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MEP
DESIGN

Document Reference

22_023-UC-MEP-G525-RP-XX-001

Revision

P02

Title

UPPER CAMPFIELD MARKET HALL
VENTILATION STRATEGY REPORT

DOCUMENT HISTORY

Revision	Date	Purpose	Author	Approved
P01	07/09/2023	Preliminary Issue	J.K. / R.D.	B.W.J.
P02	25/09/2023	Section 6 updated. Appendix 7.2 & 7.3 updated	J.K. / R.D.	B.W.J.

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1 INTRODUCTION

1.1 OVERVIEW

This Ventilation Statement has been prepared by MEP Design to support the planning application for the project which is known as “Upper Campfield Market Hall”.

This forms part of a wider redevelopment scheme transforming two historic market halls into high-end flexible working space.

The site is located to the south of Manchester City Centre. It is bordered by:

- Liverpool Road to the south
- Tonman Street to the North
- Barton Street to the West
- Deansgate to the East.

All ventilation will be designed to comply with the requirements of approved document F.

1.2 STRATEGY

Habitable spaces will be ventilated utilising mechanically ventilated heat recovery units (MVHR).

Extract only ventilation will be provided too toilets, showers, cleaners stores etc.

The building has numerous existing slatted timber louvres at high level. These will be retained and reused at the next phase. These louvres can be seen on the planning elevations.

2 WORKSPACE / OFFICE VENTILATION

WORKSPACES

The workspaces / offices are mechanically ventilated via vertically wall mounted MVHR units.

Expected occupation levels have been provided by the client and these have been used to form the basis of the fresh air ventilation calculations.

EDIT SUITES

Edit suites are internal. They each have a balanced supply and extract grille.

Please see appendix 7.3 for detail of proposed ventilation system.

3 STUDIO VENTILATION

All studios are double height and are ventilated via MVHR units. The air is supplied to the space via open ended bellmouths. The intake and exhaust ducts will utilize the existing louvers on the roof.

DESTRATIFICATION FANS

The proposed destratification fans are large bladed ceiling fans. The current proposal is that there will be 1 fan in each studio at high level.

Please see appendix 7.3 for detail of proposed ventilation system.

The main purpose of these fans are to assist with the heating and cooling load of the build, by recirculating air, assisting to mix air and providing a draft effect when required. The fans will run in reverse, pulling air from the space and exhausting it to atmosphere via the reversible louvers.

Please see appendix 7.2 for details of destratification proposals including manufacturers CFD model.

4 GENERAL EXTRACT

The toilets and showers will be provided with mechanical extract ventilation.

Make up air will be provided by undercut doors or door transfer grilles.

The design will be in accordance with the requirements of approved document F and CIBSE Guidance.

Please see appendix 7.3 for detail of proposed ventilation system.

5 REFUSE / BIN STORE

Refused store and the associated access lobby will be ventilated in accordance with the requirements of approved document B.

Please see appendix 7.3 for detail of proposed ventilation system.

Where an appropriately sized permanently open ventilator cannot be accommodated, the areas will be protected with a mechanical system capable of providing 10ACH and in accordance with BS 9991.

6 PLANT ROOM

There is no natural gas or other combustion fuel in this scheme.

There is a plant room to be formed, sitting on top of the Mezzanine structure. Above the Mezzanine offices and breakout spaces on the Deansgate side of the building.

