ProAir
HEAT RECOVERY VENTILATION SYSTEMS
Irish Innovation in Indoor Air

ProAir PA700HLI

Mechanical Ventilation with Heat Recovery

(MVHR)

PRODUCT DESCRIPTION

The PA700HLI was designed for larger homes up to 270m² in size. The unit includes a Touch Pad and sensors to monitor Temperature, Humidity and CO_2 for enhanced Indoor Air Quality (IAQ).

The unit also has a Specific Energy Consumption (SEC) rating of A+. The system can use the Humidity & Temperature sensors to automatically control the Boost function. The PA700HLI operates continuously at low speeds to minimise electrical consumption while ensuring system compliance with Part F 2019 regulations.

The Building Research Establishment (BRE) has carried out rigorous testing against published standards to give customers full confidence in our products. Performance data for the ProAir PA700HLI is listed on the Product Characteristics Database (PCDB).

FEATURES SUMMARY

- Ventilation control based on CO_2 or Humidity levels
- Phone App for remote monitoring and control
- Web browser Dashboard for remote monitoring and control
- Bluetooth Connectivity
- Alarm Notification for faults
- Remote Troubleshooting Support available
- 7-Day Setup Schedule

BENEFITS SUMMARY

- Eliminates condensation, mould growth & musty odours
- Compliant with current Building Regulations Part F 2019
- Expanded polyethylene casing to ensure high levels of insulation
- Low Energy Electronically Commutated (EC) motor

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Technical Parameters (Product Fiche According to Commission Regulation (EU) 1254/2014)

Model PA700HLI			
Area Served (m²)	Up to 270 (max.)	**Boost Switch Control**	Optional
Unit Dimensions (mm)	(L) 1130 x (H) 490 x (D) 550	**Sound Power Level (L_{WA})**	69 dB @ 363 m³/h, 74 dB @ 600 m³/h
Air flow Range (l/sec)	151		
Thermal Efficiency of Heat Recovery (%)	93	**Summer Bypass**	None
		Duct Type	Rigid
RVU or NRVU / Unidirectional or bidirectional	RVU / bi-directional	**Electrical power input of the fan drive at maximum flow rate (W)**	364
Type of drive (multi-speed drive or variable speed drive)	Variable speed drive	**Condensate Connection Ø**	32mm
		Weight (KG)	28
Type of Heat Recovery System (recuperative, regenerative, none)	Recuperative	**Maximum Flow Rate (m³/h)**	545m³/h @ 100 Pa
Position and description of visual filter warning for RVUs intended for use with filters, including text pointing out the importance of regular filter changes for performance and energy efficiency of the unit	Refer to installation and maintenance instructions supplied with the unit	**Reference Flow Rate (m³/s)**	0.1073
		Reference Pressure Difference (Pa)	50
The average annual electricity consumption (AEC) (in kWh/m²/annum)	1.91	**Specific Power Input (SPI) (W/ (m³/h))**	0.376
Maximum Leakage Rates (%)	External (+250 Pa): 1.19 External (-250 Pa): 1.13 Internal (+100 Pa): 3.61	**Control factor and control typology**	1 and combination with manual switch

Filter Details

Surface area (m²) Pleated	Type	Dimensions (mm)	No. of filters	-
0.16	G4 (Supply & Extract)	390 (L) x 160 (H) x 48 (D)	2	-

Fans

Control Input	Type	Input Voltage Range (V)	No. of fans	-
0 - 10	190mm backward curve	220/230	2	-

Controls

Protocol	Interface	Inputs	Outputs	Input Voltage (V)
Modbus RTU	Wired Touch Panel	Digital 4 / Analogue 2	2 Relays	220

Counter-Flow Heat Exchanger

Material	Surface area (m²)	No. of Plates	Plate Thickness (mm)	-
Pure Polypropylene	34.68	48	0.4	-

Counter-Flow Heat Exchanger

Counter-flow heat exchangers are capable of very high efficiency under correct conditions. Fig. 1 shows that even at very low outdoor temperatures, the supply air can still be over 18°C.

