



JetVent IMPULSE

Installation and Maintenance Instructions

THESE INSTRUCTIONS MUST BE READ FULLY BEFORE COMMENCING INSTALLATION

IMPORTANT NOTE

JetVent Impulse Fan Units are part of a declared / tested and certified product range as defined within EN12101-3:2002. They may not be modified, altered or disassembled without the prior agreement of Elta Fans Ltd. They are manufactured under strict quality procedures and carry their own product CE mark under EC Certificate of Conformity No: 0086-CPD-493001. A full range of fan accessories have also been tested and certified. The use of items not supplied by Elta Fans Ltd may invalidate the certification under which the overall equipment is supplied.

JetVent fans provide a critical (and possible) life saving function in the event of their operation in the smoke mode and must be inspected and maintained under a verifiable maintenance system in accordance with these instructions.

JETVENT – Unidirectional – Ambient temperatures up to +40 °C

MOTOR AND ELECTRICAL DATA – 400V / 3 Ph / 50Hz

Code	Speed r/min	Motor Power kW	FLC Amps	SC Amps
JVU-CPA-315 2/4-3	2880 / 1440*	0.55 / 0.11	1.42 / 0.36	7.10 / 1.40
JVU-CPA-400 2-3	2880	1.30	2.77	13.90

PERFORMANCE AND SOUND DATA

Code	Thrust Newtons	Flow rate m ³ /sec	Velocity m / sec	dBa ** at 1 m
JVU-CPA-315 2/4-3	20 / 5 ^	0.94 / 0.47	12.30 / 6.20	62 / 51
JVU-CPA-400 2-3	50	1.80	22.90	66

JETVENT – Unidirectional – Ambient temperatures +300 °C for 2 hour (FIRE)

MOTOR AND ELECTRICAL DATA – 400V / 3Ph / 50Hz

Code	Speed r/min	Motor Power kW	FLC Amps	SC Amps
JSVU-CPA-315 2/4-3	2880 / 1440 *	0.75 / 0.17	2.12 / 0.63	14.60 / 2.70
JSVU-CPA-400 2 /4-3	2880 / 1440 *	1.30 / 0.28	2.84 / 0.81	15.10 / 2.84
JSVU-CPA-400 2-3	2880	1.30	2.77	13.90

PERFORMANCE AND SOUND DATA

Code	Thrust Newtons	Flow rate m ³ /sec	Velocity m / sec	dBA ** at 1 m
JSVU-CPA-315 2/4-3	20 / 5 ^	0.94 / 0.47	12.30 / 6.20	62 / 51
JSVU-CPA-400 2/4-3	50 / 15 ^	1.80 / 0.90	22.90 / 11.50	66 / 49
JSVU-CPA-400 2-3	50	1.80	22.90	66

JETVENT – Truly Reversible – Ambient temperatures up to +40 °C

MOTOR AND ELECTRICAL DATA– 400V / 3Ph / 50Hz

Code	Speed r/min	Motor Power kW	FLC Amps	SC Amps
JVR-CPA-315 2/4-3	2880 / 1440*	0.55 / 0.11	1.42 / 0.36	7.10 / 1.40
JVR-CPA-400 2-3	2880	1.30	2.77	13.90

PERFORMANCE AND SOUND DATA

Code	Thrust Newtons	Flow rate m ³ /sec	Velocity m / sec	dBA ** at 1 m
JVR-CPA-315 2/4-3	20 / 5 ^	0.94 / 0.47	12.40	64 / 53
JVR-CPA-400 2-3	50	1.80	23.30	66

JETVENT – Truly Reversible – Ambient temperatures +300 °C for 2 hour (FIRE)

MOTOR AND ELECTRICAL DATA– 400V / 3Ph / 50H.

