

NEW FOR 2024

MISTRALE FUSION DEO

Dynamic Hybrid Ventilation
Heat Recovery & Natural Ventilation

Publication | Natural Vent 2 | March 2025



Solution Benefits

- Net Zero Future
- DFE Output Specification
- BB101 Ventilation Compliant
- BB93 Acoustic Compliant
- TM52 Comfort Compliant
- Standard 65% Heat Recovery



GILBERTS



Why Pure and Hybrid Natural Ventilation matters

In today's world, with climate change at the forefront of global concerns, achieving net zero is paramount. As part of the Paris Agreement, organisations are working towards balancing the amount of greenhouse gases released into the atmosphere with the amount removed. Addressing our environmental impact isn't just a legal requirement but a shared responsibility.

What percentage of global carbon emissions is attributed to the building industry?

Experts believe that the building and construction industry accounts for 39% of all carbon emissions worldwide, with operational emissions (from the energy used to heat, cool, and light buildings) accounting for 28%. Reducing energy consumption in buildings has, therefore, become a key target.

How important is natural ventilation to schools?

While we acknowledge the importance of reducing energy consumption, we also recognise the importance of creating a natural and healthy indoor environment. Since air conditioning is a major energy consumer in buildings and contributes to greenhouse gas emissions, transitioning away from mechanical systems is both a logical and commendable objective.

The Department for Education (DFE) acknowledges that natural ventilation plays a crucial role in achieving future energy goals in schools, providing dual benefits of reduced energy consumption and promoting a clean, comfortable, and healthy learning environment.

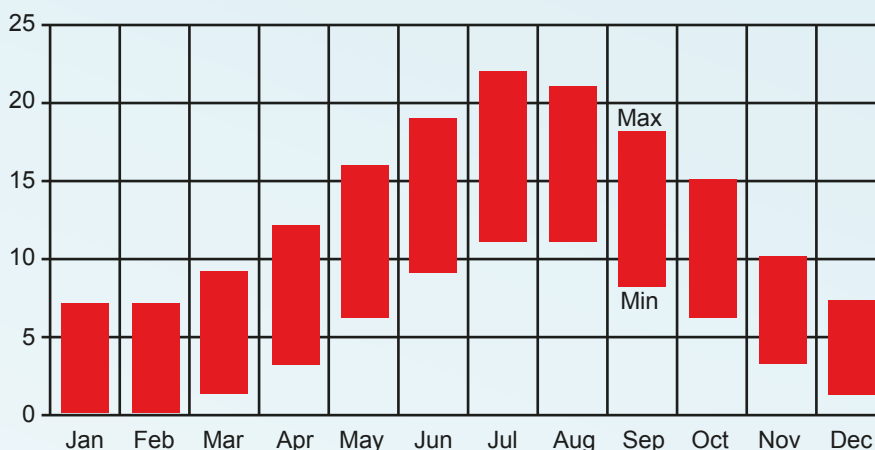
Over the next three decades, what we do to reach net zero will significantly impact our world.

Weather-driven Solutions

If we want to move away from energy-driven systems, Britain's climate favours us. With a mild maritime climate, influenced by the gulf stream, Britain experiences cool, wet winters and warm, wet summers. It rarely sees extreme heat or cold typically found in other climates, offering a promising environment for natural ventilation strategies.

The limited variation in extremes serves a beneficial purpose, enabling us to reduce our need for and dependence on mechanical solutions for cooling and ventilation.

London Temperatures (degrees C)
Average Daily Maximum & Minimum by Month





Explore Hybrid Alternatives

Natural Ventilation

Unlike mechanical fan-forced ventilation, natural ventilation relies on air movement driven by natural forces like wind and buoyancy to bring fresh air into buildings for cooling and ventilation — a welcomed solution when energy conservation is vital.

What are the benefits of naturally ventilating buildings?

- Combining little or no energy consumption with low capital costs.
- Provides adequate fresh air and comfortable temperature conditions year-round.
- Eliminates the need for plant rooms and/or extensive service space - resulting in lower servicing and maintenance costs.

Gilberts' Mistrale series offers a range of products designed and engineered to provide various energy-efficient cooling and natural ventilation solutions. [View our full range here.](#)



Hybrid Natural Ventilation (MFS)

Hybrid natural ventilation is the next step in adequate airflow. Typically based on a single-sided natural ventilation unit, this model includes an ultra-low-power fan. These hybrid modes have allowed us to harness free, natural cooling energy sources reliably and efficiently.

