

## **OPERATION AND MAINTENANCE INSTRUCTIONS**

### **GALAXY™ TWIN FANS**



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#### • **STORAGE / INSTALLATION**

The unit must be stored in clean, dry conditions. DO NOT install these fans in areas where the following may be present:-

- 1) Excessive oil or grease laden atmosphere.
- 2) Corrosive or flammable gases, fluids or vapours.
- 3) Ambient temperatures higher than 40°C and below -15°C.
- 4) Relative humidity above 95%
- 5) Possible obstructions which will hinder removal.
- 6) Sudden ductwork transformations close to the unit.

If the unit is to be stored for a long period of time the fan impeller must be rotated by hand at monthly intervals to prevent hardening of the lubricant and corrosion or static indentation of the bearings.

It is recommended that before installation the resistance to earth should be measured and if found to be less than 2 MΩ the motor should be dried out before applying mains voltage.

#### • **IMPORTANT - SAFETY**

All air moving equipment may present electrical, mechanical or noise hazards either during installation or during operation. These instructions are meant to help in the prevention and / or minimisation of these hazards. It is important that due consideration is given to the implementation of these instructions and to due attention being given to applicable statutory requirements.

Potential hazards from rotating parts that can be reached during operation must be eliminated by using appropriate guards meeting statutory requirements.

All electrical installation must be undertaken by a suitably qualified and competent person and must be carried out in accordance with all relevant Statutory Requirements. Please check the details on the unit rating plate to ensure that the correct power supply (Voltage, Frequency, and Phase) is available. Do not use the fans with an incorrect power supply, overheating and failure of the motor will occur.

All fans generate noise during operation. Dependant on the installation sound attenuators or other acoustic treatment may be necessary to achieve acceptable noise levels in the ventilated area or the area surrounding the fan installation. The product catalogues indicate the noise levels generated by the equipment in standard test situations. The installed condition may affect the actual noise levels experienced in operation.

Please note a wide range of accessories for this product are available from Vent Axia Incorporating Roof Units Limited.

- **MOUNTING**

Galaxy belt and roof mounted direct drive fan units, must only be installed horizontally. The lid of the roof mounting unit should be removed to gain access to fit M10 coach screws (not supplied by Vent Axia Incorporating Roof Units Limited), when curb mounting.

The optional mounting brackets (2 off brackets per unit) are recommended, when mounting the duct mounted units (GDD & GDB). Holes will need to be drilled on each side of the unit to correspond with the respective number of holes provided on each support bracket (4 off – GDB and 2 off – GDD). Secure each bracket in place utilizing relevant fixings (not supplied by Vent Axia Incorporating Roof Units Limited), ensuring they are level with each other and the unit.

Duct mounted direct drive (GDD) units may be mounted for bottom access by making a small change to the shutters as follows:

- 1) Remove the lid of the unit and the retaining screws of the outer shutter brackets.
- 2) Move the nylon bushes to the vacant holes in all shutter brackets.
- 3) Reassemble shutter flaps into the nylon bushes.
- 4) Refit the retaining screws of the outer brackets and refit the lid of the unit.

- **GENERAL WIRING**

**Warning:- The Fan And Ancillary Control Equipment Must Be Isolated From The Power Supply During Installation And / Or Maintenance. The Equipment Must Be Earthed.**

Remove the cover from the fan terminal box. Connect the power supply from the local isolator (via any appropriate controls if fitted) to the terminal box via an appropriate cable gland. Refer to the wiring diagrams and select the appropriate connections for the fan, controller or other devices as being installed. Ensure that all earth connections have been made.

After completing and checking the connections to the terminal box replace the terminal box lid ensuring that the gasket is correctly seated in place. Ensure that all cable gland / grommet fixings and terminal box lid fixings are tightened correctly to prevent water ingress.

All fans are fitted with thermal protection, which is self re-setting, excluding GDD1 & GRD1. If the thermal protection device operates you **MUST** check for the cause before allowing the fan to resume operation. Failure to do so may cause damage to the motor and invalidate the guarantee.

Fuses in the circuit should be regarded as only protecting the wiring against short circuits or earth faults; they are not suitable for overload protection. Fuse ratings must be able to carry starting loads, which can be taken as a maximum of six times the running current for 25 seconds.