Code	Speed r/min	Motor Power kW	FLC Amps	SC Amps
JVSR-CPA-315 2/4-3	2880 / 1440 *	0.75 / 0.17	2.12 / 0.63	14.60 / 2.70
JVSR-CPA-400 2 /4-3	2880 / 1440 *	1.30 / 0.28	2,84 / 0.81	15.10 / 2.84
JVSR-CPA-400 2-3	2880	1.30	2.77	13.90

PERFORMANCE AND SOUND DATA

Code	Thrust Newtons	Flow rate m ³ /sec	Velocity m / sec	dBA ** at 1 m
JVSR-CPA-315 2/4-3	20 / 5 ^	0.94 / 0.47	12.40 / 6.20	64 / 53
JVSR-CPA-400 2/4-3	50 / 15 ^	1.80 / 0.90	23.30 / 11.70	66 / 51
JVSR-CPA-400 2-3	50	1.80	23.30	66

Notes! * denotes a two speed tap wound motor. ^ denotes JetVent two speed models.
 Starting currents indicated are DOL. All electrical data shown is at 400V / 3Ph / 50Hz.
 ** dBA figures shown are free field sound pressure levels at 45° to the inlet / outlet.
 Air density for the figures is taken as 1.2 kg / m³.

Dimensional Data

JETVENT – Unidirectional

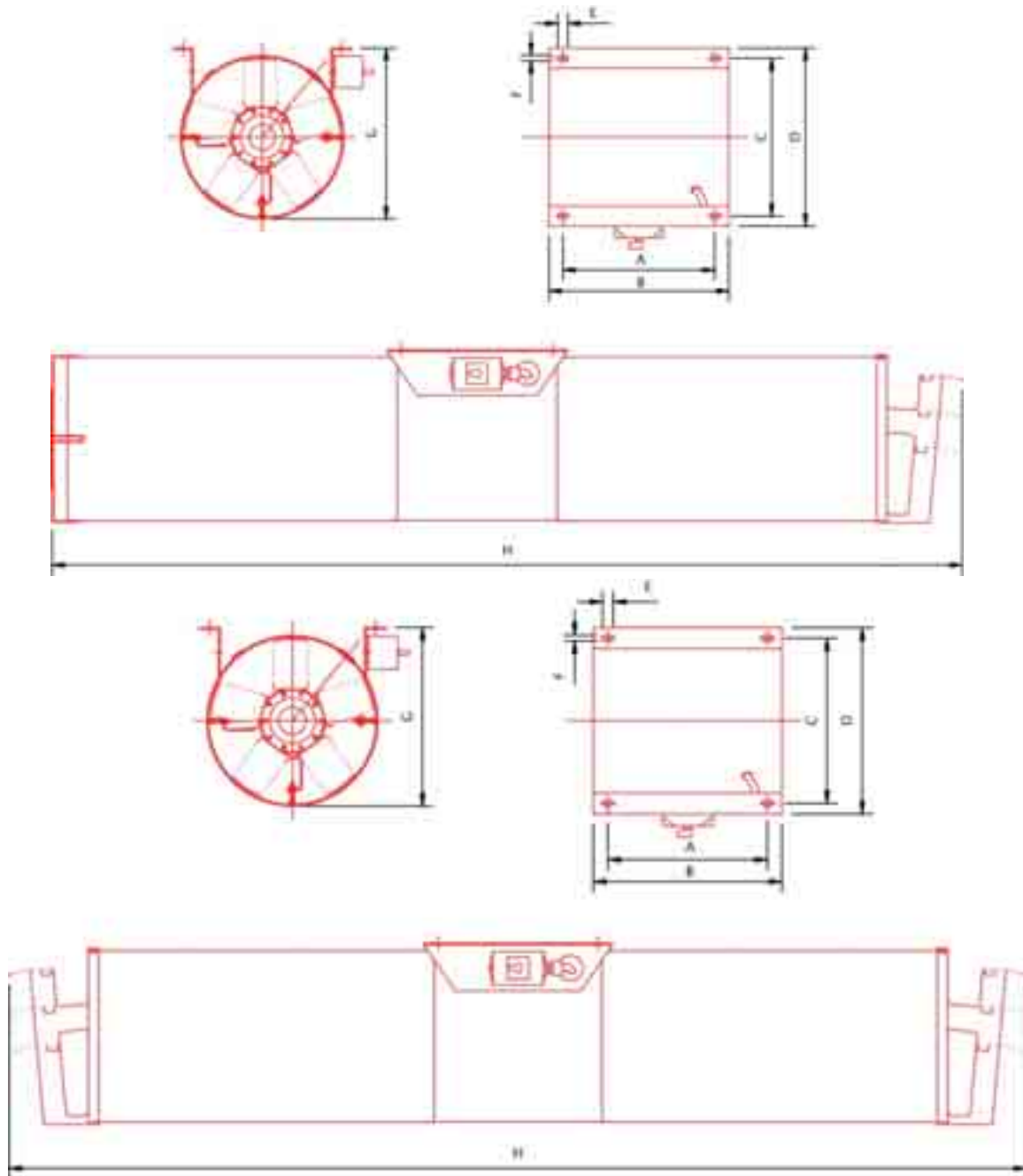
Code	A	B	C	D	E	F	G	H	Weight kg
JVSU-CPA-315	380	450	350	400	25	14	335.5	1990	65
JVSU-CPA-400	380	450	395	445	25	14	427	2880	75