Additional benefits:

- Ultra-low power fan assistance feature for poor air movement conditions.
- Fan energises occasionally to ensure adequate ventilation.
- Ensures the terminal operates at all times to meet design requirements.
- Maintains ventilation levels regardless of external conditions.
- Mistrale MFS consumes only 34 kW per year per classroom.
- Provides full operational ventilation and cooling efficiency.
- Standalone system, no need for supportive systems like opening windows.
- Can be integrated with other heating, cooling, or ventilation strategies.

What's Next for Natural Ventilation?

Given our commitment to environmental sustainability and supporting the industries around us, we understand the need for our products to evolve. Transitioning from natural ventilation to hybrid solutions was the first stage, now we're ready to share our next steps in natural ventilation evolution.

STAGE 1 ● Natural Ventilation

STAGE 2 ● Hybrid Natural Ventilation

STAGE 3 ● Introducing...

DID YOU KNOW?

Modern buildings in the UK featuring low U-values, minimal air leakage, and significant heat gains often demand high cooling requirements.

Mistrale Fusion Deo

MFS-HR

NEW

Dynamic Hybrid Ventilation, Heat Recovery and Natural Ventilation.

Our latest design, the Mistrale Fusion Deo series is a new solution that offers all the benefits of hybrid natural ventilation but also now provides standard 65% heat recovery in the cooler winter ranges. The series includes two solutions, the **MFS-HR1** and **MFS-HR 2**.

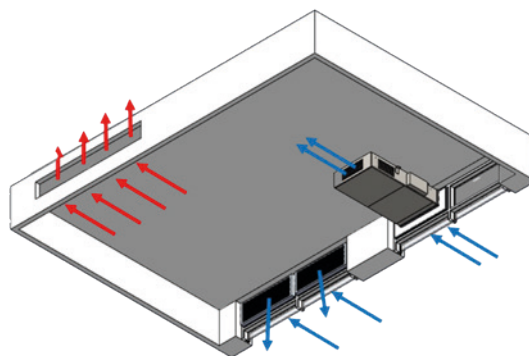
The Mistrale Fusion Deo takes the benefits of our standard MFS Fusion unit to the next level. With its advanced heat exchanger core, this unit can recover large volumes of heat from the occupied zone. Equipped with two low-energy fans and actuators, it offers a variety of cooling, heating, and heat recovery modes, enhancing its functionality.

In basic natural ventilation mode, the Mistrale Fusion Deo provides free natural cooling during the warmer months, harnessing the natural buoyancy of air movement through the occupied zone. When natural air movement alone is insufficient to meet air quality or air change demands, low-energy fans are included, and they operate only when necessary to maintain required ventilation and temperature levels. Additional cooling can be provided with an optional cooling coil, giving you control over your environment with ease.

During the cooler months, the Mistrale Fusion Deo continues to naturally ventilate, ensuring adequate ventilation rates and air changes per hour to meet the latest DFE guidelines. The series also includes the option of fitting a heating coil, enabling the unit to not only ventilate but also provide for any space heating needs ranging from rapid early morning warm-up to full space heating demands.

A name to bridge heritage and innovation

When naming our latest series, our engineers and innovators explored Gilberts' rich Celtic heritage and the elemental forces that shape our environment. Inspired by the powerful Mistral winds, innovative integration, and the Celtic concept of 'breath of air,' we proudly present Mistrale Fusion Deo – a clever combination connecting our company's roots with modernisation and sustainability.



Key Benefits

- Reduces annual energy consumption.
- Optimised for mixed-mode operation.
- Multi-functional hybrid design, contained in one unit.
- Removes air recirculation.
- Reduces carbon footprint.
- Complies with DFE Output Specification guidelines and regulations.

Key Features

- Maximum airflow 480 litres/second.
- Up to 65% heat recovery as standard.
- Up to 4kw heating.
- Up to 2kw cooling.
- Noise level less than 35 dBA for standard classrooms and less than 30 dBA for SEN classrooms.





Mistrale Fusion Deo

MFS-HR

Key Features

Casing

Precision laser cut casing, with integral designer air inlets and outlets, manufactured from mild steel with a durable powder coated finish White RAL 9010 20% Gloss as standard. Other colours are available and are easily applied in our modern automated powder coating plant.

Insulation

Our casing is internally lined with various thickness of pyrosorb thermal and acoustic insulation material. This provides a noise reduction of 34RW and when in operation meets the requirements of BB93.

