Formula Air
Supporting your performance

- ☐ FL 26 / VE 2200
- ☐ FL 26 / VE 3000
- ☐ FL 26 / RV 35/1
- ☐ FL 26 / RV 35/2
- ☐ FL 26 / RV 35/3
- ☐ FL 26 / HV 65
- ☐ FL 52 / VE 4000
- ☐ FL 52H / VE4000
- ☐ FL 52 / VE 5500
- ☐ FL 52H / VE 5500
- ☐ FL 52H / RV 45
- ☐ FL 104 / VE 5500
- ☐ FL 104 / VE 7500
- ☐ FL 104 / RV 45
- ☐ FL 104 / RV 50

FL – Cartidge filters

Maintenance manual

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1. EC- declaration of incorporation

EC-Declaration of Incorporation for Partly Completed Machinery

Manufacturer: v.Aa.Gram A/S
Klintevej4,6100Haderslev,Denmark
Tel.:+457452 30 75,Fax:+45745301 64

The undersigned hereby declare that:

Partly completed machinery: Cartridge filter

FL 26 / VE 2200	(04 618 000)
FL 26/VE 3000	(04 619 000)
FL 26 /RV 35/1	(04 677 050)
FL 26 /RV 35/2	(04 677 100)
FL 26 /RV 35/3	(04 677 000)
FL 26 /HV 65	(04 618 100)
FL 52/VE 4000	(04 620 000)
FL 52H/VE 4000	(04 618 250)
FL 52/VE 5500	(04 621 000)
FL 52H/VE 5500	(04 618 500)
FL 52H/RV 45	(04 678 050)
FL 104/VE 5500	(04 622 000)
FL 104/VE 7500	(04 623 000)
FL 104 /RV 45	(04 678 100)
FL 104 /RV 50	(04 678 000)

Machine n°: XXXXXX

Was manufactured in conformity with the following essential health and safety requirements in the Machinery Directive 2006/421EC Annex1. The following harmonized standards were used:

ISO 12499 ISO 14694 ISO 13857 Standard IEC norms

The partly completed machinery may not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with all relevant health and safety requirements in the Machinery Directive 2006/42/EC and other relevant Directives

Position : XX
Name : XX

Company : V.Aa.Gram A/S
Date : XX.XX.XXXX XXX (Signature)

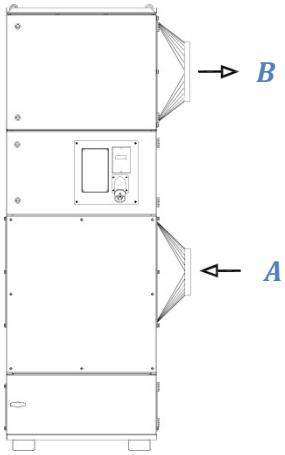
2. General description

Filterline type FL is a complete filter unit equipped with fan type VE/RV.

Unit is used for separation of dust from process air.

Unit may not be used in connection with ATEX-zones. Units for ATEX-zones we refer to Gram main catalogue in product group 10.

3. Function



Process air is led in at (A), where after the air passes the pre-separator and filter elements.

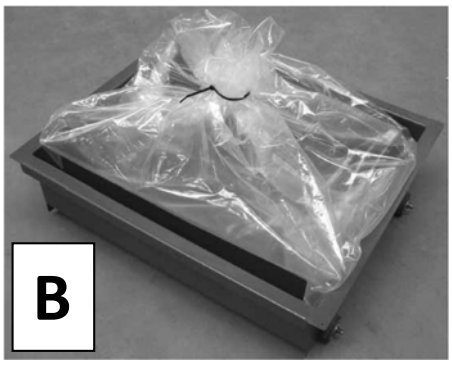
Air leaves the unit after the fan at (B).

3.1 Daily maintenance

Differential pressure (display) or watch is monitored daily. The pressure may not exceed 2,300 Pa. However, with filter elements G115A and G116A, this may be increased up to 3,000Pa.

Dust container is emptied according to need, but may never be filled more that max. 75% of its volume.

At work with dangerous dust a plastic bag is placed in the dust container. The surplus plastic bag is turned over the dust container (point A, page 3). When the bag must be removed, it is straightened out in its full length and is closed with 1 plastic strip, before it is taken out of the dust container to be destroyed according to governmental demands (point B, page 3). Sack must always be mounted, when a relief hose is mounted.



Repairs may only be carried out by professional trained personnel. Jet valves must be kept clean of dust.

4. Unit condition during operation

All filter doors must be closed and secured.

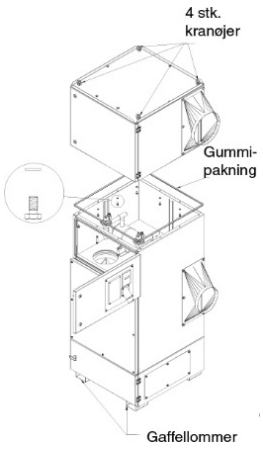
The dust container must be mounted and locked correctly during all steps of filter operation.

5. Intentional / unintentional application

Filterline type FL may not be used for the extraction of burning or glowing substances, like e.g. cigarettes, matches, metallic dust or chips, paper, cleaning wipes etc. Unit may not be used for larger chips and the like. For this Gram cyclone type CY is used as a coarse separator.

6. Mounting

For Denmark (DK):
Filterline type FL 26, FL 52, FL 52H and FL 104 are delivered on 2 pallets.



For Europe (EU):
Filterline type FL 26 and FL 52 are delivered completely assembled. Filterline type FL52H and FL 104 are delivered on 2 pallets.

Filter part is lifted by fork pockets to an even, stabile surface.

Fan part is lifted into place on top of the filter part by crane lifting points and straps.
The two parts are assembled through the tank area with the included bolts. Check that the seal is undamaged. All bolts must be mounted.

6.1 Electrical connection

Electrical connection must be made by the CE-plug on the unit front side. The following must be connected:

3 x 400 V, 50 Hz
1 x 0
1 x surface
Unit may not be used without this connection.

At units that are delivered in two parts the cable from the motor protection must be connected with motor according to diagram in motor connection box.

