Installation, Operation and Maintenance Manual

Donaldson Torit® DCE®

DCE 100 Series Dust Filters

Publication 2638D (GB) • 1208 1A 1419 8000D

'MASTER' LANGUAGE

Donaldson®

IMPORTANT

PLEASE READ THIS MANUAL CAREFULLY BEFORE INSTALLATION

EXPLANATION OF SYMBOLS USED

Indicates information on the efficient operation of the dust filter.

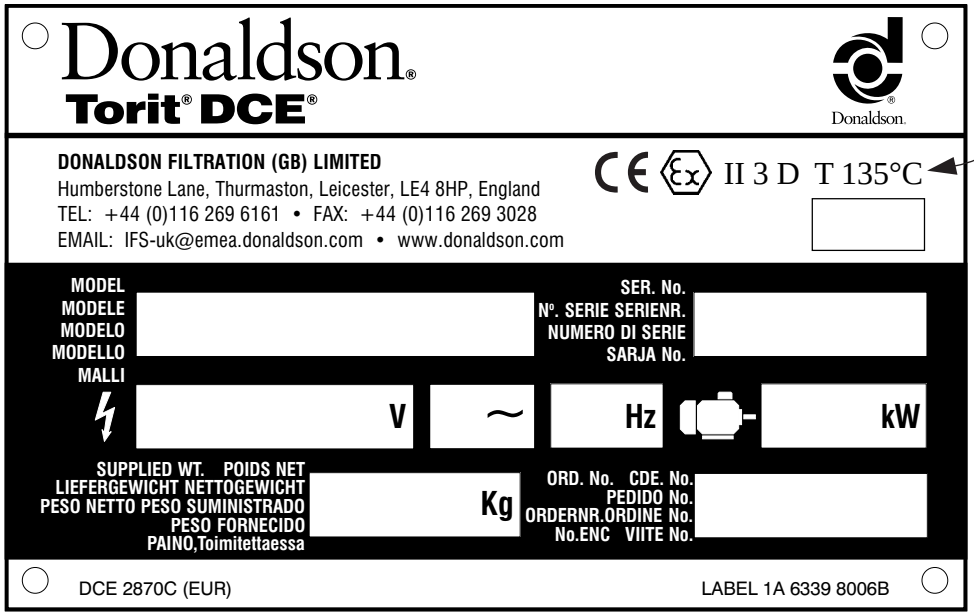
Indicates important information directed towards preventing damage.

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

IMPORTANT

These details correspond to the serial nameplate fitted to the equipment to which this Manual refers.

This marking is used only on equipment suitable for use in Potentially Explosive Atmospheres



INTRODUCTION

The DCE 100 series is a compact, cost-effective dust filter, ideal for venting small volumes of dust-laden air on bins, hoppers and vessels on conveying and material handling systems. With a main body manufactured from 304L stainless steel as standard, it is a much better alternative to a sock filter and ensures compliance with the relevant health and safety and CoSHH legislation.

The small circular footprint of the DCE 100 series means it can be optimally positioned on the vessel and, due to its compact design, the venting filter installs readily where headroom is restricted.

When working under normal operating conditions, the dust filter can handle 200-400m^3/h of air (depending on dust filter size and filtration velocity). The fan type dust filter is rated up to 225m^3/h at 50mm w.g. Under full flow conditions the sound pressure level for the fan type is a respectable 79dB(A), or 75dB(A) when fitted with an optional acoustic diffuser. Measurements were taken under semi-reverberant conditions, 1 metre from the front of the dust filter.

INSTALLATION

Mounting onto vessel

In order to mount the DCE 100 dust filter onto the vessel, it will be necessary to cut a 295 diameter hole and appropriate fixings on a 345 PCD (refer to Figs. 1 and 2). Prior to mounting, a continuous sealing strip or suitable sealant should be applied to the underside of the body flange to ensure that the joint between the dust filter and the vessel is sealed.

Ensure that dust filter is secure. Bolt in position before opening lid or fan box, as the dust filter will become unstable.

On fan type dust filters, during maintenance of the diaphragm valve and pilot valve, it is recommended to reposition the locking handwheels to support the manifold after it has been pivoted.

When closing the lid, keep fingers well clear to avoid trapping them between the lid and dust filter.

Pressure relief

A suitably sized pressure relief valve set at 4.2 bar (60 psig) should be fitted to protect the cleaning system.