Damper & External Louvre

Dampers are manufactured using robust co-extruded insulated blades with leakage to meet the building requirements of below 3M3/HR/M2 at 50 Pascals. The dampers also provide a significantly low U value of less than 1. Specially designed facade louvres connect to the outside with the upper port carrying warm soiled air out of the building and the lower port to carry the fresh air in

Fans

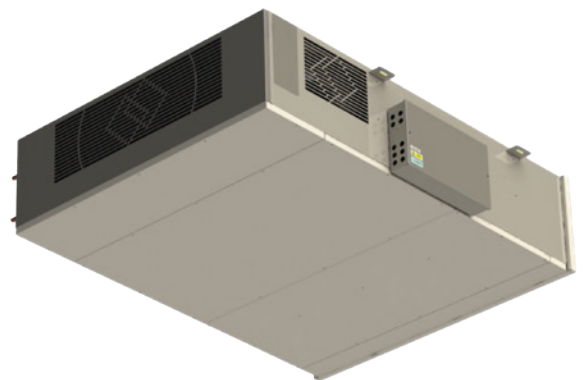
Low specific fan power integral centrifugal fans combine EC technology to provide an extremely energy efficient solution that can deliver up to 480 L/S per classroom. The fans are run at varying speeds depending upon the room and outside air conditions and will reduce output and therefore energy consumption during its operation in various heat recovery and natural ventilation modes.

Heat Exchanger

Aluminium heat exchangers are used to a standard 65% heat recovery where necessary and can operate without the need for heating down to as little as -6 degrees. The high unit performance reduces the need for Photovoltaic roof panels for energy offsetting

Condensate Elimination

In winter MFS-HR draws cold air in from outside (which may be sub-zero) and passes it through an aluminium plate heat exchanger. Warm moist air possibly around 50%RH and 20c is passed through the alternate passage meaning that any surface below 9c will likely form condensation. As with all quality heat recovery units, a condensate tray is therefore provided under the HE module. Provision is also made for condensate collection under the water coil for applications where chilled water circulation is used in summer. The condensate system includes an automatic pump which transfers the condensate through the unit and out through the louvre or into connecting pipework.



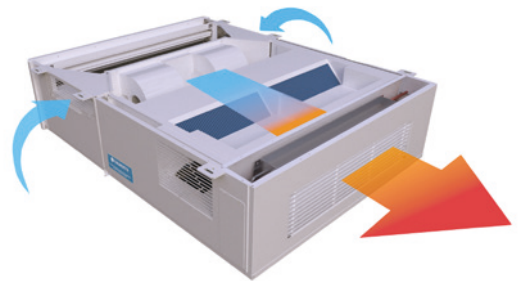


Standard Operational Conditions

MFS-HR is designed to satisfy 4 key operational conditions

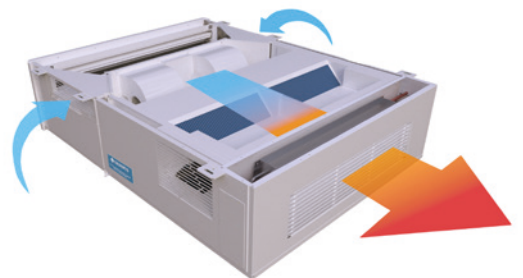
Winter (out of occupancy)

Many heat recovery solutions are remote from the actual façade which means that significant energy can be lost through the connecting ductwork and many may not necessarily contain full shut off dampers. With MFS-HR the primary damper is designed to sit directly adjacent to the façade and be set closed when not in operation. In this position we achieve a u value of less than 1, and a building seal of less than 3m³/hr/m²@50Pa. Building leakage should be tested in this status, and insulation rating should be calculated on this basis.



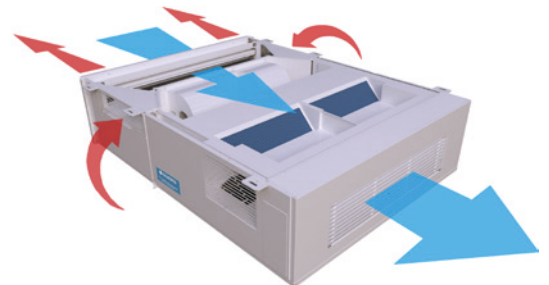
Night set-back (with heating coil option)

During the night, if the room temperature drops below 14°C the primary damper remains closed and MFS-HR will operate in recirculation mode with maximum airflow. The hot water coil will operate on full flow until the room temperature rises to 16°C at which point the fans turn off and the coil water flow is cut until the room temperature falls to 14°C again before the cycle is repeated.



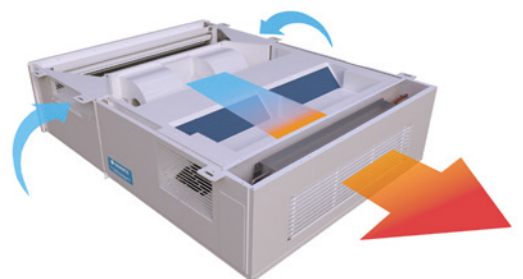
Night time Cooling

In summer, during the night, the ventilation system will operate to provide full fresh air through the primary damper, running at full speed on both fans. This will take advantage of the cool night time outside air temperatures to reduce the fabric temperature of the building lowering the internal temperature to a minimum 18°C in readiness for the next day.