FL 104/VE 7500, FL 52H/RV 45, FL 104/RV 45 and FL 104/RV 50 are equipped with star / delta starter. Pilot cable and power supply cable from the total control box are connected to star / delta starter box, as the enclosed diagram in the back shows.

Fan type	kW	AMP. current	Working current consumption	Start current consumption	Motor starter type
VE 2200	2.2	16A	4.76	33.37	Direct hand-operated motor protection
VE 3000	3.0	16A	6.12	45.75	Direct hand-operated motor protection
VE 4000	4.0	32A	7.79	48.00	Direct hand-operated motor protection
VE 5500	5.5	32A	10.45	72.80	Direct hand-operated motor protection
VE 7500	7.5	32A	14.25	99.75	Automatic star-delta starter
RV 35/1	3.0	16A	6.12	45.75	Direct hand-operated motor protection
RV 35/2	4.0	32A	7.79	48.00	Direct hand-operated motor protection
RV 35/3	5.5	32A	10.45	72.80	Direct hand-operated motor protection
RV 45	7.5	32A	14.25	99.75	Automatic star-delta starter
RV 50	11.0	32A	20.70	144.80	Automatic star-delta starter
HV 65	5.5	32A	10.45	72.80	Direct hand-operated motor protection

BEFORE start-up the fan wheel must be rotated manually by hand to check, whether it runs freely and do not hit the cabinet.
If fan wheel hits the cabinet, it can be due to fan damages or motor has moved during transport.
If it is due to damages, please contact FORMULA AIR for rectification of it.
The sense of rotation must be checked. This is done through the front door or top lid on fan module, where cooling wing sense of rotation must be in accordance with the Gram arrow on the cooling plate.
Check for vibrations at first fan start, where fan wheel rotates correctly. If there are any abnormal vibrations, stop immediately fan operation and contact manufacturer. Hereafter it will be determined, what should happen.
Electrical connection to filter unit must be connected minimum 30 minutes after ended operation.
This is due to the automatic after-cleaning of filter elements.

6.2 Compressed air connection

The compressed air connection must give min. 5.5 - max. 6.0 bar dry compressed air. The connection is made at the end of the header tank. A reduction valve and water separator from Gram order no. 04 493 500 (½") can be advantageous.

DO NOT FORGET compressed air at possible after-cleaning.

6.3 Ducting connection

The ducting connection must be made with approved ventilation pipes.

For ATEX-units, it must be secured that piping cannot be blown away at a possible explosion.

6.4 Adjustments

Every filter unit is dimensioned for a certain workload which may not be exceeded as it would result in an improper function of the unit or a premature lifespan.

The unit is dimensioned following the following criteria's :

_____ Maximum air volume

_____ Type of dusts

Type of fan : (supplied by installer)

Type of cartridges : cartridges G1xx / ø225x1000 mm Polyester

Total surface area: m²

Filter unit can advantageously be ordered with frequency converter for automatic adjustment of pressure/air volume.

Fan type	kW	Order n# frequency converter
VE 2200	2.2	09 361 000
VE 3000	3.0	09 362 000
VE 4000	4.0	09 352 000
VE 5500	5.5	09 353 000
VE 7500	7.5	09 354 000
RV 35/1	3.0	09 362 000
RV 35/2	4.0	09 352 000
RV 35/3	5.5	09 353 000
RV 45	7.5	09 354 000
RV 50	11.0	09 355 000
HV 65	5.5	09 353 000

Order no. for pressure transducer: 09 370 000
(1 pcs. of both frequency converter and pressure transducer must be used.)

6.5 Differential pressure control

Filter element cleaning takes place by differential pressure control type BA programmed by V. Aa. Gram A/S.

Control will be standing in automatic operation at receipt. Display will first show differential pressure, when it is at minimum 200Pa.

Instructions for differential pressure control type BA - see point 10 (page 12).

6.6 Alarm on EN 15012-1 units

When a differential pressure is created over the filter elements that is larger than allowable, a yellow flashing light (ø57mm) at control box will warn. Electric diagram page 15.

If alarm is requested at the affected work places, yellow flashing lights (order no. 09 403 500) can be connected in parallel with the mounted light.

7. Noise damping

Shot noise must be damped with tank area noise isolation with Gram order no.:

For FL 26/FL 52H: 04 625 000
For FL 52/104: 04 625 100

Outlet air damping takes place with Gram channel silencer on order no.:

VE 2200 in FL 26 : 04 626 000
VE 3000 + RV 35 in FL 26: 04 626 100
VE 4000 in FL 52/FL 52H : 04 626 200
VE 5500 + RV 45 in FL 52/FL 52H/ FL 104 : 04 626 300
VE 7500 + RV 50 in FL 104 : 04 626 400

7.1. Noise data (L_{aeq} [db])

Filter type	Operation without cleaning	Operation with cleaning	Without operation with after-cleaning
FL 26/VE 2200	72	86	85
FL 26/VE 3000	73	86	85
FL 26/RV 35/1	79	86	85
FL 26/RV 35/2	79	86	85
FL 26/RV 35/3	79	86	85
FL 26/HV 65	83	88	85
FL 52/VE 4000	73	86	85
FL 52H/VE 4000	73	86	85
FL 52/VE 5500	75	86	85
FL 52H/VE 5500	75	86	85
FL 52H/RV 45	80	87	85
FL 104/VE 5500	75	86	85
FL 104/VE 7500	76	86	85
FL 104/RV 45	80	87	85
FL 104/RV 50	80	87	85

8. Maintenance

Filter unit must be maintained 1 to 2 times a year to work optimally.

Differential pressure control settings must be checked (see instructions for differential pressure control type BA in the back of these instructions). Differential pressure may not exceed 2,300Pa at max. set operation point for air volume.

Check that all valves shoot correctly. If the valves are checked with open clean air chamber, you must use ear defenders for 95-110 dB(A) (SNR=35), e.g. Peltor Optime III from 3M.

With electrical plug removed check the tightness of pipe connections, tank and valves.
Tank is emptied for water by ventilating valve beneath tank.

When compressed air is disconnected, check clean air chamber for possible dust.

If dust occurs, check filter sealing and filter elements for tightness between elements. Sealing at doors and dust container are checked for damages - possible defects are corrected, of if necessary seals are replaced.