All dimensions are in mm

JETVENT – Truly Reversible

Code	A	B	C	D	E	F	G	H	Weight kg
JVSR-CPA-315	380	450	350	400	25	14	335.5	2098	65
JVSR-CPA-400	380	450	395	445	25	14	427	3038	75

All dimensions are in mm



1.0 GENERAL

- 1.1 It is **important** these Installation and Maintenance Instructions are fully adhered to.
- 1.2 Full details of the unit supplied are shown on the product nameplate. The product CE nameplate must be checked to ensure that the stated **Fire Class**, together with the indicated **Temperature** and **Time** are equal to or greater than the installation into which the fan unit is being placed. If in doubt about any detail contact Elta Fans Ltd or its Agents for clarification.
- 1.3 All electrical installation must be carried out by suitably qualified and competent personnel in accordance with all current statutory requirements.
- 1.4 These instructions cover only the Elta Fans Ltd product and do not include the supply or installation of any safety equipment that may be required e.g. adequate guarding or protection from rotating parts and proper electrical isolation.
- 1.5 Any declarations made by Elta Fans Ltd about product installation and safety, are dependant on the fan equipment being used within installations which themselves meet the requirements of the relevant Standards and Directives appropriate to the site.
- 1.6 The fan / motor assembly is designed for use in an ambient temperature of -20°C up to +40°C and up to 95% relative humidity in normal mode. Designed for one off use at ambient temperature of +200 °C or +300°C for 2 hours in fire mode.
- 1.7 **The fan is not suitable for corrosive or explosive atmospheres.**
- 1.8 The installer should provide easy access to the fan to facilitate future maintenance.
- 1.9 The installer should ensure the fan is adequately and well supported by the use of tested and certified accessories and materials.
- 1.10 This product is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the product by a person responsible for their safety. Children should be supervised to ensure that they do not play with the product.

2.0 MATERIAL DELIVERY

- 2.1 Upon delivery of materials all materials should be checked as follows:
 - a) Inspect fully all items delivered for transit damage or loss or lack or omissions and
 - b) Hand rotate the impellers for free rotation.
- 2.2 Should any problems be present upon inspection, then immediately notify Elta (or their Agent) in writing complete with photographic evidence also providing consignment details / contract number / etc.

3.0 STORAGE

- 3.1 If the fan is not to be used immediately then it should be stored in a clean, dry, vibration free and lockable location.
- 3.2 The impeller must be spun by hand (ensuring that it does not come to rest in the same position) on a monthly basis to prevent hardening of the grease and possible damage to the bearings.
- 3.3 All items to be stored on pallets that afford adequate protection from damage, dust and high humidity.
- 3.4 If storage periods of longer than 1 month are anticipated then Elta (or their Agent) should be contacted prior to storage taking place, to ensue the storage area provisions will not be detrimental to the well being of Elta products.

4.0 INSTALLATION

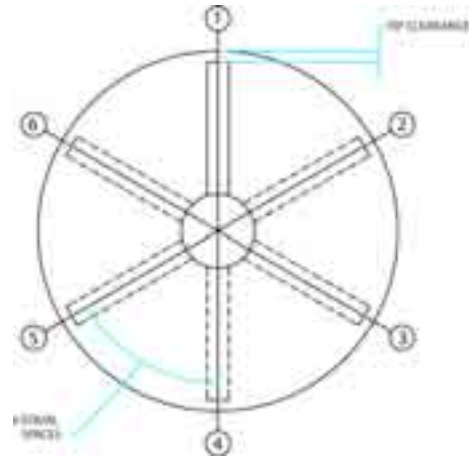
WARNING – The fan must be isolated from the essential power supply during installation and maintenance. The fan must be earthed in accordance with the local regulations.