Morning warm-up (with heating coil option)

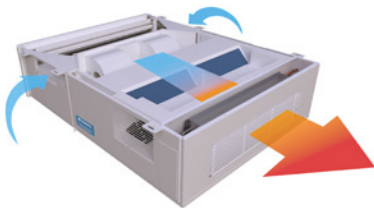
If the room air is below 16°C, before the occupancy set time the warm-up cycle will be enabled. This means the primary damper will remain closed and both fans will run on high with the water flow rate controlled to bring the room temperature to set point. The heat input required for morning warm up will be dependent on the losses of the building. Once set point is reached, the unit is set back to auto.



Operational Modes

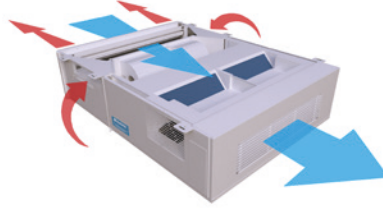
There are 5 normal modes of operation which include:

- Morning warm up (winter room heating)
- Heat recovery (winter normal operation),
- Natural Ventilation (when units are meeting set-points unit is placed in natural ventilation mode with no fan assistance),
- Heat recovery by-pass (for summer conditions where heat recovery is not required)
- Night time cooling (for summer operation at night to cool the building out of occupation ready for a fresh start to a next summer school day).



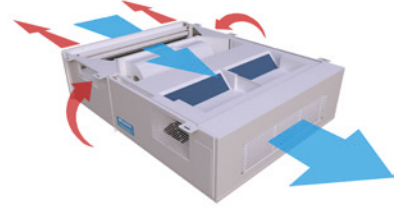
Morning Warm Up Mode

- Room air enters the MFS-HR through the side inlet grilles and passes through the Heat Exchanger into the secondary fans
- Air from the secondary fan is then channelled through to the primary fans
- Air from the primary fans by-passes the heat exchanger passing under it and through the heating coil
- The total airflow passes through the heating coil and into the room



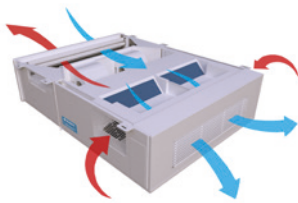
Summer Mode

- Fresh air enters through the lower face of the façade damper
- Fresh air passes into the primary fans through an exhaust air damper
- Fresh air by passes the heat exchanger
- Total fresh air passes through the coil (if fitted) and into the room
- Additional cooling can be provided by pumping cold water through the coil (if fitted)



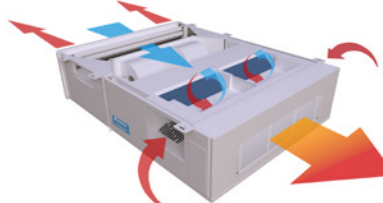
Night Time Cooling Mode

- Operates in same manner as Summer Mode
- Allows cool night time air to condition the room
- Reduces classroom temperature to ensure comfortable moving conditions
- Reduces energy required for cooling



Natural Ventilation Mode

- Damper open to outside to allow flow of air in and out of room
- No mechanical fans used in this mode
- Natural ventilation occurs via buoyancy and stack effect



Heat Recovery Mode

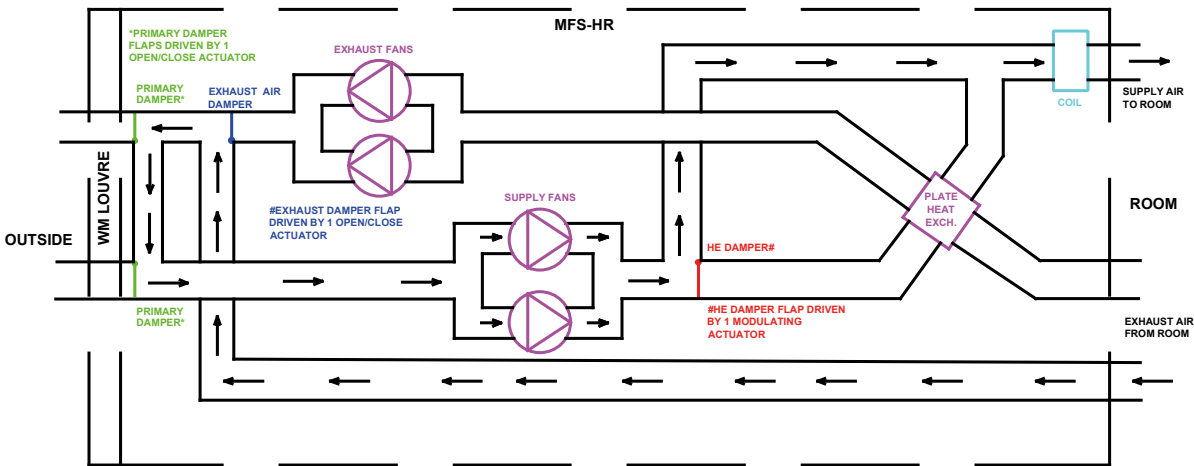
- Fresh air enters and part deflected through heat recovery section
- Room air returned into heat exhaust section and removed via extract fan
- Volume of air through each chamber adjusted to meet room temp + Co2 requirements
- Air volume adjusted to suit amount of heat recovery required