Compressed air requirements

DCE 100 Series dust filters require an independent supply of clean, dry compressed air. Details of recommended pressure and air consumption requirements are given in table 1.

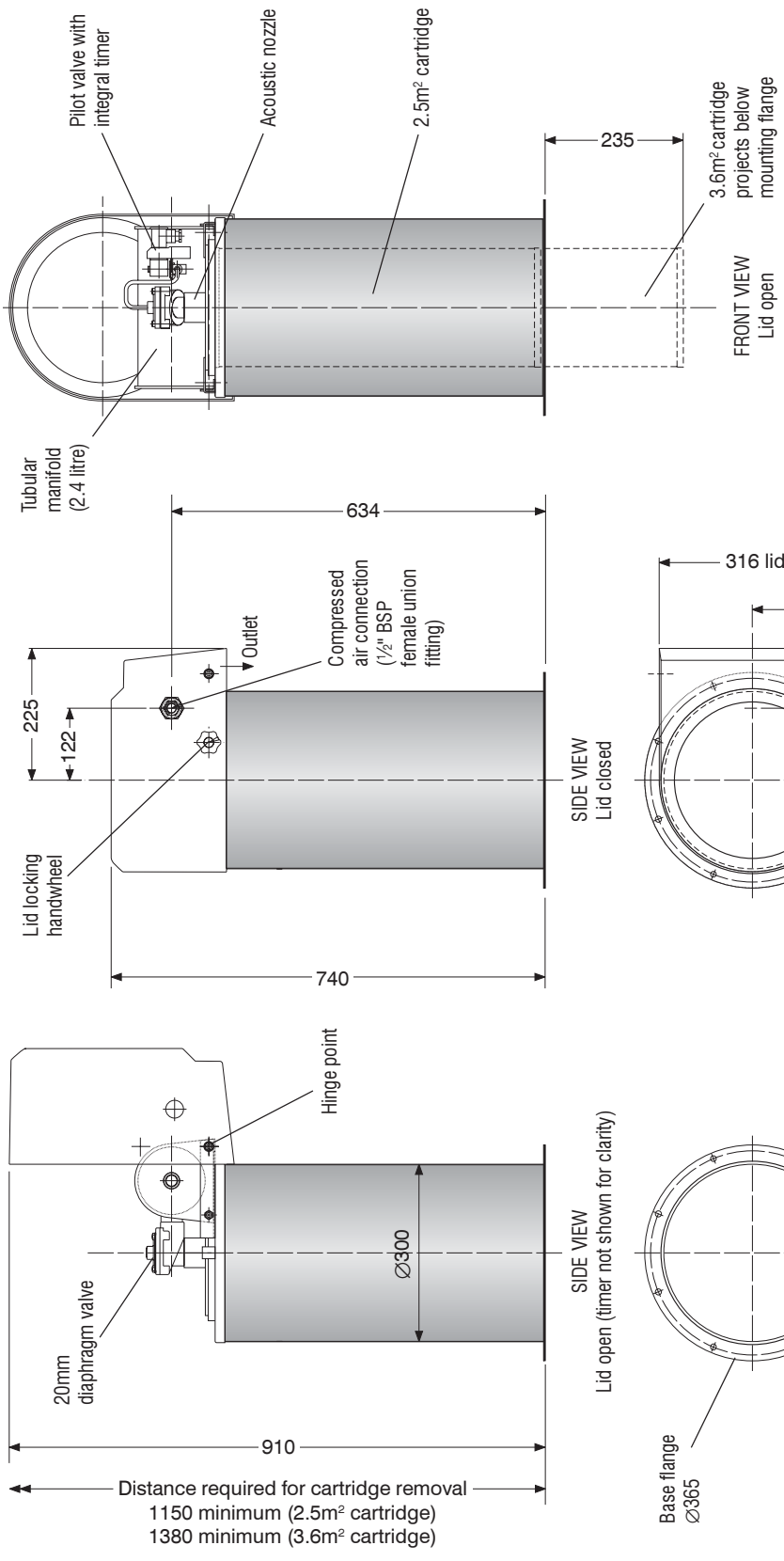
A design label is attached to each manifold.

In order to ensure the correct air pressure is maintained, a gauge and moisture separator/pressure regulator should be fitted in the line to the filter.