- **CHECK LIST**

- 1) Are all links and wiring complete (refer to wiring diagrams)?
- 2) Are all fixings secured?
- 3) Are all relevant guards fitted?
- 4) Are all protective circuit devices fitted and wired correctly?
- 5) Are all terminal box covers and gland fittings secure?
- 6) Are all earth connections secured?
- 7) Check that no hazard exists for persons in the locality of the fan. Check that the fan rotation is correct as per the direction arrows on the fan plate / casing. If not isolate power supply and check wiring.

- 8) Check that the current (amps) taken by the fan does not exceed the current shown on the rating plate.
- 9) Ensure rotation of impeller is correct. Incorrect rotation may cause irreversible damage to the motor. Three phase units require a trial connection, to reverse direction interchange any two supply leads.

- **RESPONSIBILITY**

Vent Axia Incorporating Roof Units Limited, as suppliers of the equipment cannot be responsible for the final installation and electrical connection of the product on site. We have made reasonable effort to offer guidance and assistance but the installer and electrical contractor on site have a responsibility for ensuring the equipment is safely and securely installed and electrically / mechanically safe in accordance with statutory requirements.

The fans are supplied as a component to be incorporated into a ventilation system. The final complete system installation that includes the fans MUST meet all relevant directives.

- **INSPECTION**

These pieces of equipment require maintenance, cleaning and inspection, therefore allow reasonable access for these operations to be carried out by a suitably qualified person safely.

**ISOLATE FROM POWER SUPPLY AND ENSURE POWER CANNOT BE RE-CONNECTED BEFORE ANY WORK IS CARRIED OUT.**

It is recommended that the fan be inspected after three months or sooner if conditions dictate. If a build up of dirt / deposits is evident then this should be carefully cleaned off. Please take care not to damage the fan or affect the balance of the impeller motor assembly (balance weights may be fitted to the impeller).

Further inspections should be carried out periodically as necessary dependant on experience and site conditions. It is recommended that a minimum of two inspections per year be carried out.

The fan motors are fitted with "sealed for life" bearings and, under normal circumstances, should not require maintenance.

- **BELT TENSION AND ALIGNMENT**

The belt tension and alignment should be checked:-

- 1) When fitting new belts, installing a new fan or just prior to starting the fan for the first time.
- 2) After the first 30 minutes of operation.
- 3) At least every 6 months.

Alignment

Ensure that the pulleys are correctly aligned before checking the belt tension and after any adjustments.

### Method For Checking Belt Tension

Using a belt tension indicator, with metric calibration:-

- 1) Multiply the centre distance (in metres) by 16, this gives the deflection distance in mm.
- 2) Set the lower marking ring to the deflection distance required in mm on the lower scale.
- 3) Set the upper marker ring against the bottom edge of the top tube.
- 4) Place the tension indicator on top of the belt at the centre of span and apply a force at right angles to the belt deflecting it to a point where the lower marker ring is level with the top edge of the adjacent belt. (For single belt drives a straight edge should be placed across the two pulleys to act as a datum for measuring the deflection).
- 5) Read off the force value indicated by the top edge of the upper marking ring.
- 6) Compare this value to the kgf value shown in the table below.

Belt Section	Force required to deflect belt 16mm per metre of span		
	Small Pulley Dia. (mm)	Newton (N)	Force (kgf)
SPZ	67 to 95	10 to 15	1.0 to 1.5
	100 to 140	15 to 20	1.5 to 2.0
SPA	100 to 132	20 to 27	2.0 to 2.7
	140 to 200	28 to 35	2.8 to 3.5

If measured force falls within the values shown then the drive should be satisfactory. A measured force below the lower value indicates under tensioning.

### Adjustment

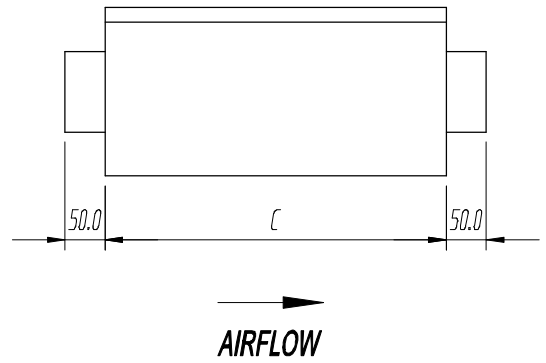
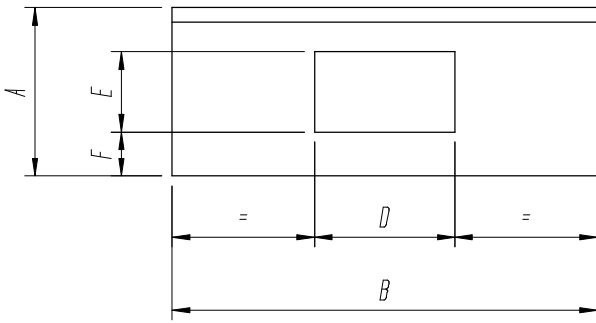
The belt tension can be adjusted by displacing the motor. After any adjustment, re-check belt alignment.