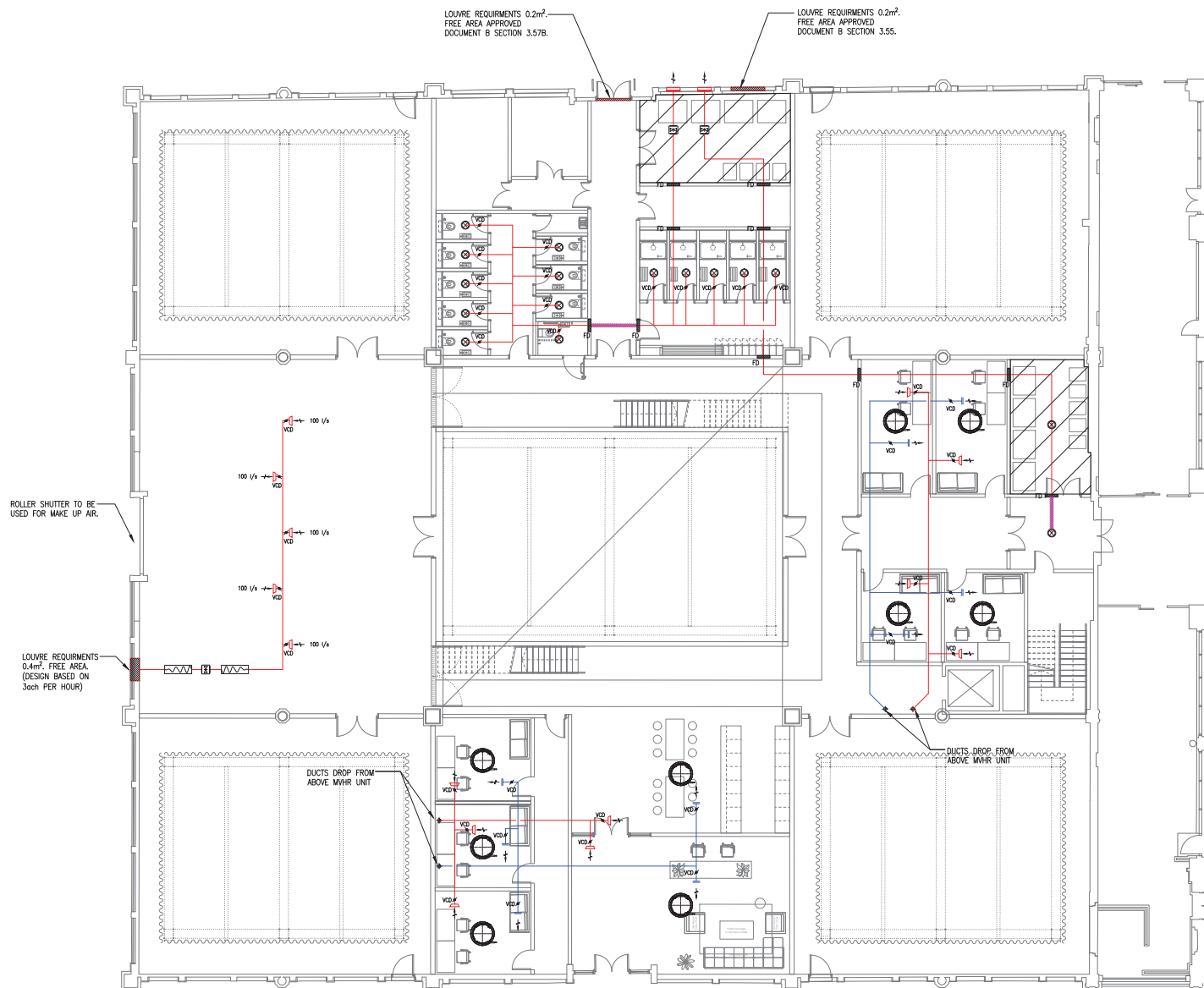
The plantroom will be naturally ventilated utilizing the existing high-level louvres.

7 APPENDICES

7.1 VENTILATION GENERAL ARRANGEMENT DRAWING

7.2 DESTRATIFICAION FANS BROCHURE AND CFD MODEL

Appendix 7.1 VENTILATION STRATEGY DRAWING



LEGEND

- EXTRACT DUCTWORK.
- SUPPLY DUCTWORK.
- FIRE RATED DUCTWORK
- AREAS TO BE NATURALLY VENTILATED (BASED ON AREAS NOT HAVING A FALSE CEILING INSTALLED)
- VRF CASSETTE UNIT
- EXTRACT FAN.
- VOLUME CONTROL DAMPER.
- FIRE DAMPER.
- SMOKE FIRE DAMPER.
- FILTER BOX.
- LOCAL CONTROLLER
- CEILING FIXED SUPPLY GRILLE.
- CEILING FIXED EXTRACT GRILLE.
- CEILING FIXED SUPPLY VALVE.
- CEILING FIXED EXTRACT VALVE.
- DOOR TRANSFER GRILLE.
- INTUMESCENT FIRE RATED DOOR TRANSFER GRILLE.
- R.F.B. RISE FROM BELOW.
- R.T.A. RISE TO ABOVE.
- D.T. DROP TO.
- L/L LOW LEVEL.
- H/L HIGH LEVEL.
- C/V CEILING VOID.
- R/V ROOF VOID.