Maximum Operating Pressure: 3.5 bar (50 psi)
Product of Pressure x Volume: 10.1 bar litres

TABLE 1 – COMPRESSED AIR CONSUMPTION

Working compressed air pressure	2.8 bar (40 psig)
Atmospheric air volume (FAD at 12 sec. intervals – fixed)	1.6 m^3/hr (0.9 cfm)
Pulse duration (fixed)	200 ms
Minimum pipe diameter: Flexible connection (typical length 1m) Rigid pipe run (max. length 30m)	 ¼" NB (6) ½" NB (12)



All dimensions in millimetres (±5mm on main dimensions, ±2mm on detail dimensions). Weight of dust filter: 15 kg.
An optional body extension piece (Ø300mm x 242mm high) can be supplied. A different arrangement will apply to dust filters intended for use in hazardous areas.

Figure 1 DCE 100 Series – Venting type

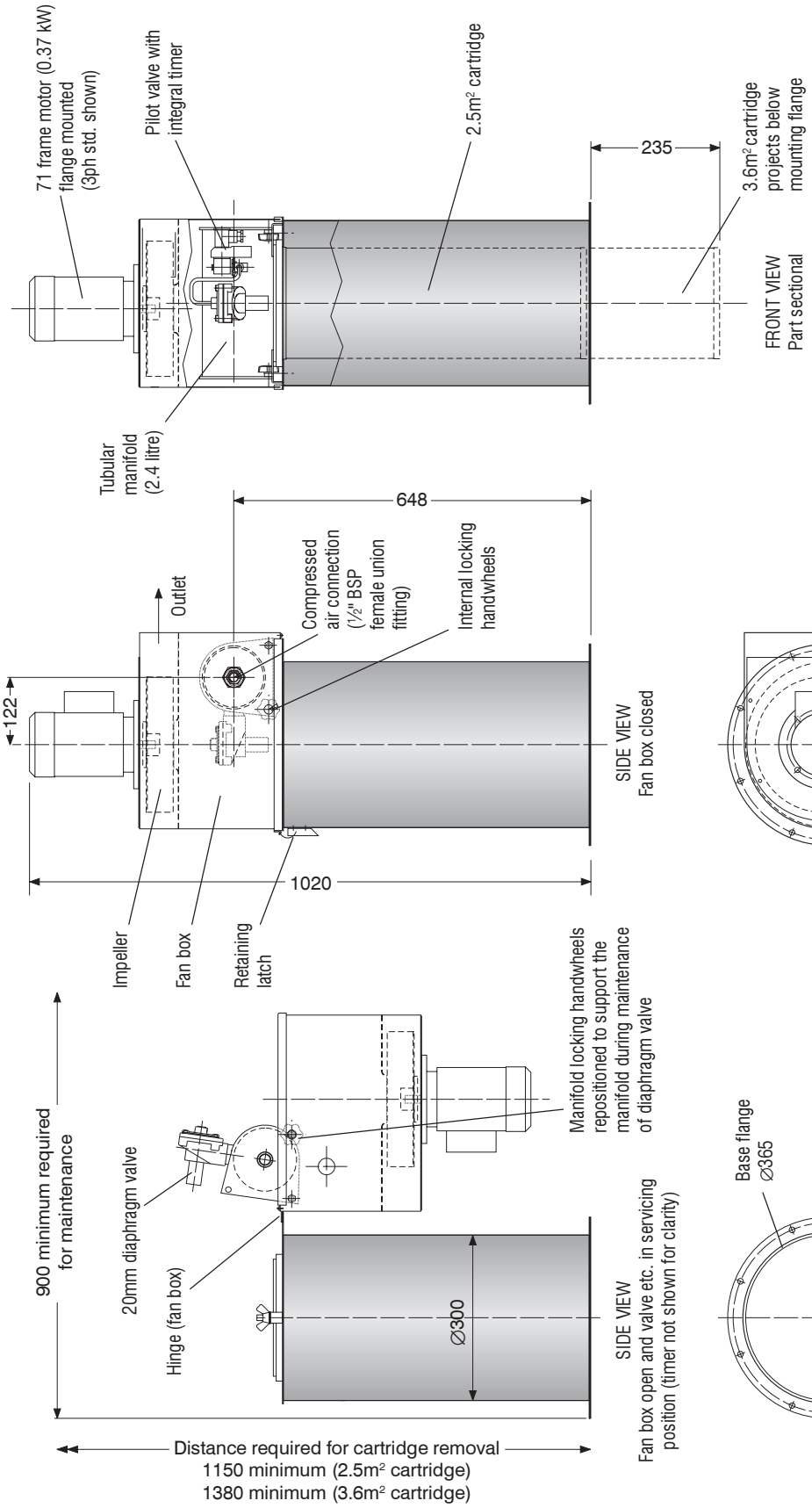


Figure 2 DCE 100 Series – Fan type

All dimensions in millimetres (±5mm on main dimensions, ±2mm on detail dimensions). Weight of dust filter: 30 kg. An optional acoustic diffuser can be supplied. An optional body extension piece (Ø300mm x 242mm high) can be supplied. A different arrangement will apply to dust filters intended for use in hazardous areas.

SPECIFICATIONS

Electrical details

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.

All electrical work should be carried out by competent personnel.

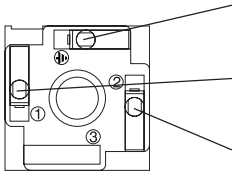
Pulse timer – voltage inputs

The dust filter can be supplied with various coils (see spares lists for available voltage ranges, items 22A to 22J).

Pulse timer – power requirements

AC version: 15VA (incoming supply fuse 1A)