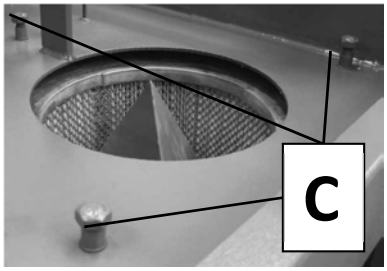
At filter defects, tight filters that cannot be washed (G105 and G104A), or worn-out filters must be replaced. Use protective clothing, gloves, and respirator with filter adjusted according to work place dust type.
Filter cartridge durability is variable, depending on circumstances such as filter stress, dust type and volume. Filter cartridges get blocked with time due to very fine particles that attach themselves to the fibers.

Also be aware whether compressed air operates with defect pressure reducing valve with water separator. This means an internal dirtying of filter cartridges. Under normal circumstances there will be a certain dust layer on the outside of cartridge, even after compressed air cleaning.
This layer increases the filtration capacity and the differential pressure.

If noticeable capacity reduction occurs, we recommend cartridge cleaning with high pressure cleaner (see point 8.2).

Every filter cartridge is mounted with bayonet grip attached with 3 bolts in filter mounting plate.

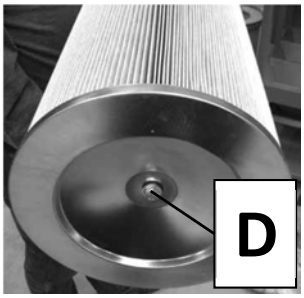
WARNING : Necessary protection need to be used when handling these elements. Make sure to wear protective gloves, eye protection and masks when needed.



8.1. Cartridge replacement

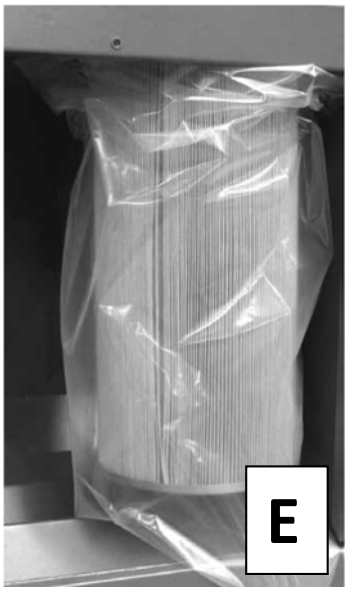
Every electric supply must be disconnected as well as pressure tank emptied for air before filter replacement from clean air side.

Side doors to clean air and row air chambers are dismounted. All filter bolts in clean air chamber are screwed completely down (point C, page 8).



Bolts for filter cones are removed (point D, page 8). Now the filter cartridges can be removed.

This is done by guiding a plastic bag up around the filter cartridge from beneath (Point E, page 8), gripping the cartridge and turning it clockwise until it is released from the bolts.

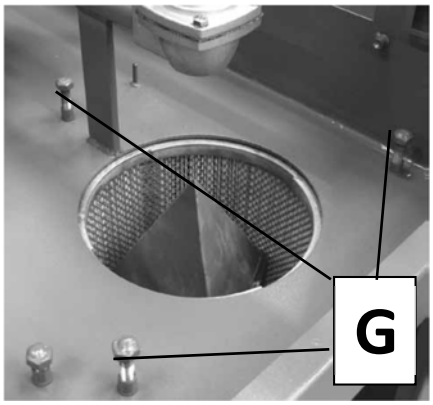


Filter cartridges are removed from the filter units, filter cone is removed, and plastic bag is closed with 1 plastic strip (point F, page 8).

The new filter cartridges (check sealing) are hung on the filter bolts. They are fastened hereafter (point G, page 8). Doors are mounted.

8.2 Cartridge cleaning

The filter cartridge type G103 can be cleaned, after having been dismounted from the filter as described in the procedure point 8.1. These can be cleaned with a high pressure cleaner with a maximum temperature of 50°C. Soap **WITHOUT** detergent can be used if needed.



The fitter cartridges G104 and G105 **CANNOT** be cleaned.

Place the cleaner nozzle at a distance of 30 to 50 cm from the cartridge (on WIDE spread). Only clean the outside of the cartridge.

The cartridges must be completely dry before reinserting them in the filter unit.

New filter elements must in dimension be equal to original cartridge. Filter cloth quality must be according to filter job.

Original type of filter elements can be seen on machine marking.

8.3 Jet valve exchange / repair

Exchange may only take place, when supply and compressed air are not connected to unit, and compressed air tank is emptied by compressed air connection.

Coil, membrane and valve top are exchangeable by disconnecting electric plug, where after 4 pcs. M6-bolts are loosened and new coil and membrane are mounted.

8.4 Fan maintenance and repair

Fan can be maintained by front door or top lid.

At service maintenance personnel must be aware of hot surfaces - especially the electric motor.

At service take care that fan wheel does not rotate (check motor cooling wing), even though power is cut off.

Fan maintenance personnel must be aware of the dangers with fan service and those substances that the fan possibly transports.

During service you must be aware of the fact that the fan wheel can be very sharp and can rotate in connection to motor.

Below you find those points that have to be checked at service.

At service please check the following:

- Whether fan wheel rotate correctly according to rotation arrow marking.
- Whether fan wheel is in balance during operation.
- Check whether fan wheel is dirty (this can cause unbalance), if yes:
- remove it through washing, brushing or scraping. Be careful: do not damage wheel.
- Check whether no desired foreign matter is present in fan wheel or housing, if yes:
- remove it and find cause.
- Check whether electrical connection is intact.
- Clean on and around fan.

8.5 Exchange of motor or fan impeller

At disassembling you must take care that fan wheel is not rotating (check motor cooling wing) and that current is disconnected and dismounted.

Personnel that disassembles fans must be aware of the dangers at fan disassembling, where dangerous substances or gases can be present in fan housing.

Motor flange, motor and wheel are taken off fan housing through top lid on Filterline type FL. Wheel locking screw is loosened. Fan wheel can be pulled off and replaced by new original wheel.

If motor must be changed, it is loosened from motor flange. Electro motor may only be exchanged with original type. After ended service all bolts and washers must be mounted again and tightened up.