GENERAL NOTES

- THE DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION & ALL OTHER RELEVANT DOCUMENTS & DRAWINGS PROVIDED BY MEP DESIGN.
- THE DRAWING INDICATES THE DESIGN INTENT FOR THE WORKS.
- COORDINATION WORKING DRAWINGS, INSTALLATION DRAWINGS & BUILDERS WORK DRAWINGS SHALL BE PREPARED BY THE CONTRACTOR.
- DIMENSIONS SHALL NOT BE SCALED FROM THE DRAWING & THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL DIMENSIONS & LEVELS ON SITE FOR THE ACTUAL SETTING OUT OF THE WORKS.

NOTES

- ALL GRILLES AND DIFFUSERS BRANCHES TO HAVE OPPOSED BLADE DAMPERS.
- ALL DUCTWORK TO DW144/DW172 (WHERE APPLICABLE).
- FLEX TO BE USED ONLY STRAIGHT-ALL BENDS TO BE RIGID.
- FIRE DAMPERS TO BE LOCATED IN ACCORDANCE WITH FIRE STRATEGY DRAWING REQUIREMENTS.
- ACCESS DOORS TO BE LOCATED ADJACENT TO FIRE DAMPERS AND EVERY 3M.
- ALL BRANCH CONNECTIONS SHALL HAVE VCD'S.
- ALL DIFFUSERS AND GRILLES TO BE SUPPORTED BY STRUCTURE.
- IN POSITIONS OF RESTRICTED HEADROOM, DUCTS MAY BE SUPPORTED WITH FLAT BAR FORMED TO DUCT SHAPE WITH FIXINGS AT SIDES ON BENT LUGS.
- ALL DUCTWORK BRACKETS TO HAVE AN ACOUSTIC SOFT RUBBER OR NEOPRENE INTERFACE LAYER TO THE DUCT.
- ALL SUPPLY DUCTWORK, INCLUDING SUPPLY PLENUM BOXES TO BE THERMALLY INSULATED.
- ALL REFERENCES TO SPECIFIC MANUFACTURERS ARE MADE FOR DESIGN SPECIFICATION PURPOSES, INSTALLED EQUIPMENT SHOULD BE OF EQUAL STANDARD AND APPROVED.
- SMOKE FIRE DAMPERS SHALL BE INSTALLED WHERE DUCTWORK PASSES THROUGH AN ESCAPE ROUTE AND THESE SHALL BE CONTROLLED VIA A PROPRIETARY SMOKE DAMPER CONTROL SYSTEM. THE CONTROL PANEL FOR THIS SYSTEM SHALL BE INSTALLED ADJACENT TO THE FIRE ALARM PANEL AND EACH SMOKE FIRE DAMPER SHALL HAVE A 240V POWER SUPPLY PROVIDED ADJACENT TO POWER THE CONTROL ACTUATOR FOR THE DAMPER. EACH DAMPER SHALL BE POWER OPEN/FAIL CLOSE.

PO2	CLIENTS COMMENTS INCORPORATED	SEP 23
PO1	ISSUED FOR COMMENT	SEP 23
Revision	Description	Date

**MEP
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Client	ALLIED LONDON
Project	UPPER & LOWER CAMPFIELD - DESIGN
Title	MECHANICAL SERVICES UPPER CAMPFIELD GROUND FLOOR VENTILATION
Scale	1 : 100 @A1 Drawn W.H.
Project No.	22_023 - UC - MEP - GS20 - PL - 00 - 001 - PO2

UPPER CAMPFIELD GROUND FLOOR PLAN

LEGEND

- EXTRACT DUCTWORK.
- SUPPLY DUCTWORK.
- FIRE RATED DUCTWORK

AREAS TO BE NATURALLY VENTILATED (BASED ON AREAS NOT HAVING A FALSE CEILING INSTALLED)



DESTRATIFICATION FAN

EXTRACT FAN.

VCD VOLUME CONTROL DAMPER.

FD FIRE DAMPER.

SFD SMOKE FIRE DAMPER.

FB FILTER BOX.

LOCAL CONTROLLER.

CEILING FIXED SUPPLY VALVE.

CEILING FIXED EXTRACT VALVE.

DOOR TRANSFER GRILLE.

INTUMESCENT FIRE RATED DOOR TRANSFER GRILLE.