DC version: 15W (incoming supply fuse 1A)

Connect DIN connector (located on timer assembly) as follows:



Earth : Earth

\+ Terminal 1 : Positive/Live

– Terminal 2 : Negative/Neutral

Fan Motor

For non-standard motors (i.e. IP65 and alternative voltages) consult Donaldson. Refer to motor label for connection details (normally located in terminal box lid).

A direct-on-line starter is required for the fan type dust filter. Refer to tables below for overload and cable sizing.

TABLE 2 – 0.37 kW MOTOR DETAILS

Standard motors		Suitable for voltage ranges
3 phase		220-240V and 380-420V, 50 Hz 200-250V and 380-500V, 60 Hz
1 phase	50 Hz	220-240V, 50 Hz
	60 Hz	220-240V, 60 Hz

TABLE 3 – CURRENT AND FUSE RATING

Fan motor (0.37 kW)	Motor current	Fuse rating	
		HRC amp rating	Fuse wire amp rating
3 phase (400V)	0.92 amp	4 amp	8 amp
1 phase (230V)	3.2 amp	10 amp	16 amp

SPECIFICATIONS

Cartridge Information

The Donaldson pleated antistatic cartridge is manufactured to high tolerances from spun-bonded polyester material. This incorporates wide pleats to ensure efficient dust cake release. The cartridge locates through a hole in the seal frame, a sealing ring being clamped between cartridge flange and seal frame, producing a dust tight seal. To maintain true antistatic features connection should be made to the dust filter securing bolts.

To remove the cartridge it is necessary to open the lid, so allowances should be made for flexible connections to electrical and compressed air supplies.

Fan Performance (50Hz and 60Hz designs available)

