

SMOKE CONTROL - NEW DIRECTIONS

Nuaire provides the total package for smoke control with schemes designed to fully comply with statutory and regulatory requirements. Our team of skilled engineers include experienced staff who were responsible for introducing the first Impulse systems to the UK for car park applications.

The majority of fire related mortalities are because people have been asphyxiated by deadly toxic gases that are produced during a fire.

One of the biggest hazards in the event of a fire is that of smoke inhalation. It is essential to provide adequate ventilation in car parks, even though modern cars have been fitted with catalytic converters they still produce surprisingly high levels of harmful pollutants. Our ventilation systems remove combustible gases, fuel spill vapours, uncombusted fuel particles and displace oxygen.

By redirecting combustion gases to where they will do least harm, valuable time is available to evacuate personnel to safety and provide protection to buildings.

DESIGN

CO-ORDINATION

MANUFACTURE

CERTIFIED

INSTALLATION

COMMISSIONING



The car park Impulse system is used to control and remove contaminants on a day-to-day basis, whilst ensuring smoke is removed quickly and efficiently in the event of a fire. Strategically positioned Impulse fans, mounted on the ceiling, create a virtual smoke barrier ensuring quick and effective clearance whilst keeping the rest of the car park smoke free.

Eliminating the need for complicated ductwork systems optimises space and saves money. The system is also extremely energy efficient as it monitors the air quality and operates the system at its optimum level, reducing the running costs by up to 40% compared with traditional ducted systems. Also, fewer fans are required as they distribute the air over such a large area.

Nuaire's range of services and support can be tailored to satisfy the individual requirements of underground car parks, shopping centres and warehouses or pressurisation systems for commercial, office and hotel buildings.

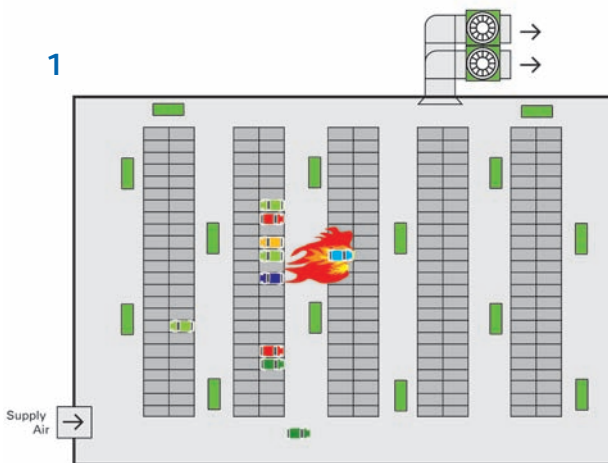
Nuaire offers design through to commissioning for applications such as underground car parks.

HOW THE SYSTEM WORKS

The car park impulse system is used to control and remove contaminants on a day to day basis, whilst ensuring that smoke is removed quickly and efficiently in the event of a fire. The system utilises a number of strategically positioned impulse fans, mounted on the ceiling, that push the fumes and smoke towards a designated point of exhaust.

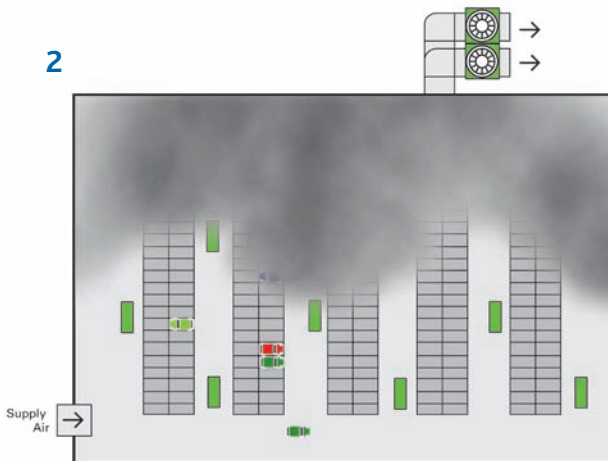
This in effect creates a virtual smoke barrier ensuring quick and effective clearance whilst keeping the rest of the car park smoke free. This removes the need for complicated ductwork systems and optimises space.