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Revision Description	Date

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Client
ALLIED LONDON

Project
UPPER & LOWER CAMPFIELD - DESIGN

Title
MECHANICAL SERVICES
UPPER CAMPFIELD
MEZZANINE LEVEL
VENTILATION

Scale	1:100 @A1	Drawn	W.H.
Project No.	Zone	Originator	Unitless
22_023 - UC - MEP	- GS20 - PL	- M1 - 001 - PO2	

UPPER CAMPFIELD MEZZANINE PLAN

Appendix 7.2 DESTRATIFICAION FANS BROCHURE AND CFD MODEL



Results

Name: MEP Design (Upper Campfield - Single Studio)

Building Information:

Building Area:	139 sq m
Building Height:	10 m
Building Volume:	35,363 cu m

Fan Model Information:

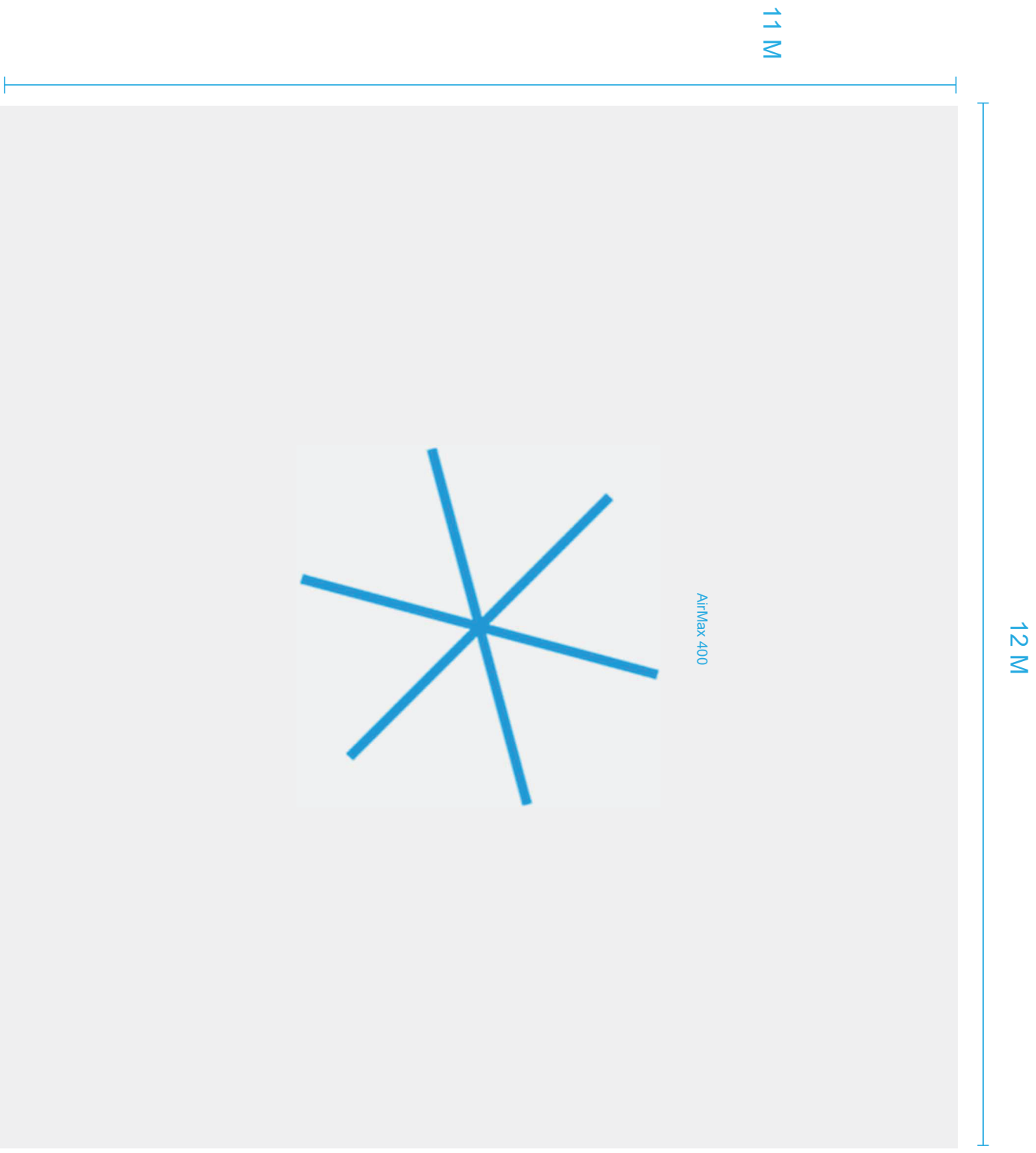
Total Fans:	4
MegaFan AirMax 400:	4

Results:

Average Air Speed:	1.12 m/s
Set Point Change*:	3.2 deg C

*The set point change is the perceived temperature difference in the occupied space (0 ft - 6 ft [0 m - 2 m] above the floor) based upon the airflow generated by the installed fans.