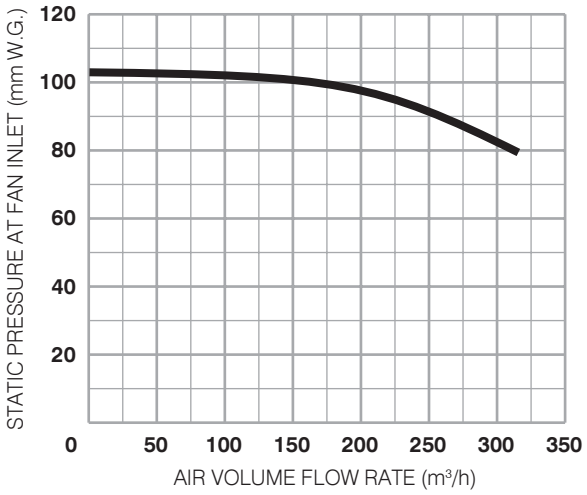


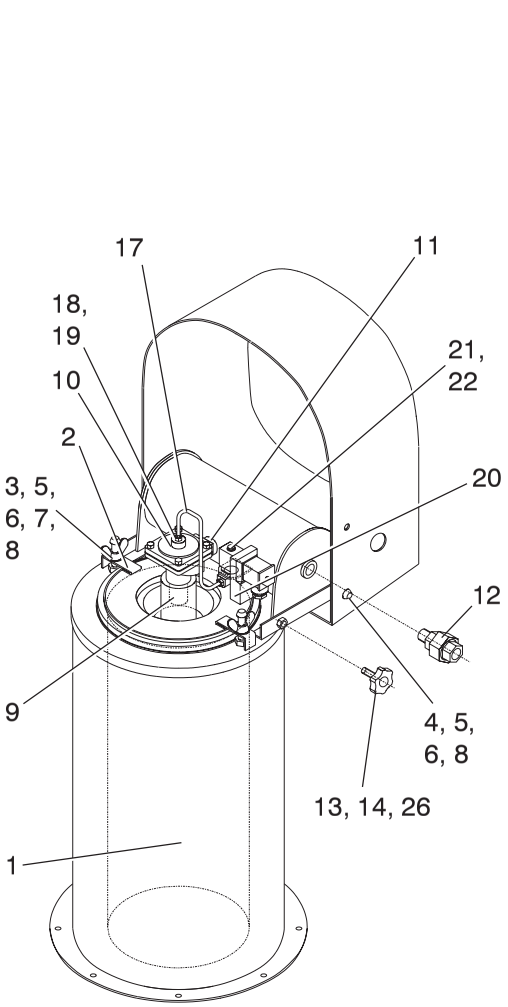
TABLE 4 – SOUND PRESSURE LEVELS (L_{Aeq})

	DCE 125B and 136B	DCE 125F and 136F
With acoustic diffuser	Not applicable	75 dB(A)
Without acoustic diffuser	Not applicable	79 dB(A)

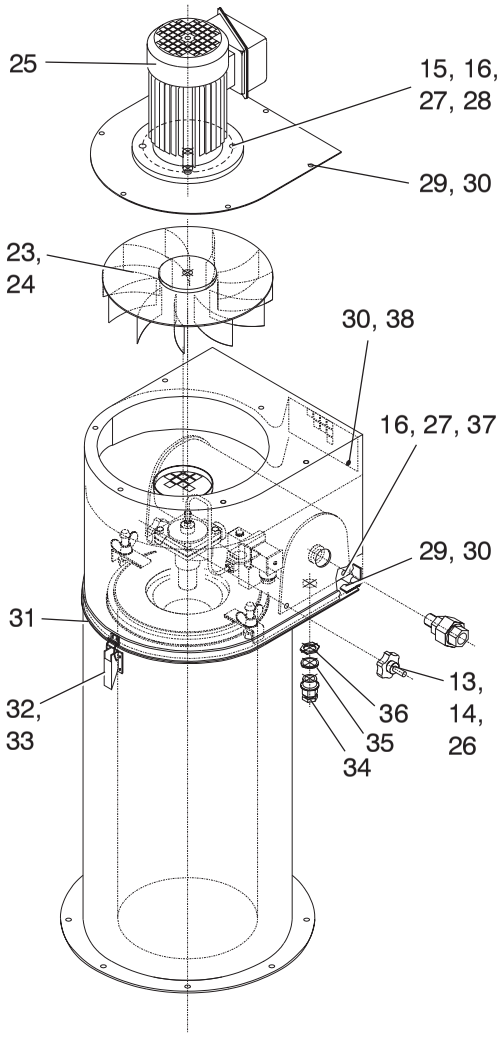
TABLE 5 – DESIGN LIMITS

Temperature range	−10°C to +60°C
Pressure range	−200mm WG to +200mm WG

SPARE PARTS



DCE 100 Series – Venting Type
Models 125B & 136B



DCE 100 Series – Fan Type
Models 125F & 136F

Note: Damaged safety related parts and safety components should be replaced only with genuine original spare parts otherwise CE mark is no longer valid.