### Replacement Of Drive Components

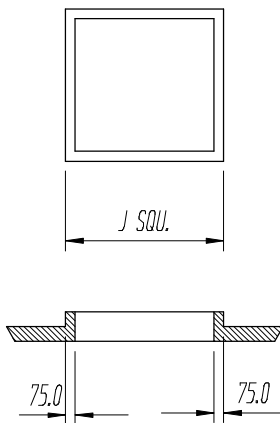
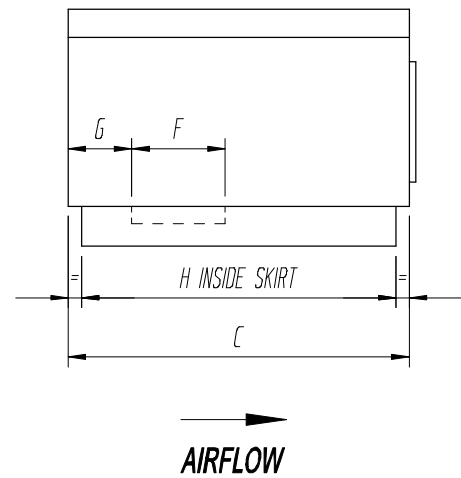
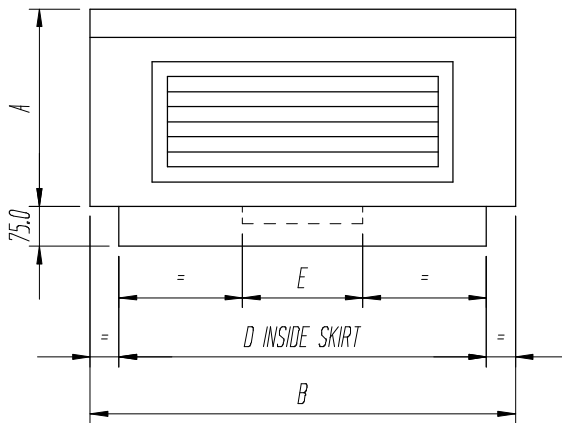
- 1) Belts:- The drive belts should be replaced periodically as they are worn. First move the motor toward the fan by a sufficient amount to allow the belts to be removed from the pulleys. All the belts in a drive should be replaced simultaneously. Ensure that the replacement belts are all matched (i.e. are exactly the same length). The new belts should be re-tensioned and aligned as per previous instructions and checked at the intervals stated.
- 2) Pulleys:- Belt drive units are normally fitted with taperlock pulleys and bushes.
- 3) Removal:- Remove the grub screws and oil lightly. Screw one of them into the extractor hole (on larger bushes two extractor holes are provided in which case two grub screws should be used). Tighten the screw(s) until the bushes are released from the hub of the pulley and the bush is released from the shaft. Pull the bush and pulley from the shaft as one unit.
- 4) Fitting:- Clean the bore of the pulley and the bush to ensure that all surfaces are free of grease and dirt. Fit the bush into the pulley. Oil the grub screws lightly and screw them by hand into the tapped holes between the pulleys and bush. Clean the fan shaft and fit the bush and pulley as one unit. Tighten the grub screws alternately whilst checking that the pulleys are in line until all of the screws are securely tightened. Fit the belt(s), re-tension and re-check the alignment of the drives as previously described.