Operational Modes

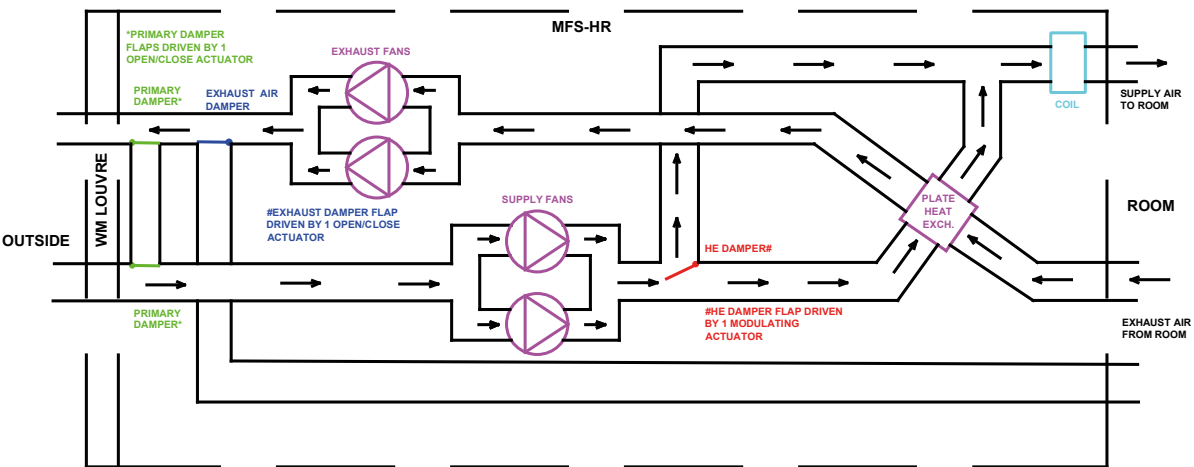
Airflow Map

The airflow maps show the routing of air pathways during morning warm up, winter heat recovery and normal summer conditions. Each mode offers different air pathways routing the air through fan packs, damper arrays, heat exchangers and heating coils to provide a clean uninterrupted and uncontaminated air supply

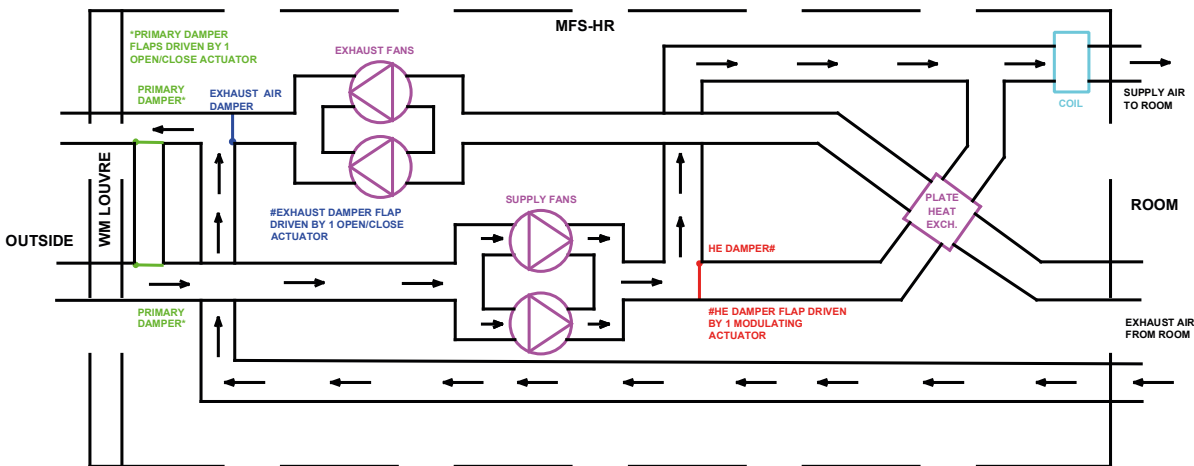
Morning Warm Up



Winter Heat Recovery (in occupancy)