Item No.	Part No.	Description	Quantity per dust filter				*
			125B	125F	136B	136F	
1A	5139-9001	Cartridge 2.5m² antistatic	1	1			✓
1B	5139-9003	Cartridge 3.6m² antistatic			1	1	✓
2	1414-0003	Cartridge clamps	2	2	2	2	
3	21966-527	M10 x 60mm setscrew	2	2	2	2	
4	21966-521	M10 x 35mm setscrew	2		2		
5	21995-709	M10 locknut	4	2	4	2	
6	21176-276	M10 washer	10	6	10	6	
7	21996-230	M10 wing nut	2	2	2	2	
8	21183-416	Thread end cap	4	2	4	2	
9	1489-0006	Acoustic nozzle	1		1		
10A	3189-9010	20mm diaphragm valve	1	1	1	1	
10B	25653-206	Spare diaphragm assembly	1	1	1	1	✓
11	25247-605	¾" BSP locknut	1	1	1	1	
12	3181-0062	½" BSP straight union	1	1	1	1	
13	23581-074	Handwheel	1	2	1	2	
14	21995-708	M8 locknut	1	2	1	2	
15	21993-108	M8 nut		4		4	
16	21176-275	M8 washer		10		10	
17	18276-122	Nylon tube ∅5mm x 200mm long	1	1	1	1	✓
18	25433-852	Tubing sleeve	2	2	2	2	✓
19	25433-702	Tubing nut	2	2	2	2	✓
20	27638-216	Timer kit	1	1	1	1	✓
21	25647-701	Pilot valve (less coil)	1	1	1	1	✓
22A	25647-886	Coil DC 24V	1	1	1	1	✓
22B	25647-887	Coil DC 48V	1	1	1	1	✓
22C	25647-888	Coil DC 110V	1	1	1	1	✓
22D	25647-889	Coil DC 240V	1	1	1	1	✓
22E	25647-890	Coil AC 24V 50Hz & 60Hz	1	1	1	1	✓
22F	25647-891	Coil AC 48V 50Hz & 60Hz	1	1	1	1	✓
22G	25647-892	Coil AC 110V 50Hz	1	1	1	1	✓
22H	25647-893	Coil AC 120V 60Hz	1	1	1	1	✓
22J	25647-894	Coil AC 230V 50Hz & 60Hz	1	1	1	1	✓
23A	1421-9000	Impeller assembly 50 Hz		1		1	
23B	1421-9001	Impeller assembly 60 Hz		1		1	
24	21924-565	Socket head capscrew		1		1	
25A	27572-546	Motor 71 frame 0.37kW 3ph**		1		1	
25B	27562-627	Motor 71 frame 0.37kW 1ph 50Hz**		1		1	
25C	27562-628	Motor 71 frame 0.37kW 1ph 60Hz**		1		1	
26	1411-0017	Handwheel retaining chain	1	2	1	2	
27	21966-465	M8 x 20mm setscrew		6		6	
28	21177-245	M8 shakeproof washer		4		4	
29	21966-413	M6 x 16mm setscrew		12		12	
30	21176-273	M6 washer		12		12	
31	1429-0009	Fan box seal		1		1	✓
32	22532-541	Toggle		1		1	
33	22532-596	Hook		1		1	
34	27736-160	M20 cable gland		1		1	
35	27833-164	M20 sealing washer		1		1	
36	27833-157	M20 locknut		1		1	
37	21993-138	M8 thin nut		2		2	
38	21932-413	M6 x 16mm ch. hd. setscrew		4		4	

* Recommended spares for up to two years' operation
** Standard motors (see motor details on page 7)

DECLARATION OF CONFORMITY

GB

EC DECLARATION OF CONFORMITY

(Machinery directives 98/37/EEC)

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Customer Service Centre:	**Donaldson Europe B.V.B.A.** Pathoekeweg 166, B-8000 Brugge, Belgium
Description of the machinery:	**Dust Collector**
Brand:	**Donaldson Torit DCE**
Description:	See attached **Scope of Delivery**

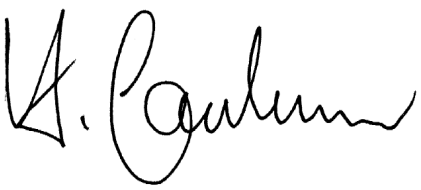
The undersigned, authorized by Donaldson, certifies that the machine described above, provided that it is installed, maintained and used in accordance with the instructions for use and the codes of practice, meets the essential safety and health requirements of the following Directives:

- Machinery directives 98/37/EEC
- Low voltage directive 2006/95/EC
- Pressure equipment directive 97/23/EC
- Electromagnetic compatibility directive 89/336/EEC
- Equipment and protective systems intended for use in Potentially Explosive Atmospheres 94/9/EC

IMPORTANT! Read the Installation, Operation and Maintenance Manual before using this machine. If you require additional copies contact your local Donaldson representative.

The machinery must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the provisions of the above mentioned directives.

Signature:



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