Always use suitable lifting gear, hand gloves and suitable personal protection.

8.5.1. Fine tuning the impeller in the fan housing (only on models RV & HV)

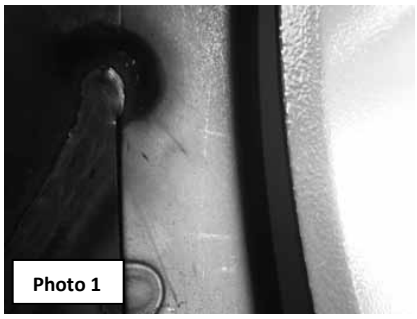


Photo 1

The space between the inlet of the fan housing and the inlet of the impeller of the fan must be uniform. (Photo 1 & 2, page 11)

This is achieved by tightening the bolts of the motor onto the fan chair. Check that the impeller turns freely without friction on the housing once everything is tightened.

At the same time, make sure that the back of the fan impeller hasn't moved too much forward towards the inlet. (Photo 3, page 11)

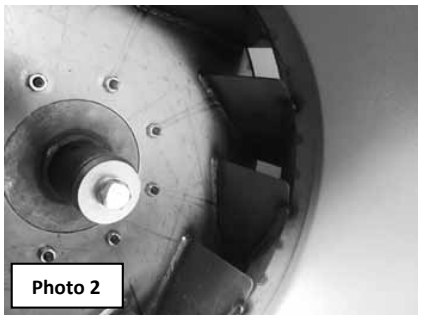


Photo 2

8.6 Irregularities

In case of unbalanced fan wheel we recommend that you send the wheel (motor + motor flange and fan wheel as complete unit) to our factory for balancing. Do not forget to inform FORMULA AIR that you request us to balance the fan wheel.


Photo 3

Submitting requires a case number, before we can handle the case.

Irregularities can normally be found through changed noise picture and changed pressure.

Changed pressure can be seen directly as alarm on statutory control device (valid for Denmark) for process ventilation units.

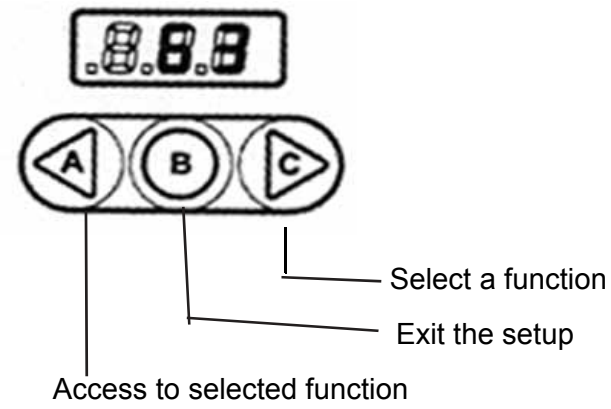
9. After maintenance

After the maintenance operations are completed, make sure that all electrical and pneumatic connections are established. Test and control the filter unit before operation.

10. Differential pressure control - type BA

In operation mode :

Press «C » to Scroll through the functions.



Mount the differential pressure control in a suitable location.

Electrical connections :

See diagram furnished with the controller. Display will light up once connected.

DO NOT FORGET : clamp 14 & 15 must be short-circuited (jumper) for the activation of the dP program.

Setting operation data :

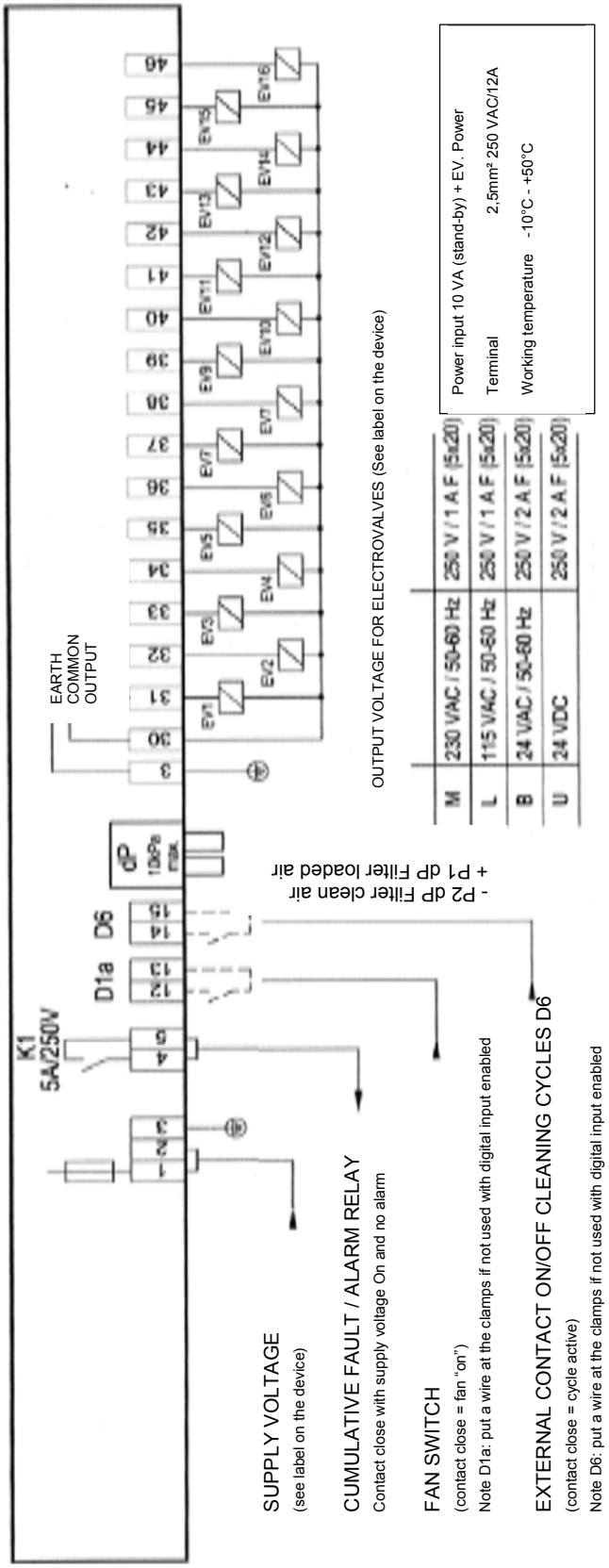
1. Press C to enter the menu. Function « F01 » is displayed on the screen.
2. Press A to enter in the function.
3. Press A or C to increase or decrease the value of the function.
4. Press B to go back to the functions menu.
5. Press C to move forward in the functions menu.
6. Repeat points 2 to 5 until function 13 is established.
7. Press B to leave the set-up menu.