- 4.1 Upon receipt, the fan assembly should be visually and carefully inspected to check for any damage.
- 4.2 Ensure that the impeller is free to rotate.
- 4.3 Successful fan operation in the event of a fire is dependent on the installed fan having the required impeller blade tip clearance. The min/max tip clearances must be checked and recorded to ensure that no transit or site damage/changes to these clearances has occurred.

Min/Max Tip Clearances for EN12101-3 F300 Fan					
Fan Dia.	Tip Clearance - mm		Fan Dia	Tip Clearance - mm	
	Minimum	Maximum		Minimum	Maximum
315	5.0	6.3	1000	8.0	10.0
400	5.5	6.9	1120	8.5	10.6
500	5.5	6.9	1250	10.0	12.5
560	5.5	6.9	1400	11.0	13.8
630	6.0	7.5	1600	12.0	15.0
710	6.0	7.5	1800	13.5	16.9
800	6.5	8.1	2000	14.5	18.1

4.4 Select one impeller blade and position it at each of the six radial positions per the diagram below. Note down the measured tip clearance in the adjacent table.

Fan Dia	Tip Clearance – mm		
	Measured	Minimum	Maximum
1	
2			
3			
4			
5			
6			



- 4.5 The recorded tip clearances together with a copy of these instructions should be kept within a site product/plant file for subsequent reference by fire authorities/other relevant bodies.
- 4.6 If there are any queries concerning the fan equipment, Elta Fans Ltd should be contacted immediately (prior to the installation commencing).
- 4.7 The fan must be securely mounted in the desired position to suit the application. The fan can be mounted in horizontal installations only.
- 4.8 In order to protect the fan from any adverse vibrations, or to avoid any transmission from the fan to the surroundings, it is recommended that full unit vibration isolation is utilized.
- 4.9 Check the details on the motor rating plate to ensure that the correct power supply (voltage, frequency and phase) is available.

An incorrect power supply will lead to permanent damage to the fan motor.

- 4.10 Refer to the appropriate wiring diagram. Ensure that all earth connections are made.
- 4.11 Suitably rated flexible conduit should be used for connection to the fan isolator.

Note: The flexible conduit should not be used as an earth conductor.

- 4.12 Means for electrical disconnection must be incorporated in the wiring installation in accordance with the relevant wiring and electrical regulations.
- 4.13 Where inverters are to be used to control the modulation of the frequency for speed control, then suitable inverter wiring details must be used before installing and a check with Elta must be made before the use of inverters in fire applications.
- 4.14 Ensure that the fan / motor unit is **NOT** subjected to unspecified forces that may “deform” or “load up” the unit in such a way that it may affect safe operation or limit the unit life.

Note! The fan / motor unit should not carry more than its own weight.

5.0 JETVENT - INSTALLATION

- 5.1 The JetVent units are each to be moved around site on pallets due to the weight of the units and the fact that the unit weight is not evenly distributed making lifting dangerous if not carried out with care.
- 5.2 The position of each of the units is first marked out below the slab, using lasers to accurately position in the required place.
- 5.3 The anchor fixing bolts (sized to suit depth from slab and the unit weight) are positioned in the drilled holes made in the underside of the slab, ensuring they fit tightly and correctly into the drilled holes. (This is not an issue as it should not affect structural stability of the slab).
- 5.4 AV pads are secured around the anchors once they are in position.
- 5.5 The JetVent unit is carefully lifted into place from below to the anchor bolt fixing points. Each unit is carefully lifted into desired position on a support pallet, by forklift or other suitable lifting method.
- 5.6 Once in position, the fixing brackets of the unit are placed over the bolts and the fixing washers and nuts tightened into place. The units will then have final adjustment (before fully tightening) in order to point each JetVent unit in the desired design direction to ensure flow is towards the exhaust position previously determined. Note! Any hangers must be of suitable size and strength to carry unit weight under operational mode.
- 5.7 Following final positioning, the previously tested wiring connections are made into the external isolator.
- 5.8 Pre – start checks as previously advised are begun prior to commissioning of the unit and system.
- 5.9 Exhaustive checks and tests are made to ensure that the unit is operating effectively and efficiently and in line with the designed application.
- 5.10 Finally simulated smoke tests may be required to be carried out to the satisfaction of attending fire authorities to ensure that the unit and system installed meet with their requirements.