Facility Layout:



Top View of the Facility:

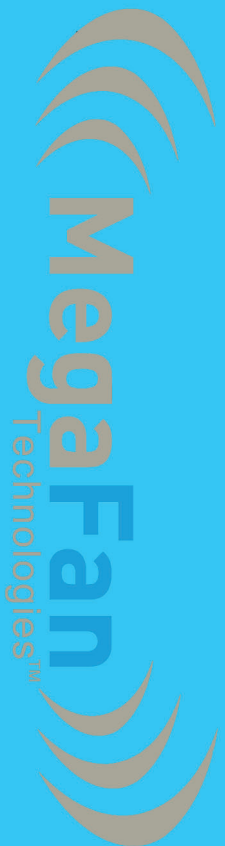


The visualization above depicts the airflow at 3 feet [1 meter] above floor level. The legend to the left of the visualization denotes the speed of the air in the facility.

3D View of the Facility:

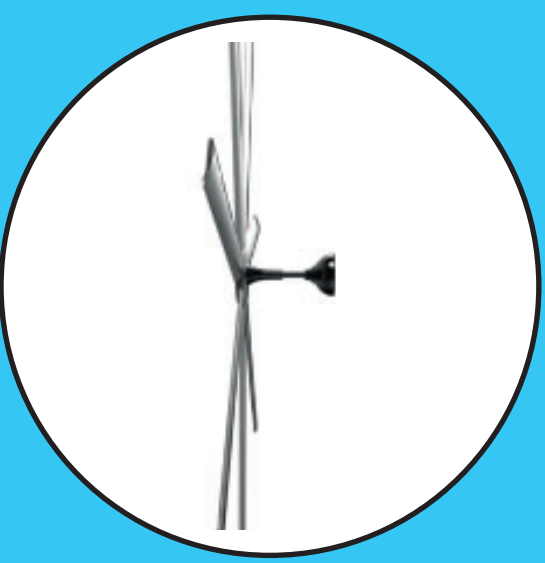


The visualization above depicts the airflow in 3 dimensions. The legend to the left of the visualization denotes the speed of the air in the facility.



AIRSLIM

- > EC brushless motor without gearbox
- > 52mm ultra thin motor in 100W fans
- > Extremely silent fans
- > 7 or 5 blades depending on the motor power
- > Optional customized paint
- > Touch screen control



Model	Fan Diameter	Max Speed	Power	Airflow	Recommended coverage**	Maximum coverage **	Operation Voltage	Protection	Sound Level	Weight
AIRSLIM 250M	2.44 m	122 rpm	0.24 kW	46,795 m3/h	156 m²	218 m²	230VAC	IP20*	< 40 dBA	26 kg
AIRSLIM 300M	3 m	112 rpm	0.24 kW	109,320 m3/h	364 m²	510 m²	230VAC	IP20*	< 40 dBA	29 kg
AIRSLIM 350M	3.6 m	98 rpm	0.24 kW	163,145 m3/h	544 m²	762 m²	230VAC	IP20*	< 40 dBA	32 kg
AIRSLIM 400M	4.3 m	74 rpm	0.24 kW	192,288 m3/h	641 m²	897 m²	230VAC	IP20*	< 40 dBA	35 kg



Model	Fan Diameter	Max Speed	Power	Airflow	Recommended coverage**	Maximum coverage**	Operation Voltage	Protection	Sound Level	Weight
AIRSLIM 400L	4.3 m	84 rpm	1 kW	281,198 m3/h	937 m²	1,312 m²	230VAC	IP20*	< 50 dBA	66 kg
AIRSLIM 500L	4.9 m	78 rpm	1 kW	340,453 m3/h	1,135 m²	1,589 m²	230VAC	IP20*	< 50 dBA	70 kg
AIRSLIM 550L	5.5 m	69 rpm	1 kW	382,082 m3/h	1,274 m²	1,783 m²	230VAC	IP20*	< 50 dBA	75 kg
AIRSLIM 600L	6.1 m	57 rpm	1 kW	527,406 m3/h	1,758 m²	2461 m²	230VAC	IP20*	< 50 dBA	84 kg
AIRSLIM 700L	7.3 m	49 rpm	1 kW	719,478 m3/h	2,398 m²	3,358 m²	230VAC	IP20*	< 50 dBA	93 kg

* IP55 under request

** Air speed > 0.5 m/s

*** Air speed > 0.2 m/s