# GALAXY TWIN FANS GENERAL ARRANGEMENT.

## GDD AND GDB RANGE.



## GRD AND GRB RANGE.

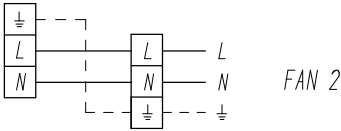
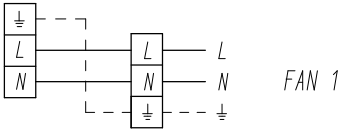


## ROOF MOUNTING CURB DETAIL.

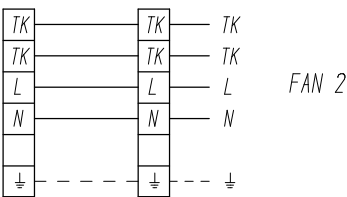
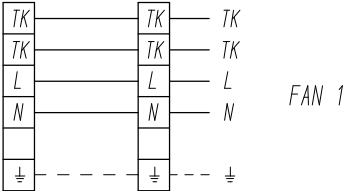
Model	A	B	C	D	E	F	Weight Kg
GDD1	210	530	425	175	100	55	9
GDD1X	210	530	425	175	100	55	9
GDD2	260	740	525	225	150	55	20
GDD2X	260	740	525	225	150	55	20
GDD2XH	260	740	525	225	150	55	20
GDD3	330	740	600	250	150	90	20
GDD4S	390	900	700	350	200	95	30
GDD4	390	900	700	350	200	95	30
GDD5	440	1000	800	400	325	57	52
GDD6	440	1000	800	450	350	44	59
GDD7	575	1250	1000	650	400	86	64
GDB1	480	850	1000	650	250	110	125
GDB2	540	1100	1175	762	305	116	175
GDB3	675	1250	1450	900	400	135	210
GDB4	765	1500	1450	1000	457	153	270

Model	A	B	C	D	E	F	G	H	J	Weight Kg
GRD1	250	670	500	500	150	100	150	500	490	11
GRD1X	250	670	500	500	150	100	150	500	490	11
GRD2	340	750	700	700	225	150	150	700	690	22
GRD2X	340	750	700	700	225	150	150	700	690	22
GRD2XH	340	750	700	700	225	150	150	700	690	22
GRD3	390	750	700	700	250	150	150	700	690	21
GRD4S	450	850	800	800	300	200	150	800	790	32
GRD4	450	850	800	800	300	200	150	800	790	32
GRD5	550	1000	950	950	500	250	150	950	940	55
GRD6	550	1050	1050	1050	600	300	150	1050	1040	61
GRD7	650	1250	1150	1150	750	350	150	1150	1140	65
GRB1	500	900	1100	900	500	250	247	900	890	90
GRB2	600	1150	1175	1120	762	305	150	1120	1110	120
GRB3	700	1450	1450	1450	900	400	150	1450	1440	195
GRB4	800	1550	1450	1550	1000	450	150	1450	1440	215

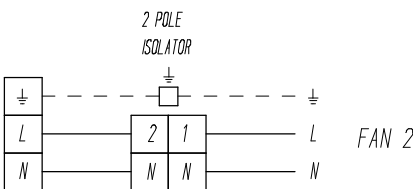
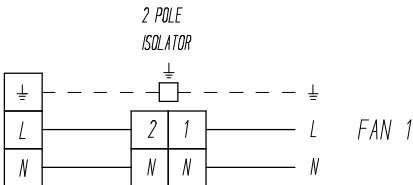
**GDD1, 2, 3, 4, 4S, 7 & GDB - 230V, 1PH, 50Hz.**



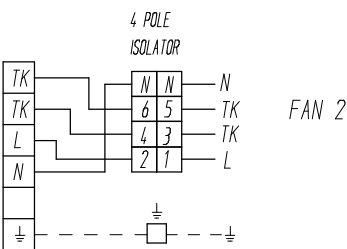
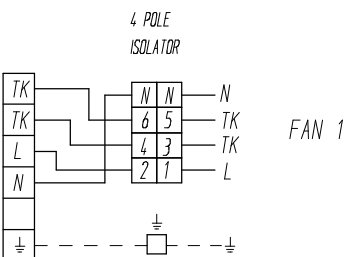
**GDD1X, 2X, 2XH - 230V, 1PH, 50Hz.**



**GRD1, 2, 3, 4, 4S, 7 & GRB - 230V, 1PH, 50Hz.**

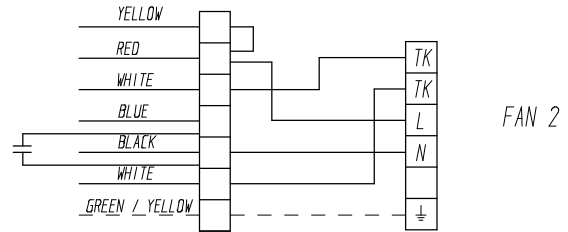
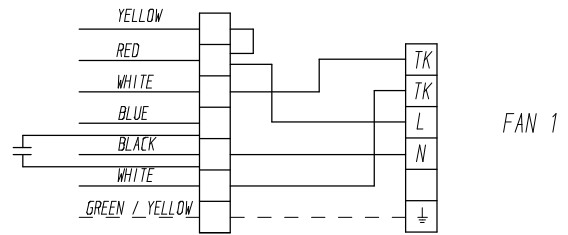