6.0 ACCESSORY INSTALLATION

Note: Only certified and tested accessories should be used. The use of non-certified accessories may invalidate the fan certification.

- 6.1 DAMPERS – Damper blades should be moved through their full range to ensure smooth operation. If the damper is not supplied fitted to the fan unit, the orientation and operation of the dampers should be checked carefully upon installation to the adjacent fan/ductwork items.
- 6.2 FLEXIBLE CONNECTORS – Ensure that the ductwork is correctly aligned and the connectors are not over taut yet not too slack.
- 6.3 ANTI-VIBRATION MOUNTINGS – These will be of spring type in compression and will be fitted (or provided for fitting) under the fan mounting feet.

7.0 START-UP

- 7.1 Ensure that all electrical circuits are complete, tested and recorded and acceptable.
- 7.2 Ensure local isolator is turned on and that there are no obstructions or debris within the duct or fan casing to damage the impellor.
- 7.3 Initially switch on the unit briefly to check the rotation and airflow is as required.
- 7.4 Check the motor amperage draw does not exceed the nameplate ratings.
- 7.5 Ensure there is no impeller / tip contact with casing - if there is, immediately stop the unit and recentre impeller within the casing to the clearances specified on fan assembly drawing.
- 7.6 If there are no adverse problems during the checking of items (a) to (e) above. Then continue to run unit for a further 30 minutes to ensure smooth and trouble free operation under stipulated control modes.
- 7.7 If the entire system runs for the 30 minute duration and no problems are apparent. The unit may then be considered satisfactory.
- 7.8 Once all units pass the above schedule then a full system test in accordance to control methodology can be carried out and the system is considered acceptable.

8.0 FAN MAINTENANCE

- 8.1 Inspection for smoke equipment should be carried out at regular intervals and at a period of at least every 6 months.
- 8.2 As these elements are part of a larger life safety system. It is imperative that a project specific program for regular maintenance should be offered indicating a scope of work against a specified period of time that complies with the requirement for fire elements of the building.
- 8.3 Provide a typical spares requirement for the period following Warranty for client assessment.

- 8.4 Following isolation of local isolator supplied with the product, all electrical connections, interfaces to be checked and repaired as required, then retested for effectiveness.
- 8.5 Ensure that the current / voltage / frequency / speed / temperature parameters are all as those indicated on the nameplate.
- 8.6 Ensure no debris or dirt is attached to the fan assembly that may obstruct the effectiveness of the unit and a suitable method is available for the removal of any debris found inside.
- 8.7 Ensure the impeller is at rest before making any checks on the assembly.
- 8.8 Ensure that the local isolator is locked before working on the fan / motor assembly. Ensure that all drives, inlet and outlet points are complete with necessary guards.
- 8.9 Check direction of airflow and change polarity should the fan be running in wrong direction at start up.
- 8.10 Bearings are of the 'sealed for life' type and will not need a detailed inspection.
- 8.11 Fan accessories should be checked, cleaned and replaced as necessary.
- 8.12 Following the use of such a motor during an emergency, then the motor should be replaced immediately as it is suitable for a once only operation at high temperature conditions