Airflow under fire conditions



1

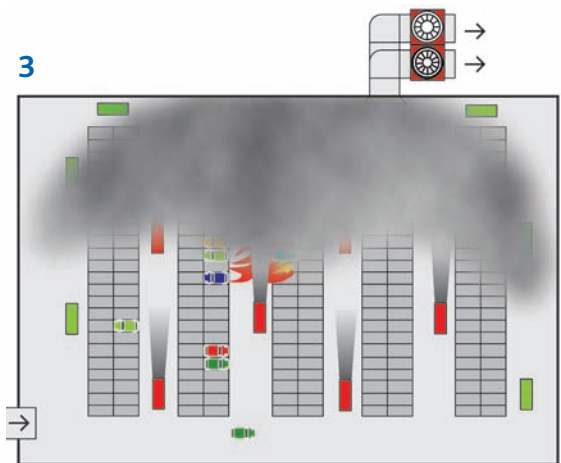
The system runs at low speed ensuring that Carbon Monoxide levels and other contaminants are kept within acceptable limits. Strategically placed detectors monitor the air and only control the units which can directly effect the condition.



2

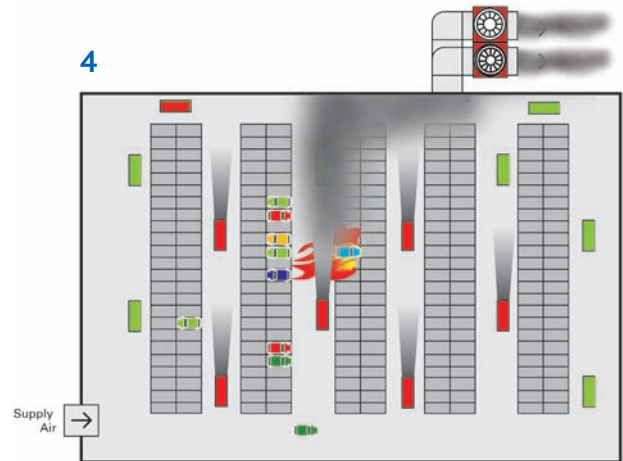
If a fire starts in one of the vehicles and smoke starts to spread throughout the car park, the smoke detection system identifies the situation and the fire alarm system will be activated. The system will switch to smoke mode.

- Key:**
- Car Park Impulse fan low speed/day to day
 - Car Park Impulse fan high speed/smoke mode



3

Smoke detectors throughout the car park identify the units which can most effectively contain the smoke layer and increases the fan speed of these units to maximum, the main exhaust unit is also switched to maximum.



4

The smoke is contained and directed towards the main extract unit, where the smoke can be safely exhausted to atmosphere. This minimises the spread of smoke within the car park, keeping large areas clear of smoke, enabling the area to be quickly and safely evacuated.

- Main exhaust/Run & standby, low speed/day to day
- Main exhaust/Run & standby, high speed/smoke mode

SMOKE FANS

AXUS AXIAL IMPULSE FANS

TECHNICAL INFORMATION

AXUS SVT2 AXIAL IMPULSE CAR PARK VENTILATION FANS

SPACE SAVING - FROM 320MM

Low depth unit eliminates the need for ducting, maximising car park space availability.

FLAT PROFILE

Unit sits flush to ceiling ensuring dirt will not gather on top surface unlike round axial fans.

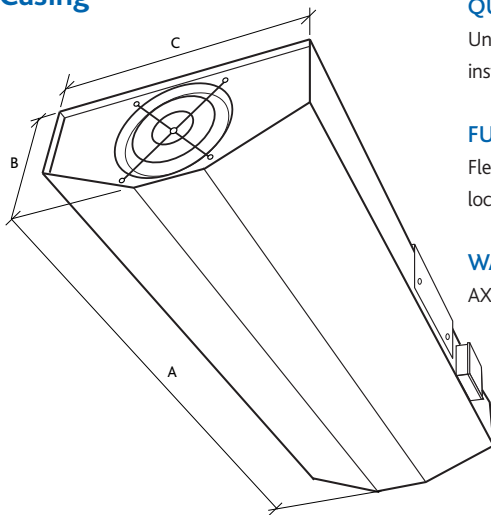
FULL DESIGN & INSTALLATION SERVICE

An experienced technical team offer design, supply, installation and commissioning to suit your project requirements.