Function	Description	Recommended value
F01	External start/stop - signal “0” / differential pressure control “1”	1
F02	Pulse time 0.05 - 5.00 seconds	0.24
F03	Pulse time 1 - 999 seconds	20 - 40
F04	Define number of valves (0 - 16)	See model
F05	Other cycles after fan stops (0 - 99)	15
F06	Manual activation of each valve. Press C selection; press A to activate	-
F07	Activation of dP program	1
F08	Output voltage	24V
F09	Zero adjustment“0.00”of the dP value at first unit start	0
F10	Set stop cycle cleaning in min. dP	0.60
F11	Set start cycle cleaning in max. dP	0.90
F12	3rd threshold – alarm max. dP used with relay K1	2.3
F13	Fan control - “0” by switch / “1” by dP reading	1

Standard description

Code	Description
B1a	**MANUAL SELECTION OF NUMBER OF OUTPUTS / ELECTRO-VALVES BY KEYBOARD** Every EDABUS line can drive up to 32 RED modules. If over 32, the activation of the RED modules will automatically switch from one line to the next one.
B2x	**SET ACTIVATION TIME FOR EACH OUTPUT FROM 0.05 TO 5.00 SEC.**
B3x	**SET INTERVAL TIME BETWEEN TWO ACTIVATIONS FROM 1 TO 999 SEC.** If the pulse time is lower than 1 sec. it is possible to set any interval time value in the range indicated. If the activation time is higher than 1 sec. the minimum settable interval time is: Minimum interval time = 5 times pulse time (B2x)
B8a	**SHORT CIRCUIT OUTPUT PROTECTION** In case of short circuit, the output is automatically shipped, relay K1 - normally active - is deactivated and the terminal board contact opens. The display alternatively shows code E1 and the number of the faulty output. Press key B to reset the alarm.
B10	**MANUAL ACTIVATION OF EVERY SINGLE OUTPUT** From the keyboard you can manually and individually activate every single output for a operation test. Press key A to select the output you wish to activate. Press key C to activate the output.
C0	**INPUTS ACTIVATION FROM KEYBOARD** In Set up you can activate or deactivated the control of all the inputs of the device. If inputs are deactivated, they are considered as always closed and no jumper is required on the terminal board. Use a jumper for unused inputs, if you
C1d	**DIFFERENTIAL PRESSURE DIGITAL CONTROL** With dP control active (set F07), the cleaning cycle starts and stops according to the dP reading. With dP reading under the STOP threshold the cleaning cycle stops and the display shows dP reading and letter P alternatively. The cleaning cycle stop is at the end of the cycle. With dP reading over the START threshold the cleaning cycle is able to start.
C3	**DIFFERENTIAL PRESSURE READING BY INTERNAL TRANSDUCER (max. 10 kPa)**
C7d1	**MAXIMUM dP ALARM WITH ALARMED OPEN CONTACT AND AUTOMATIC RESET** If the dP readout is above the threshold in Set up, the maximum dP alarm is activated. The display shows the alarm condition code E7 (see the alarm description) or the dP readout and the letter H alternatively, according to model. The corresponding alarm relay will signal its condition. The alarm is automatically reset when the dP readout is below the alarm thresh- old again. The activation of this alarm is delayed by 20 seconds by default.
C8	**ZERO dP READING AJDUSTMENT** In this Set up code it is possible to adjust the zero reading of differential pressure. In this function the display shows the dP reading and, with plant stop or air pipes not connected if the dP reading is not 0.00 kPa it is possible to adjust it by key A or C.
C13_10	**dP READING FULL RANGE 10 kPa** Maximum differential pressure measurable by the sequencer 10.00 kPa = 100.0 mbar = 1012 mmH2O With dP reading over 10 kPa the display shows “E” instead of the numeric value of dP.
D1ab1	**ADDITIONAL POST-CLEANING CYCLES AFTER THE STOP OF THE FAN** In Set up you can select the mode intended to manage the fan and the post-washing cycles: SET = 0 If you connect a voltage-free auxiliary contact of the circuit intended to drive the fan with the timer, you can add a pre-set number of washing cycles after the fan stop. Their number can be set from the keyboard from 0 to 99. Post-cleaning cycles can be also activated when the C6 contact is open. If the D1a contact is open, the display will show “-0-” and signal that the cycle is not working because the fan is off. The decimal points on the display will flash on and off during the cycles after the fan stop. NOTE D1a: Connect D1a by means of a jumper, if it is not used with active inputs (see F01). SET = 1 If the dP control is activated, you can add a pre-set number of washing cycles after the fan stop. Their number can be set from the key- board from 0 to 99. The timer will automatically recognize the fan state by comparing the dP readout with a 0.20 kPa fixed threshold: dP > 0.20 kPa = fan on, dP < 0.20 kPa = fan off. Post-cleaning cycles will be activated even if the dP readout = 0. If the fan is off, the display will show “-0-”. The decimal points on the display will flash on and off during the additional cycles. Post-cleaning cycles will be activated only if the dP readout should reach the cycle STOP threshold value during the normal operation
D6	**ON/OFF CLEANING CYCLE BY EXTERNAL VOLT FREE CONTACT** If contact D6 is open, the cleaning cycle is not enabled and the display shows “OFF”. By closing D6, the cleaning cycle can start from the first electro valve. NOTE D6: Use a jumper for D6 if it is not used with active inputs (see F01).
G1	**MAXIMUM LOAD POWER FOR 25W OUTPUT FOR MAX. 5 SEC.**
HV	**INPUT AND OUTPUT VOLTAGE SELECTION BY JUMPER JP1, JP2, JP3 ON THE BOARD** Use the jumpers on the board to select the supply voltage and the output voltage for the electro valves (see the plates on the sequencers). JP1: Supply voltage selection between 115VAC and 230VAC. JP2: Output voltage selection between 24, 115, 230V (Only with 115 VAC or 230 VAC power supply). JP3: Output voltage selection between AC and DC only with JP2 set to 24V. ATTENTION: Set F08 to the same output voltage that has been selected by means of the jumpers to adjust the short circuit trip thresh- old. Otherwise, this might cause any malfunction or damage to the sequencer.