Summer (in occupancy)





Headline Performance – An outstanding 65% Heat Recovery

MFS-HR is a market hybrid leading solution offering an unrivalled 65% of heat recovery.
 Impressive numbers, but what does it actually mean and how does this translate into end user benefit?
 The following chart illustrates the difference between 42% and 65% heat recovery for a single classroom (Taking min temperature as -5°C outside air temp)

Energy Requirements for typical Classroom with 2 No. MFS-HR1 units

Conditions						Air Swap			Optimum Heat Recovery 65% max								Heat Recovery 42% max							
OAT	Occ. Hrs*	Heat Load -Occ's	Heat Load-Other	Heat Loss-Building	Nett Heat Load	Fresh Air Flow Rate	I/s pp	Energy Lost Through Fresh Air	Energy Recov'd	HR#	Spare Capacity of HR	Suppl. Heating Power	Suppl. Heating Energy	Total Fan Power	SFP	Fan Energy	Energy Recov'd	HR#	Spare Capacity of HR	Suppl. Heating Power	Suppl. Heating Energy	Total Fan Power	SFP	Fan Energy
°C	h/yr	W	W	W	W	l/s	l/s	W	W	%	W	W	kWh	W	W/l/s	kWh	W	%	W	W	kWh	W	W/l/s	kWh
-5	1	2240	800	1300	1740	160	5	5376	3494	65	0	142	0	22.0	0.14	0.0	2258	42	0	1378	1	17.0	0.11	0.0
-4	3	2240	800	1250	1790	160	5	5184	3370	65	0	24	0	22.0	0.14	0.1	2177	42	0	1217	4	17.0	0.11	0.1
-3	1	2240	800	1200	1840	160	5	4992	3152	63	93	0	0	22.0	0.14	0.0	2097	42	0	1055	1	17.0	0.11	0.0
-2	4	2240	800	1150	1890	160	5	4800	2910	61	210	0	0	22.0	0.14	0.1	2016	42	0	894	4	17.0	0.11	0.1
-1	7	2240	800	1100	1940	160	5	4608	2668	58	327	0	0	22.0	0.14	0.2	1935	42	0	733	5	17.0	0.11	0.1
0	22	2240	800	1050	1990	160	5	4416	2426	55	444	0	0	22.0	0.14	0.5	1855	42	0	571	13	17.0	0.11	0.4
1	50	2240	800	1000	2040	160	5	4224	2184	52	562	0	0	22.0	0.14	1.1	1774	42	0	410	20	17.0	0.11	0.9
2	38	2240	800	950	2090	160	5	4032	1942	48	679	0	0	22.0	0.14	0.8	1693	42	0	249	9	17.0	0.11	0.6
3	34	2240	800	900	2140	160	5	3840	1700	44	796	0	0	22.0	0.14	0.7	1613	42	0	87	3	17.0	0.11	0.6
4	43	2240	800	850	2190	160	5	3648	1458	40	913	0	0	22.0	0.14	0.9	1458	40	74	0	0	17.0	0.11	0.7
5	56	2240	800	800	2240	160	5	3456	1216	35	1030	0	0	22.0	0.14	1.2	1216	35	236	0	0	17.0	0.11	1.0
6	58	2240	800	750	2290	160	5	3264	974	30	1148	0	0	22.0	0.14	1.3	974	30	397	0	0	17.0	0.11	1.0
7	70	2240	800	700	2340	160	5	3072	732	24	1265	0	0	22.0	0.14	1.5	732	24	558	0	0	17.0	0.11	1.2
8	95	2240	800	650	2390	160	5	2880	490	17	1382	0	0	22.0	0.14	2.1	490	17	720	0	0	17.0	0.11	1.6
9	111	2240	800	600	2440	160	5	2688	248	9	1499	0	0	22.0	0.14	2.4	248	9	881	0	0	17.0	0.11	1.9
									Max	65		0				13	Max	42		60				10

Percentage of heat recovered
 * Gatwick weather file used, hours shown are for occupied hours at temperatures where HR is used
 Note, Gatwick is one of the warmer weather files, more northerly ones may indicate a greater saving as 'spare capacity' is used up