Tests on the exchangers at Eindhoven University have verified the calculations. Tests on the overall system at the Building Research Establishment (BRE) in England have demonstrated that sensible efficiencies more than 90% are easily achievable.

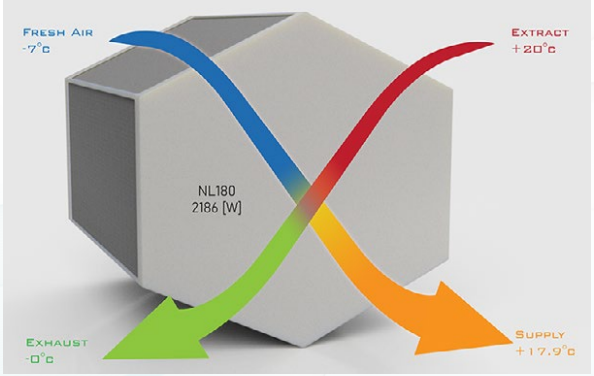

Fig. 1

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SAP PCDB Specific Fan Power (SFP)

Results with Rigid Oval Ducting DJ15 (150mm x 60mm)

Rooms	Air Flow Rate (l/s)	SFP (W/l/s)	% Efficiency
K + 1	21.0	0.66	93
K + 2	29.0	0.64	93
K + 3	37.0	0.67	93
K + 4	45.0	0.71	92
K + 5	53.0	0.86	91
K + 6	61.0	0.95	90
K + 7	69.0	1.13	90

Specific Energy Consumption & SEC CLASS

	Cold	Average	Warm
SEC (kWh/m²/annum)	-80.02	-41.3	-16.27

Sound Levels

Fan Speed (%)	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
dB @ 1m	39	41	42	42	45	49	52	55	58	61	63	66	69	71	71	71	74	74	74

Main Control

The MVHR system is normally run at a speed to suit the application, which is set during commissioning. The controls will operate according to the level of Humidity (%) or CO_2 (ppm) present inside the treated envelope of the house. For the automated boost mode the fan speeds will automatically increase as Humidity or CO_2 levels rise and will return back to the commissioned set point when the levels drop.

Phone App Control

- Manual and automatic boost control
- Control ventilation flow rates
- 7 day set up schedule
- Humidity and Temperature sensor read out
- Remote Access to the Ventilation System
- System error warning indicator
- Filter change monitoring
- Remote diagnostics available

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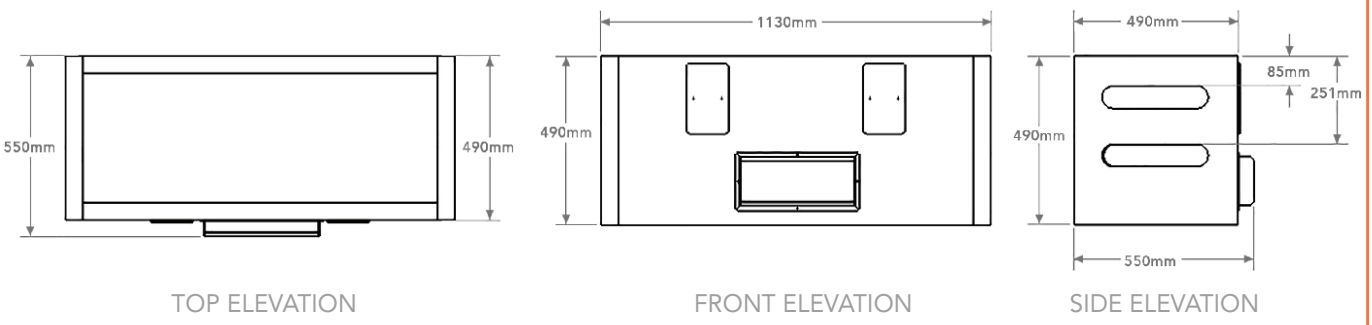
Mechanical Dimensions (mms)