TURBO differential pressure control



PLEASE NOTE !

Turbo differential pressure control type BA is connected to constant current and is not cut off with fan or the like.

Operation

When power is on, cleaning cycle will start, if all necessary conditions for operation are met :
OFF Cycle stops for cleaning, consent is missing (D6 open).
-0- Cycle stops for fan OFF (D1a open).
1.00/P Cycle stops for low dP (display blinks).
A01 Number of activated electro valves.
... Cycles after fan stop active (blinking points).
1.23 Differential pressure reading (kPa).

E dP reading above 9.99 kPa.
Key B = Alarm reset
Key C = Access to set-up.

Diagram for FL/VE with OFF-DELAY

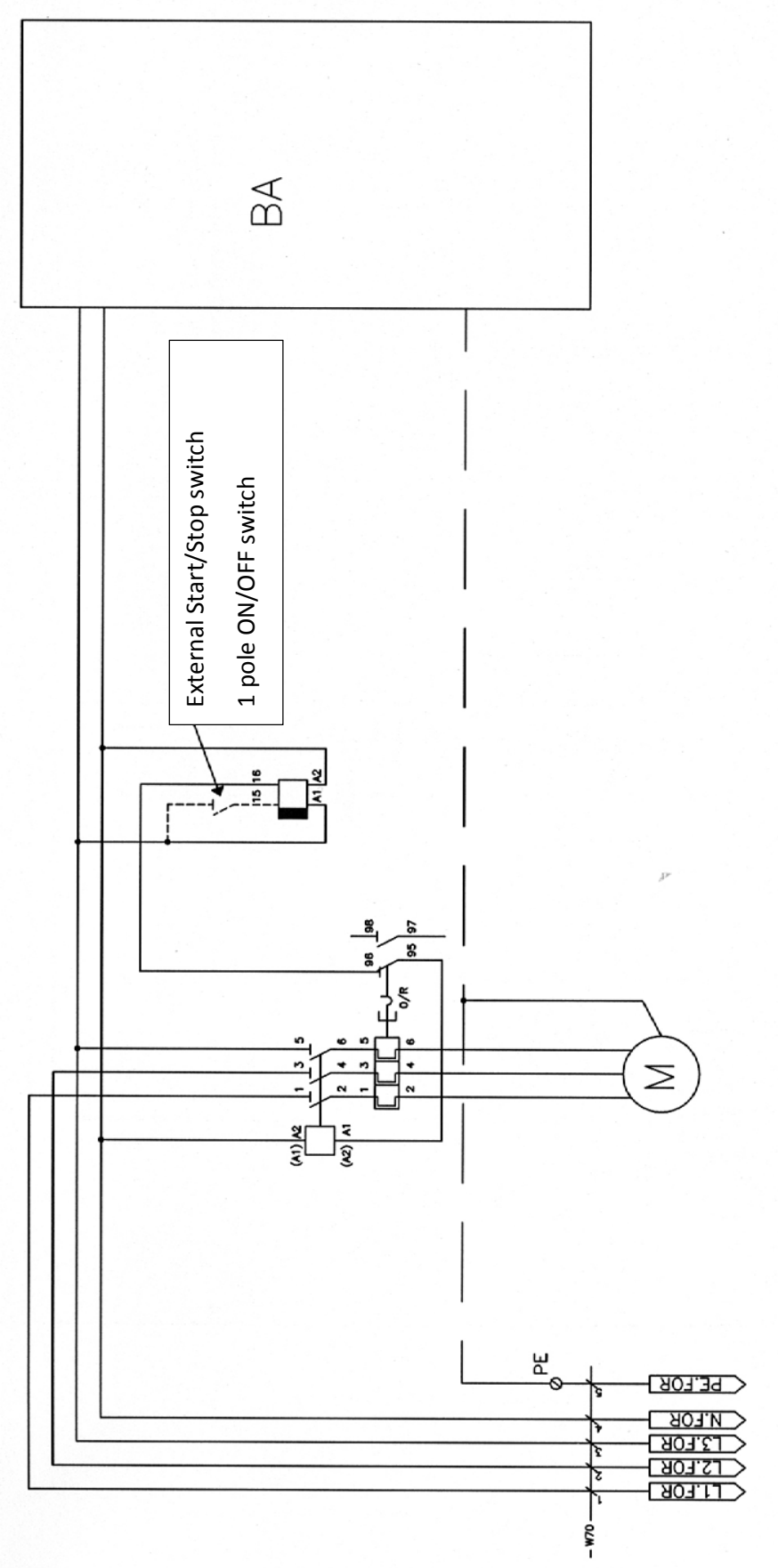
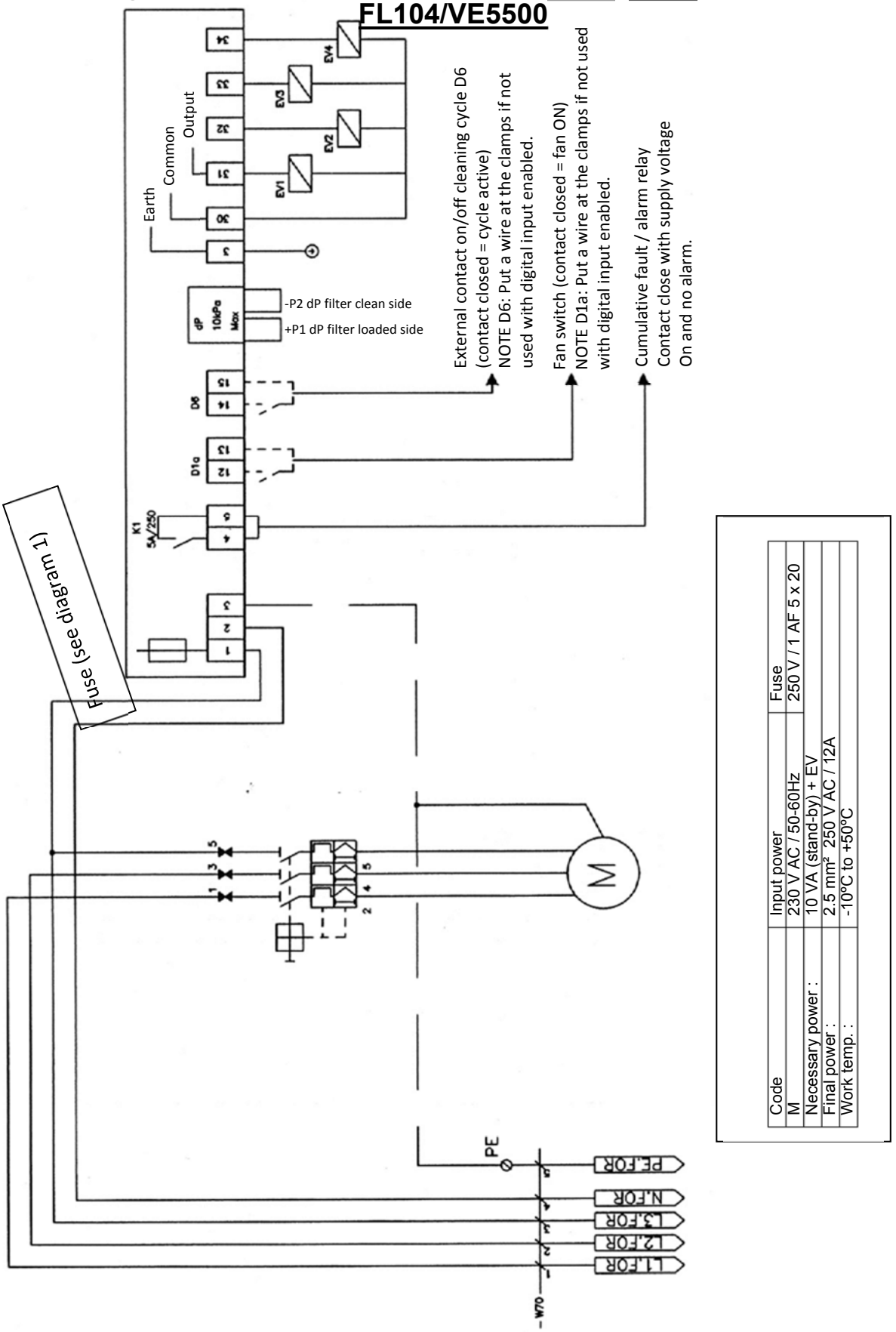


