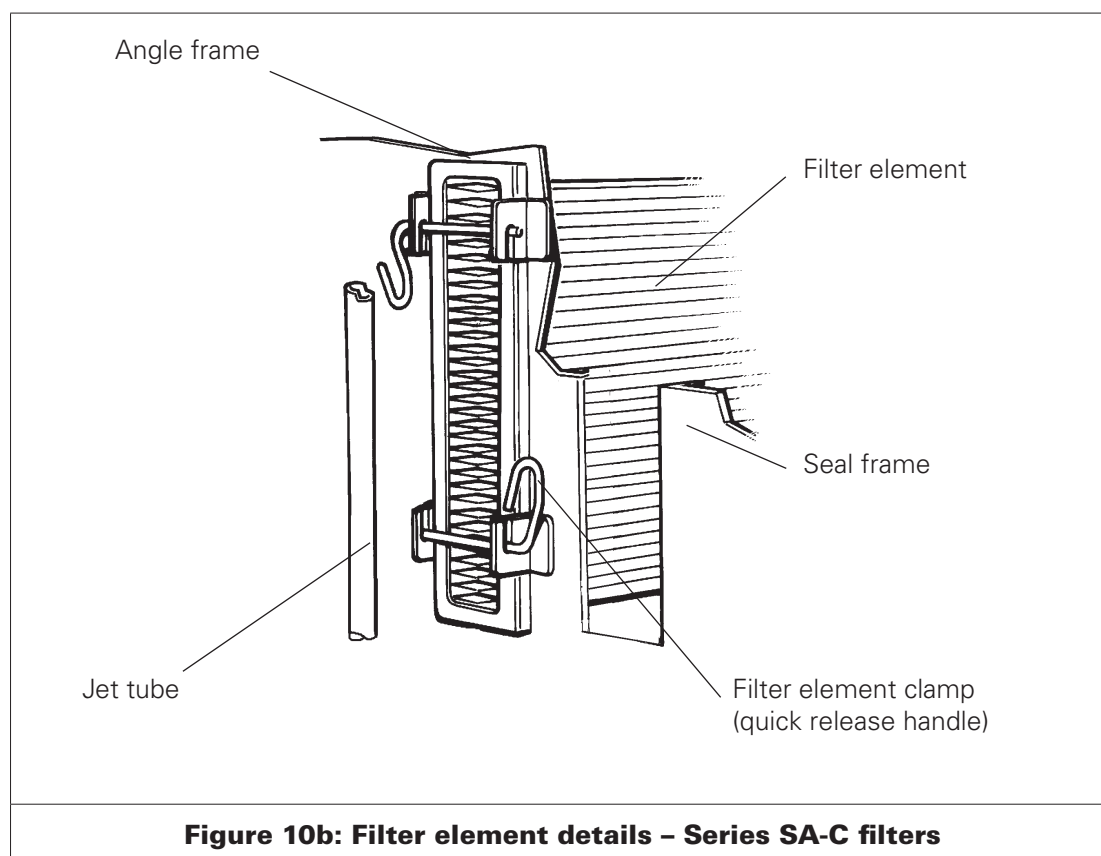
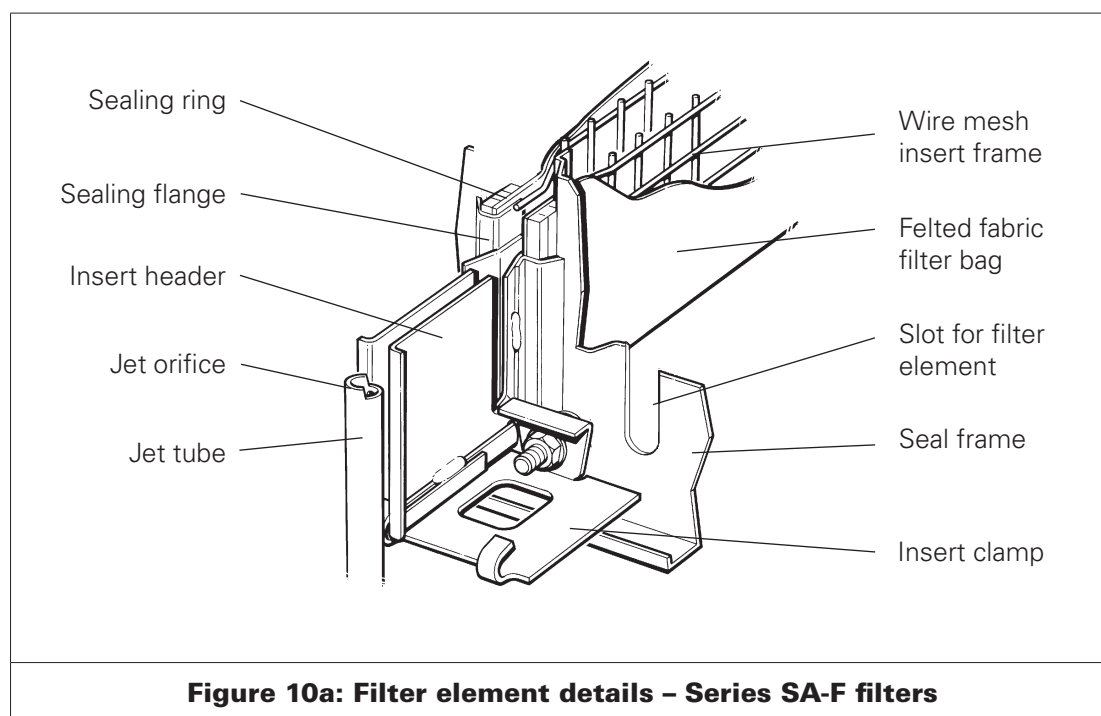
Each removable filter element is manufactured from a spun-bonded polyester filter medium with polyurethane end mouldings. The header moulding contains an integral seal.