TOP ELEVATION | FRONT ELEVATION | SIDE ELEVATION

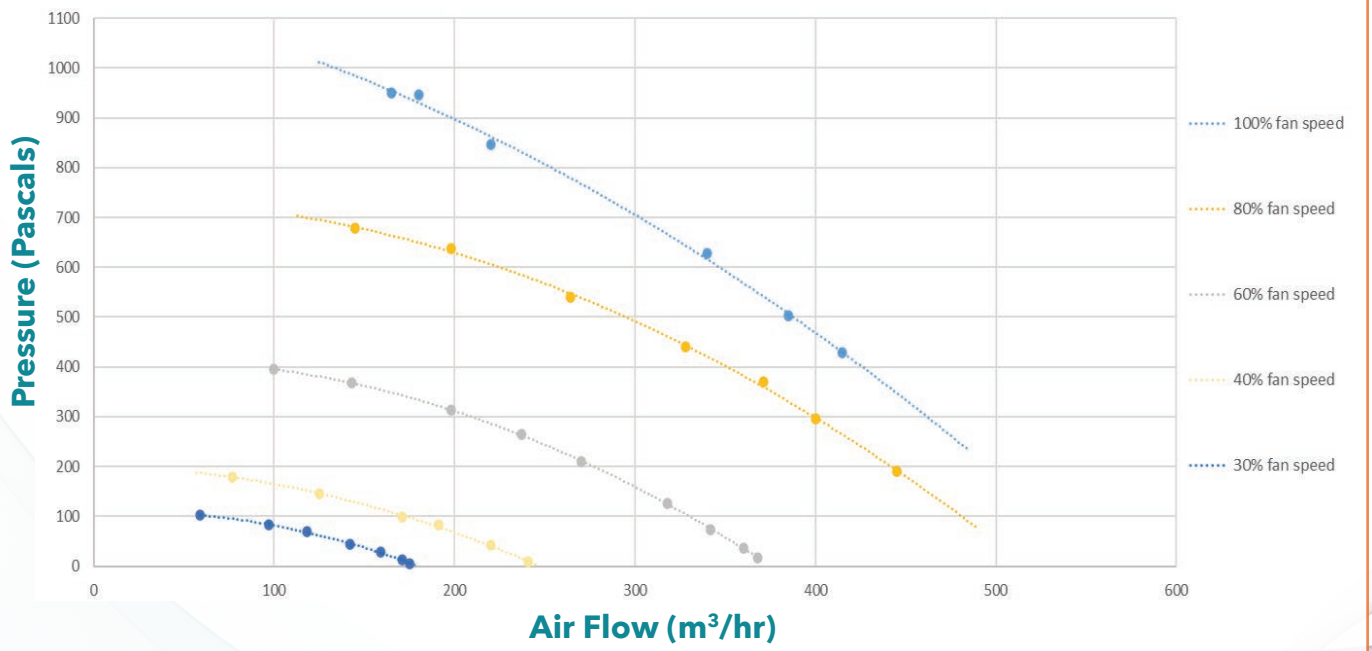
Filters

The filters installed in this product are G4 on extract and supply side, with an option to install a higher grade if required. Access to the filters is by removing access hatches that are secured with thumb screws. No tools are required to inspect or change the filters. The filters should be changed at least annually.

Fans

The fans are high efficiency backward curved 190mm diameter with light-weight plastic impellors mounted on external rotor, electronically commutated, medium voltage, EC motors and 0-10V controlled all fitted into a customised sound absorbent dense polyethylene open-scroll enclosure. The PA700HLI has been connected to a simulated installation duct network in the ProAir test laboratory. The graph below shows the pressure drop across the fans when connected to the network.

Air Flow vs Pressure Curve PA 700HLI



GALWAY OFFICE
Unit 1,
Polkeen Industrial Estate,
Tuam Road, Castlegar,
Galway, Co. Galway H91 WYR8
T 091 739 442

DUBLIN OFFICE
Unit P26,
Greenogue Business Park,
Grants Road, Rathcoole,
Co. Dublin D24 HW44
T 01 503 4296

CORK OFFICE
Unit A11,
Millennium Park,
Youghal, Cork,
Co. Cork. P36 A522
T 089 274 8989

sales@proair.ie

www.proair.ie