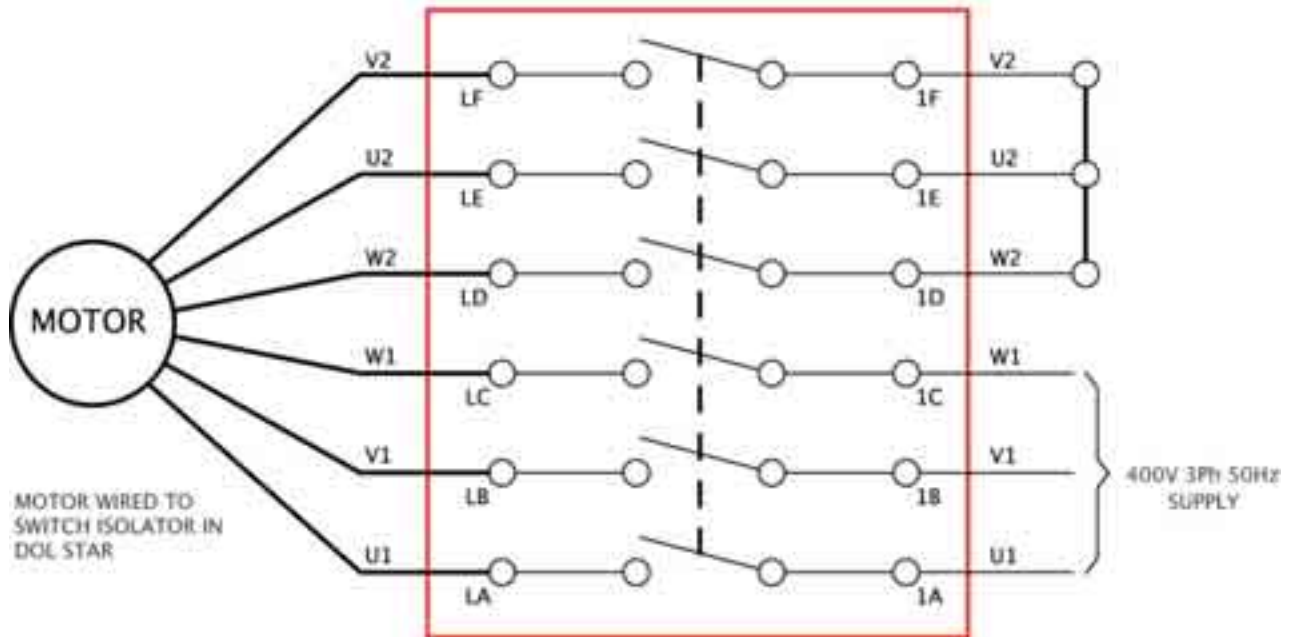
WARNING – Fuses/circuit breakers are used to provide short circuit protection only. A starter panel with overload protection should be used to protect the motor. All motor protection devices must be automatically by-passed and/or deactivated in the event of a fire. Only a suitably qualified and competent person should carry out maintenance only after the electrical supply has been isolated.