Antistatic filter elements are available, which are located into a plated steel seal frame, as an option for installations where the dust is potentially explosive. (See 'Installation' section).

Valves (Figs. 1 and 9)

The compressed air is supplied to each jet tube via a diaphragm valve, the opening and closing of which is controlled by a solenoid-operated pilot valve connected to the diaphragm vent by a flexible nylon tube. The solenoid valves are energised sequentially by electrical pulses generated by the controller.





Compressed air distribution manifold (Fig. 1)

The manifold is fabricated from 150sq x 6mm thick steel tube, with welded ends. Holes are provided for diaphragm valves, drain plug, pressure relief valve and air inlet moisture separator connections. (Moisture separator and pressure relief valve are not supplied as standard with the dust filter).



It may be necessary to remove a diaphragm valve for internal inspection purposes.

The manifold supplied with the Spotair dust filter has been independently approved to operate under the conditions as specified in Table 2.

Controller

For C-Controller connections and set-up, refer to the C-Controller manual.

TABLE 2 - COMPRESSED AIR MANIFOLD DESIGN DETAILS

Design pressure:	6.9 bar (100 psig)
Maximum operating pressure, PS:	6.2 bar (90 psig)
Test pressure:	10.35 bar (150 psig)
Design temperature:	-30° to +60°C
Maximum rating of pressure relief device:	17 dm ³ /s at 6.9 bar (not supplied as standard)
Manifold volume:	6.3 litres
Product of pressure and capacity:	43.5 bar litres
Material used for manifold construction:	Structural hollow section
Minimum metal thickness before manifold requires special inspection:	To improve corrosion resistance the manifold is painted externally and internally using cathodic electrocoat. 5.5 mm

TABLE 3 - SPOTAIR DUST FILTER RANGE

Dust filter type*	Filtration area	Number of elements	Size of element
Fabric media			
SA-F20VF SA-F20VB SA-F20HF SA-F20HB	2.0 m ²	2	1.0 m ²
SA-F25HF SA-F25HB	2.5 m ²	2	1.25 m ²
SA-F40VF SA-F40VB SA-F40HF SA-F40HB	4.0 m ²	4	1.0 m ²
SA-F50HF SA-F50HB	5.0 m ²	4	1.25 m ²
Spun bonded polyester media:			
SA-C100VF SA-C100VB SA-C100HF SA-C100HB	10.0 m ²	2	5.0 m ²

***Designation codes**

SA-F	Spotair dust filter fitted with fabric media
SA-C	Spotair dust filter fitted spun-bonded polyester media
20, 25, 40, 50 or 100	Filter size
H	Horizontally mounted filter
V	Vertically mounted filter
F	Fan type filter
B	Venting type filter (i.e. no fan)

TABLE 4 - DESIGN LIMITS

Temperature range:	-10° to +60°C
Pressure range:	-200 mm W.G. to +200 mm W.G.
Maximum fan impeller speed:	300 RPM (50Hz) or 3600 RPM (60Hz)

TABLE 5 - WEIGHTED SOUND PRESSURE LEVELS**Noise levels:**

Spotair filters have an average reading of 78 dB(A)

All readings were taken in normal industrial areas, i.e. semi-reverberant surroundings, with local equipment silent, at 1.0 metre radius from the equipment housing and at motor shaft height, using a precision sound level meter and octave filter.

Noise levels of installed equipment may vary due to site conditions.

TABLE 6 - COMPRESSED AIR REQUIREMENTS

Working compressed air pressure ^a		Atmospheric air volume - F.A.D. ^b at 12 sec. intervals ^c	Pulse duration	Minimum pipe diameter ^d
3.8 bar	55 psig	1,77 L/s	100 ms	1/2" NB (12)

^a Normal operating pressure. ^b Recommended atmospheric air volume of clean, dry compressed air.

^c Recommended initial setting; this may be varied with experience.

^d Sizes suitable for runs of pipe up to 30 m (100ft) in length. For longer runs consult with Donaldson.

1 bar = 10⁵ Pa

TABLE 7 - FAN MOTOR CURRENT AND FUSE RATING

Fan Motor (0.75 kW)	Motor current	Fuse rating	
		HRC* amp rating	Fuse wire amp rating
Three phase (230V)	3.1	10	16
Three phase (400V)	1.8	10	16
Single phase (230V)	4.7	16	30

* HRC = High Rupturing Capacity

HRC fuses: BS 88 Part 2 1975 Class Q1 I.E.C 2169-2

Fuse wire size based on six full load current.