QUIET SYSTEMS

Unit has inlet and outlet silencers ensuring low noise levels are maintained.

Casing



ENERGY EFFICIENT

By monitoring the air quality and operating the system at its optimum level the overall motor power and running costs can be reduced by up to 40%.

ALTERNATIVE FINISHES AVAILABLE

Units can be painted to match car park surroundings.

COST SAVINGS

Less ductwork can typically reduce costs by up to 30%.

SAFETY TESTED

All equipment is tested to EN12101-3, 300oC for 2 hours.

QUICK AND EASY INSTALLATION

Unique mounting bracket allows for 2 stage, 'quick' installation.

FULLY REVERSIBLE OPTION

Flexible directional flow responds to any fire location.

WARRANTY

AXUS Impulse range has a 3 year warranty.

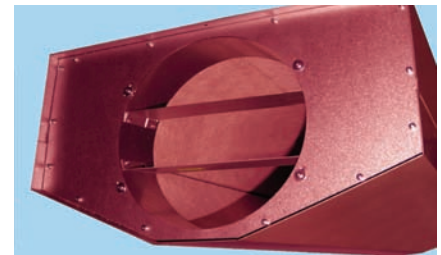
Code descriptions

SVT2-1 (AE)

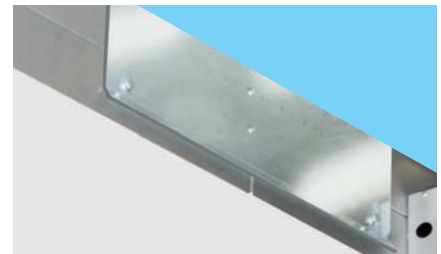


1. Axus Impulse Axial Range
2. Case size/performance range
3. Impeller angle

Units are two speed as standard



Directional outlet diffuser. (Unit shown in an alternative painted finish).



Unique mounting bracket.



Safety inlet guard.



Built in control box.

TECHNICAL DETAILS, DIMENSIONS (mm) & PERFORMANCE DATA

Fan Reference:	SVT2-1	SVT2-2
Airflow m ³ /s: Half/Full Speed	0.5/1.1	0.9/1.8
Thrust Newtons: Half/Full Speed*	5/25N	12/50N
Motor Power kw: Half/Full Speed*	0.23/1.1	0.23/1.1
Protection Class	IP55	IP55
Insulation	H	H
Electrical Supply	400/3/50	400/3/50
Motor FLC amps: Half/Full Speed	0.83/2.7A	0.83/2.7A
Motor SC amps: DOL Half/Full Speed	2.9/14.5	2.9/14.5
Temperature Classification: EN12101-3	300°C for 2 hours	300°C for 2 hours
Speed RPM: Half/Full Speed	1370/2775	1370/2775
Sound dBA @ 1m: Half/Full Speed	50/65	52/67
Material Finish	Galvanised	Galvanised
Dimensions A x B x C (mm)	2300 x 320 x 700*	2300 X 403 X 700*

* These are based on an airflow deflector angle of 5°. **Paint finish available.

SVT2 can be provided single speed for control via frequency inverter.

*Allow an additional 55mm for the width of the Terminal Control Box.

AXUS SVTC CENTRIFUGAL IMPULSE CAR PARK VENTILATION FANS

SPACE SAVING

Low depth unit only 227mm deep eliminates the need for ducting, maximising car park space availability.

ENERGY EFFICIENT

By monitoring the air quality and operating the system at its optimum level the overall motor power and running costs can be reduced by up to 40%.

COST SAVINGS

Less ductwork can typically reduce costs by up to 30%.

AIR DISTRIBUTION

Large coverage of area resulting in fewer fans being required.

FULL DESIGN & INSTALLATION SERVICE

An experienced technical team offer design, supply, installation and commissioning to suit your project requirements.