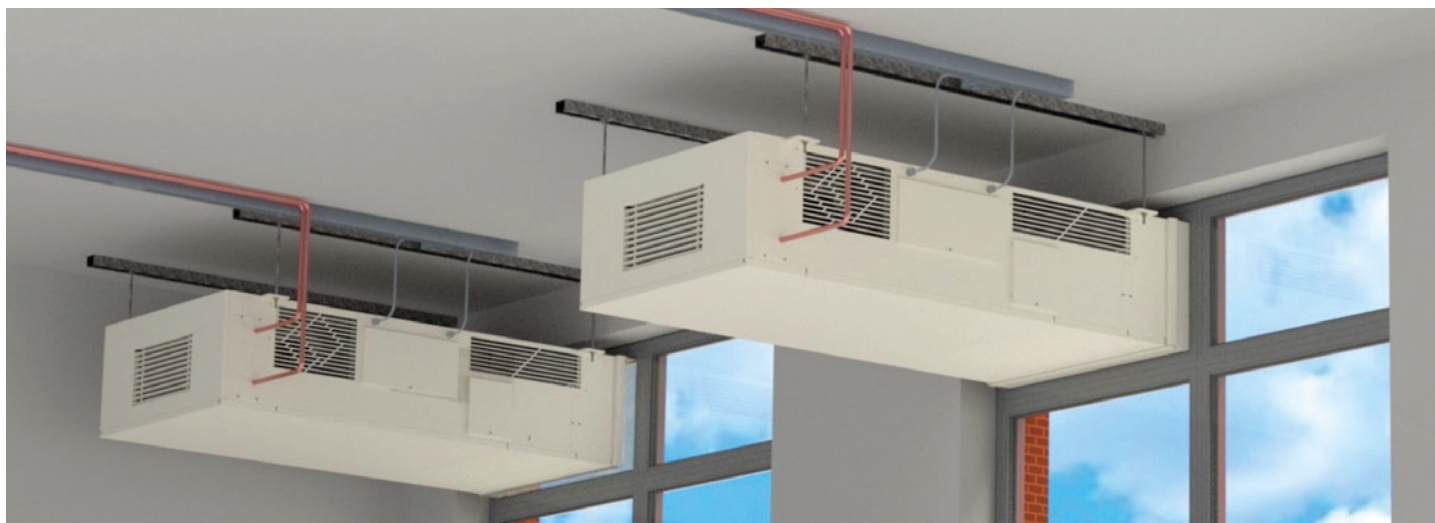
	Annual energy requirement to supplement the HR units
	Annual energy requirement to operate the Fans in the HR mode

Energy lost through air swap based on 21C room average, and 23C high level where air exhausts

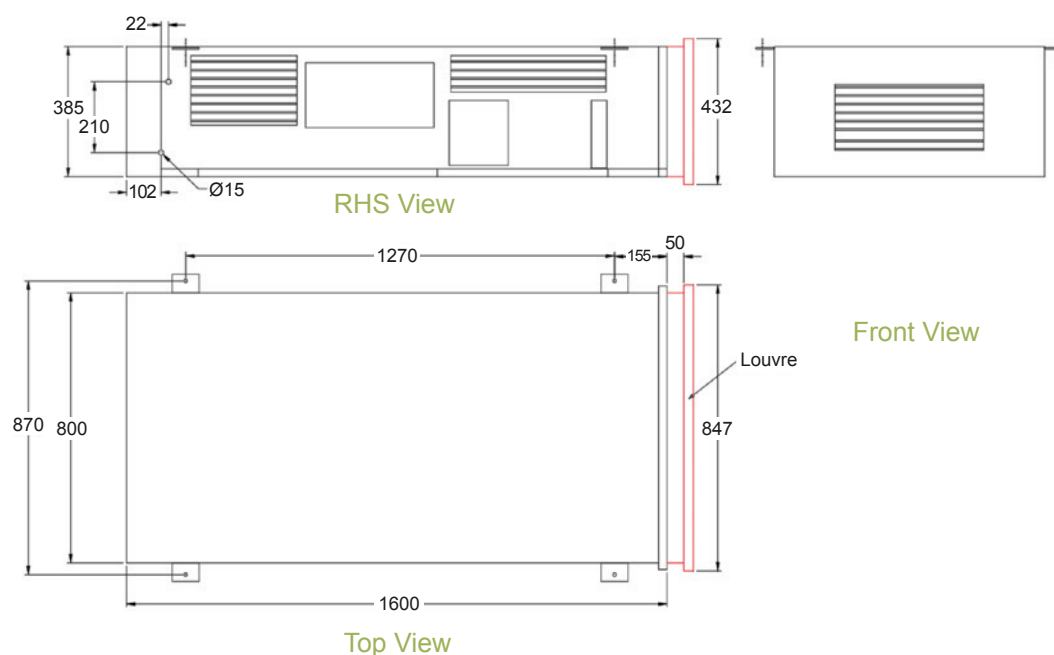
Solutions

MFS-HR1 Exposed

Standard solution is to fix at high window level and leave units exposed. With a white powder coat the MFS-HR provides a white goods appearance perfectly at home in an office or classroom environment.