Diagram for manual motor protection on FL26/VE2200 – FL104/VE5500

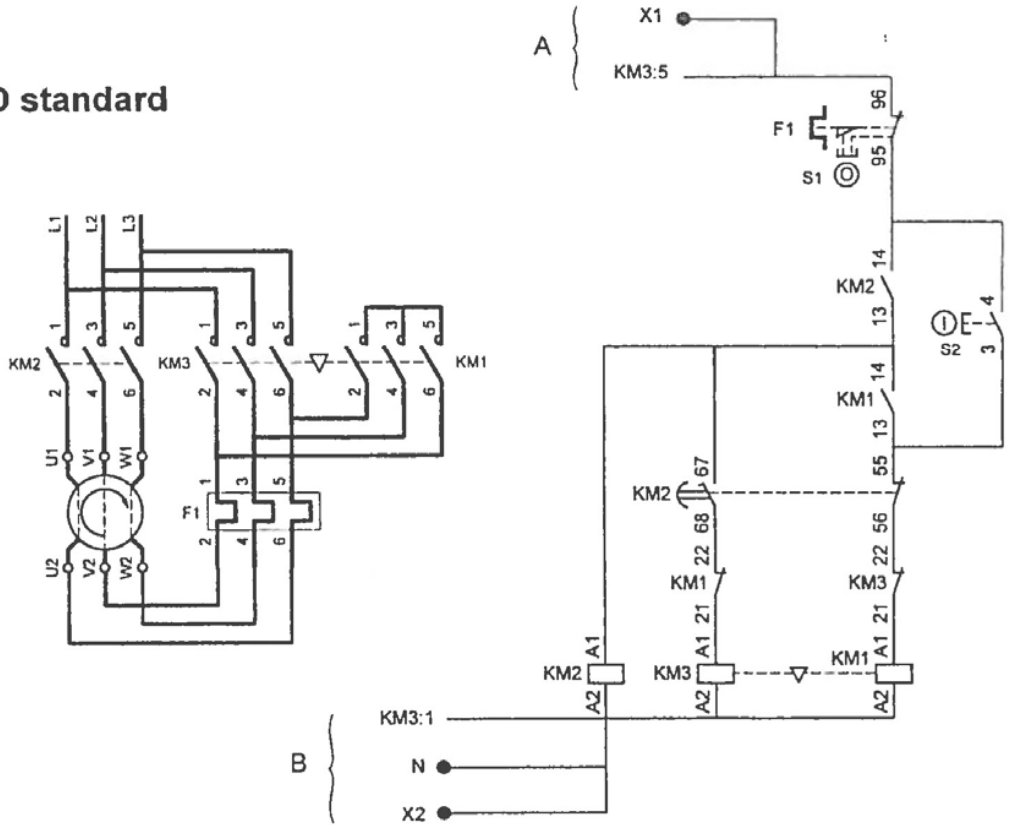


Code	Input power	Fuse
M	230 V AC / 50-60Hz	250 V / 1 AF 5 x 20
Necessary power :	10 VA (stand-by) + EV	
Final power :	2.5 mm² 250 V AC / 12A	
Work temp. :	-10°C to +50°C	

Diagram for Star / Delta starter on FL 52H/RV 45, FL 104/RV 45, FL 104/RV 50 & FL 104/VE 7500