SAFETY TESTED

All equipment is tested to EN12101-3.

WARRANTY

AXUS Impulse range has a 3 year warranty.

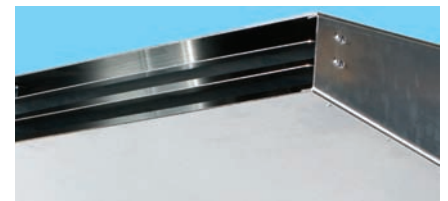
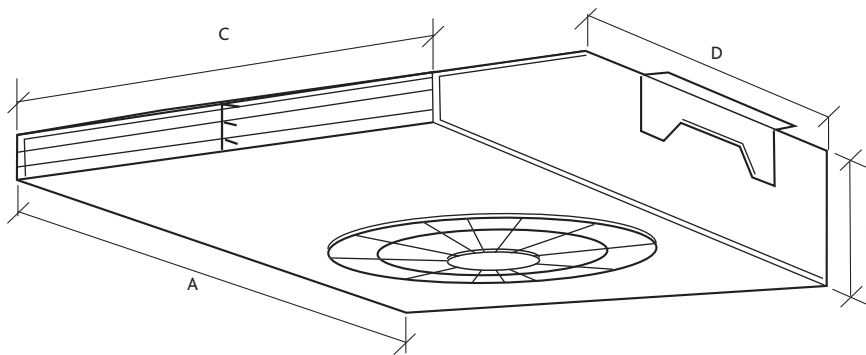
Code descriptions

SVTC - 15 - T6



1. Axus Impulse Centrifugal Range
2. Case size/PERFORMANCE RANGE
3. No suffix = Single speed.
Suitable for Frequency Inverter
T = 2 Speed
4. = No suffix = 4 pole
6 = 6 pole
8 = 8 pole

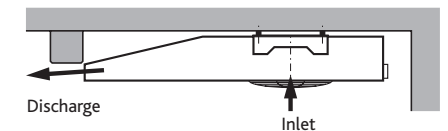
Casing



Discharge grille.



Inlet positioned on bottom of unit.



Inlet positioned on bottom of unit.

TECHNICAL DETAILS, DIMENSIONS (mm) & PERFORMANCE DATA

Fan Reference:	SVTC-15*	SVTC-15-T6	SVTC-15-T8	SVTC-16*	SVTC-16-T6	SVTC-16-T8
Fan speed definition	Single Speed	Full & 2/3rds	Full & 1/2	Single Speed	Full & 2/3rds	Full & 1/2
Airflow m ³ /s: Low/High Speed	1.68	1.14/1.68	0.88/1.68	2.69	1.83/2.69	1.38/2.69
Thrust Newtons: Low/High Speed*	50	23/50	13/50	75	34/75	19/75
Motor Power kw: Low/High Speed*	1.5	0.55/1.5	0.25/1.5	2.2	0.75/2.2	0.37/2.2
Protection Class:	IP55	IP55	IP55	IP55	IP55	IP55
Insulation	H	H	H	H	H	H
Electrical Supply	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50	400/3/50
Motor FLC amps: Low/High Speed	3.3	1.8/3.6	1.15/3.75	5	2.6/5	1.6/5.1
Motor SC amps: DOL Low/High Speed	5.8	3.9/7.4	2.9/5.2	6.4	4/7.1	3.8/6.3
Temperature Classification: EN12101-3	300°C for 2hrs	300°C for 2hrs	300°C for 2hrs	300°C for 2hrs	300°C for 2hrs	300°C for 2hrs
Speed RPM: Low/High Speed	1435	955/1425	715/1430	1435	955/1425	715/1430
Sound dBA @ 1m: Low/High Speed	78	69/78	64/78	85	76/85	71/85
Material Finish	Galvanised	Galvanised	Galvanised	Galvanised	Galvanised	Galvanised
Dimensions A x B x C (mm)	1265x227x790	1265x227x790	1265x227x790	1902x279x1150	1902x279x1150	1902x279x1150
Depth to bottom of guard	259	259	259	319	319	319
Dimension D	787	787	787	1150	1150	1150

*SVTC-15 and SVTC-16 are single speed and can be controlled via a frequency inverter.