**GRD1X, 2X, 2XH - 230V, 1PH, 50Hz.**

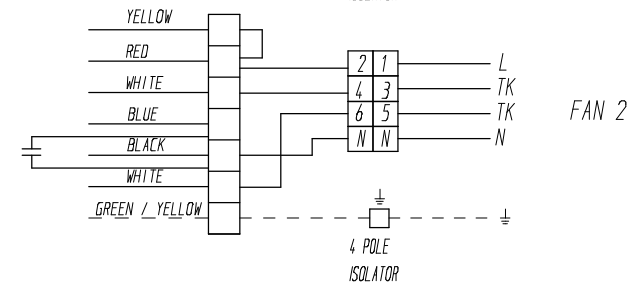
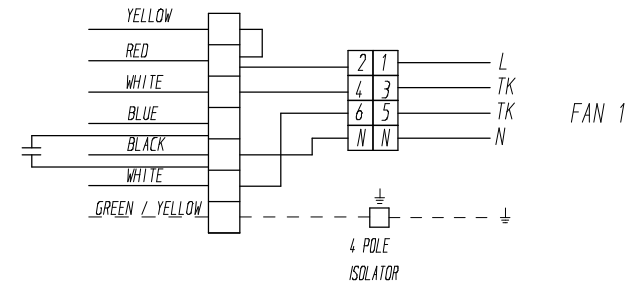


**GALAXY - GDD, GRD, GDB & GRB WIRING DETAIL.**

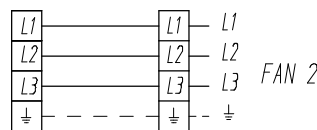
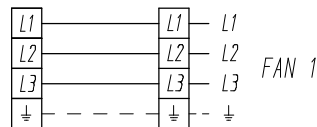
**GDD5 & GDD6 - 230V, 1PH, 50Hz.**



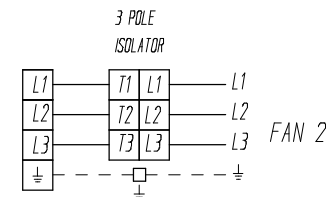
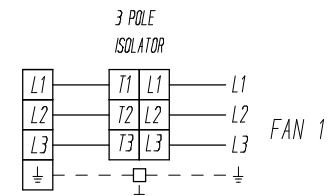
**GRD5 & GRD6 - 230V, 1PH, 50Hz.**



**GDB - 400V, 3PH, 50Hz.**



**GRB - 400V, 3PH, 50Hz.**



BELT DRIVE UNITS: Check direction of rotation of impellers. If incorrect, interchange any two supply leads.

These products must be installed by a suitably qualified and competent person in accordance with current applicable regulations.

## **Vent Axia Incorporating Roof Units Limited Guarantee**

Applicable only to products installed and used in the United Kingdom. For details of guarantee outside the United Kingdom, contact your local supplier.

Vent Axia Incorporating Roof Units Limited guarantees its products for one year from the date of purchase against faulty material or workmanship. In the event of any part being found to be defective, the product will be repaired, or at the Company's option replaced, without charge, provided that the product:

1. Has been installed and used in accordance with the instructions given with each unit.
2. Has not been connected to an unsuitable electricity supply. (The correct electricity supply voltage is shown on the product rating label attached to the unit.)
3. Has not been subjected to misuse, neglect or damage.
4. Has not been modified or repaired by any persons not authorised by the company.

If Claiming Under Terms Of Guarantee.

Please return the complete product, carriage paid to your original supplier or nearest Vent Axia Incorporating Roof Units Limited Centre, by post or personal visit. Please ensure that it is adequately packed and accompanied by a letter clearly marked 'Guarantee Claim' stating the nature of the fault and providing evidence of date and source of purchase.

As part of the policy of continuous product improvement Vent Axia Incorporating Roof Units Limited reserves the right to alter specifications without notice



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