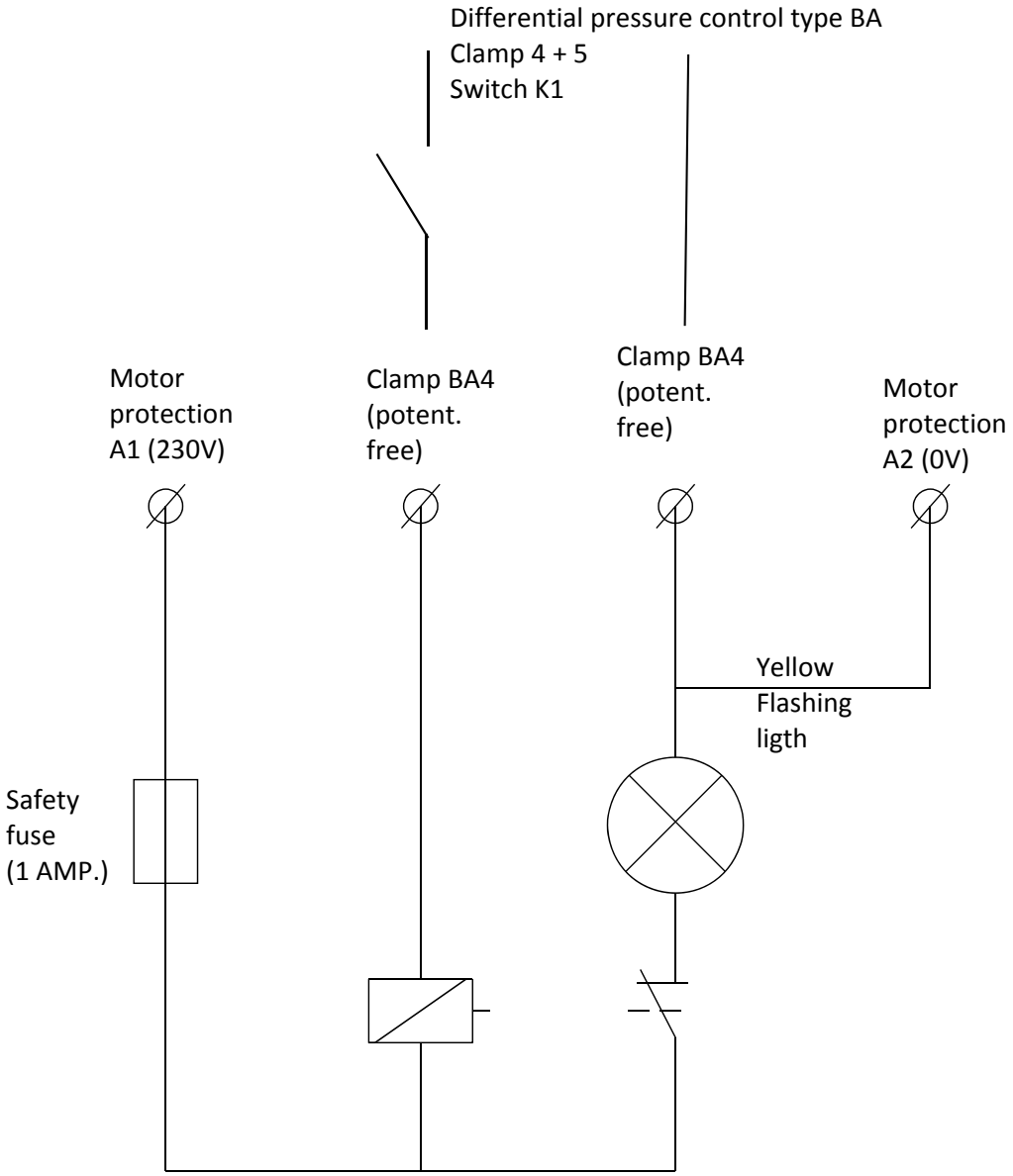
LE3-D	3 ~ 50/60 Hz AC3 θ ≤ 40°C					
	220 V	380/400 V	415 V	440 V	LRD●●	a M (A)
	kW	kW	kW	kW		
09	1,5	3	3	3	08	8
	3	5,5	5,5	5,5	12	12
	4	7,5	7,5	7,5	14	20
12	5,5	11	11	11	21	25
18	11	18,5	22	22	32	40
35	15	30	30	30	35	63

LE3-D standard



		Raccordements / Connections / Разъемы	
Tension bobine / Coil voltage Напряжение катушки		A	B
220 V, 230 V, 240 V	LE3-D09 - D35	KM3 : 5	Borne N/Terminal N / Контакт N
380 V	LE3-D09 - D35	KM3 : 5	KM3 : 1
Autres tensions / Other voltages / Другие напряжения	LE3-D09 - D35	Borne 1/Terminal 1 / Контакт 1	Borne 2/Terminal 2 / Контакт 2

Diagram of connection of yellow flashing light



Power from motor protection (A1 and A2) may only be supplied, when fan is in operation with 230VAC and 0VAC.

11. Dismantling and recycling

When dismantling a unit, be sure to keep in mind the following important information:

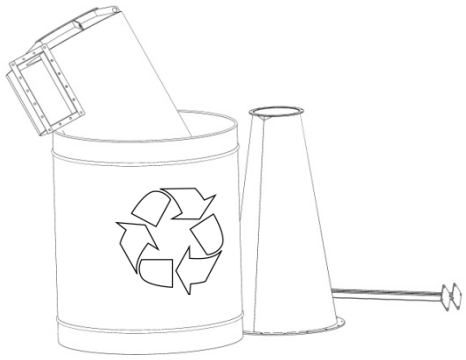
As the unit is dismantled, set aside all still functioning parts in order to re-use them on another unit.

You should always separate the different materials depending on their type : iron, rubber, oils, greases, etc…

Recyclable parts must be disposed of in the appropriate containers or brought to a local recycling company.

The rubbish must be collected in special containers with appropriate labels and disposed of in compliance with the national laws and/or local legislations in force.

CAUTION! It is strictly forbidden to dispose of toxic wastes in municipal sewerage and drain systems. This concerns all oils, greases, and other toxic materials in liquid or solid form.



12. Spare parts

For spare parts please contact Formula Air Group.

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NOTE : All drawings and references contained within this manual are non-contractual and are subject to change without prior notice at the discretion of the Formula Air group and its partners.