CONSULTANTS SPECIFICATION

CAR PARK IMPULSE SYSTEM

The car park ventilation system shall control and remove pollutants, such as Carbon Monoxide, on a day to day basis, whilst ensuring that smoke is removed quickly and efficiently in an emergency.

The car park Impulse Ventilation System shall consist of a number of strategically positioned acoustically treated Impulse fans distributed throughout the car park, the positions shall be in accordance with the specialists design & layout drawings.

Carbon Monoxide & smoke detectors shall be strategically placed in accordance with the specialists design and shall control the operation of the impulse fans in individual areas appropriately. By controlling the fans in this way the units will contain pollutants and smoke within a defined and predetermined corridor and channel its flow to the extract point where it can be evacuated safely to atmosphere by the main exhaust fan units. The control system ensures that only the fans that can directly effect the ventilation requirement are in operation. Fan specification.

The Nuair SVTC unit comprising centrifugal impeller, motor and all assembled components shall be certified for high temperature operation at 300°C for 2 hours, the range shall have been type tested to EN12101-3. The Axus Main exhaust units and ancillaries shall have been type tested and certified for high temperature operation of 300°C for 2 hours to EN12101-3.

The units shall be either 2 speed or inverter driven providing, low speed for day to day environmental extract and one off operation for emergency extract.

The Nuair SVTC unit shall have inlet guards for safety purposes and to prevent debris being sucked through the fan. It also has a specially designed airflow deflector to direct the jet stream from the fan at the required angle sufficient to overcome the natural buoyancy effect of the smoke.

The car park impulse units shall be the SVTC type and the main Exhaust units shall be the high temperature AXUS type all as manufactured by Nuair.

COMPLETE SOLUTION FOR CAR PARK VENTILATION

Nuair Smoke Design Partners have over twenty years experience in the smoke ventilation industry and their project managers were instrumental in establishing the first Car Park impulse system in the UK, designing, installing and commissioning the system.

Utilising the latest computer aided design, computational fluid dynamic technology and extensive testing, to master the physics and behaviour of fires within buildings. By understanding the movement of the fire and smoke and combining that with the knowledge and expertise of fire engineering, ventilation and containment principles, ensures the design of a bespoke smoke ventilation system to protect any building and its occupants whilst providing safe, healthy, clean and welcoming car parks.

Complete solutions for Car Park Ventilation

Services offered include:

- Conceptual design.
- Dedicated technical in-house support team.
- Regulatory compliance/co-ordination.
- UK's largest sales engineer network.
- Onsite liaison.
- Installation.
- Commissioning.
- Maintenance.
- Whole life support facility.

Contact Nuair to discuss your requirements or for a focused and highly relevant CPD seminar at a location to suit your team Tel: 029 (20) 858 200.

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FAN SPECIFICATION

The Nuair SVT2 impulse unit comprises of a high temperature axial fan with specially designed inlet and outlet attenuators which, along with the fan unit, are encased in a Galvanised steel acoustic enclosure.

The Nuair SVT2 unit comprising fan/motor assembly, and inlet and outlet silencers shall be certified for high temperature operation at 300°C for 2 hours, the range shall have been type tested to EN12101-3. The Axus Main exhaust units and ancillaries shall have been type tested and certified for high temperature operation of 300°C for 2 hours to EN12101-3.

The units shall be either 2 speed or inverter driven providing, low speed for day to day environmental extract and one off operation for emergency extract. They shall also be suitable for reversible operation.

Fully reversible options (i.e similar duty in both airflow directions) are available, please contact Nuair for details.

The unit shall have a unique mounting bracket, which shall enable the bracket to be positioned as a "first fix" component with the unit being fitted as a "second fix" component, avoiding possible mechanical damage.

The Nuair SVT2 unit shall have inlet guards for safety purposes and to prevent debris being sucked through the fan. It shall also have a specially designed airflow deflector to direct the jet stream from the fan at the required angle sufficient to overcome the natural buoyancy effect of the smoke.

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