9.0 JETVENT IMPULSE FAN SPECIFICATION.

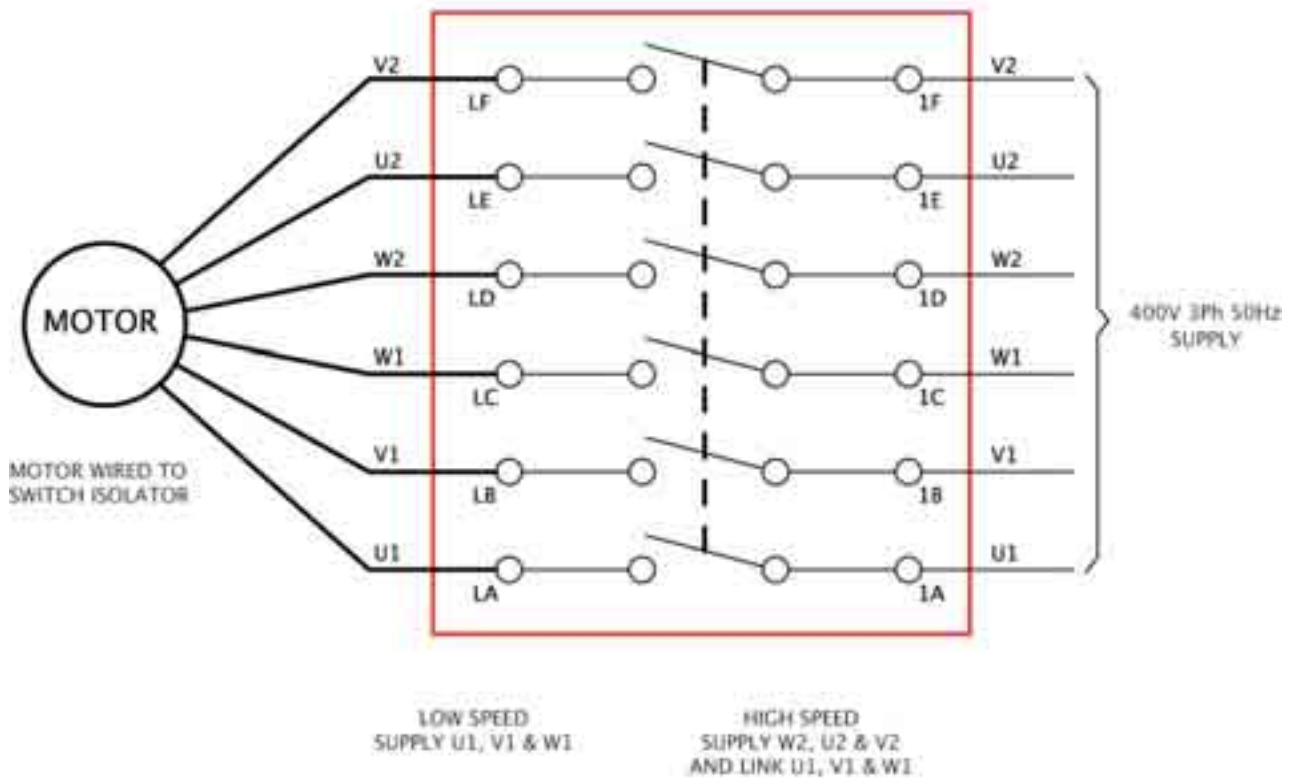
- 9.1 The JetVent Impulse car park fan range shall comprise 315mm and 400mm diameter sizes, with unidirectional or truly reversible airflow, two speed or single speed motors.
- 9.2 The fan casing and integral mounting feet for mounting the unit to the car park ceiling shall provide a long lasting robust construction. All parts shall be manufactured from heavy gauge mild sheet steel, roll formed and welded, then hot dipped galvanised to BS 729 after fabrication.
- 9.3 Adjustable pitch aerofoil impellers shall be provided with blades made from high quality pressure die cast aluminium (LM6) or GRP both natural finish. Impellers shall be factory set at an angle to provide specific performance of thrust and volume flow rate. Hubs shall be made from die cast aluminium alloy (LM24). High temperature impellers will have their blades positively locked by pinning, for added security, for operation in smoke mode. Assembled impellers are to be dynamically balanced to Grade 6.3.
- 9.4 Motors are to be totally enclosed, air stream cooled, metric frame to IP55 standard. They shall have Class F or Class H insulation for normal continuous duty or smoke conditions, once only at +300°C for 2 hours. Motors shall be either single speed or two speed. Two speed motors shall have a Dahlander winding with direct starting at both speeds. Motors shall have flying leads connected to an external padlockable Isolator switch to IP65 Standard.
- 9.5 An inlet and outlet silencer shall be mounted either side of the fan housing, with integral bell mouth to provide reduced sound level and optimal performance. Silencers are constructed from pre-galvanised perforated sheet steel, lapped and riveted, containing a pre-galvanised perforated sheet. Silencers shall sleeve onto the fan casing where they are secured, to provide a low profile. The inlet silencer has a zinc-plated guard attached, whilst the outlet silencer shall have a fitted deflector, to guide air in the direction required.
- 9.6 All units shall be hot dipped galvanized as standard finish. Units can be powder coated in any standard RAL colour as required (at additional cost).
- 9.7 Units are designed and manufactured with procedures as defined in BS EN ISO 9001: 2000. All units are tested at elevated temperatures in accordance with the requirements of the European standard EN12101 – 3:2002.

WIRING

SINGLE SPEED DIRECT
ON LINE STARTING (STAR)



TWO SPEED SINGLE
WINDING MOTORS



TYPICAL INSTALLATION AND COMMISSIONING PHOTOGRAPHS



GUARANTEE

Elta Fans Ltd will, free of charge, within a period of 1 year from the date of despatch (from their works), repair or at its option replace any goods which are proved to have defects as a result of defective materials or workmanship. The goods MUST be returned to Elta Fans Ltd carriage paid for examination, before any decision is made on repairs or replacement.

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