Dimensions



Daytime Performance

MFS Solution	Winter Heat Recovery		Summer Bypass			Max Operating Current	Peak Current
	Nominal (5l/s/pp)/SPL (dBA)	Max High Airflow(l/s) /SPL (dBA)	Nominal (8l/s/pp)/SPL (dBA)	Max High Airflow (l/s)/SPL(dBA)	Summer Boost Flow (l/s)/SPL (dBA)		
2xMFS-HR1-K15 (No Coil)	160/29	210/35	256/28	380/35	460/40	1.4A total	2.8A
2xMFS-HR1-C-K15 (With Coil)	160/31	196/35	256/31	310/35	380/40	1.4A total	2.8A
1xMFS-HR1-K15 (SEN-No Coil)	60/22	96/30	96/22	170/30	208/35	0.7A total	1.4A
1xMFS-HR1-C-K15 (SEN-With Coil)	60/24	88/30	96/24	142/30	176/35	0.7A total	1.4A

MFS Solution	Energy Recovered, Optimum Efficiency (kW)	Airflow on Warm Up (l/s)	Warm-up Performance (50/40, air on 13°C) in W	Winter SFP	Summer SFP	Mean Annual SFP	MFS-HR Weight (kg)
2xMFS-HR1-K15 (No Coil)	3	n/a	n/a	0.26	0.12	0.16	80
2xMFS-HR1-C-K15 (With Coil)	3	476	4500	0.27	0.13	0.17	90
1xMFS-HR1-K15 (SEN-No Coil)	1.1	n/a	n/a	0.22	0.09	0.13	80
1xMFS-HR1-C-K15 (SEN-With Coil)	1.1	238	2250	0.23	0.1	0.14	90

Each unit requires a 3A Fused spur and a voltage of 220/230V AC 1ph 50 Hz.

For more detailed performance data please refer to the specific data sheets for each application on our website.

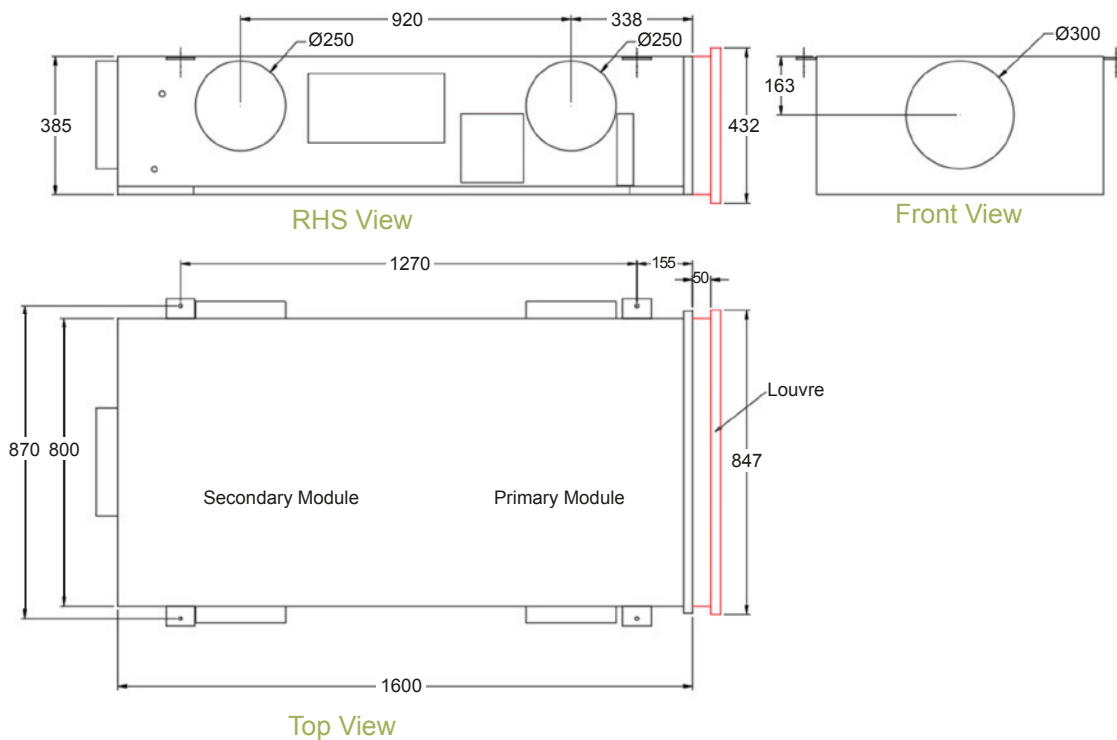
Solutions

MFS-HR1 Concealed (above Ceiling)

Where space permits MFS-HR can be installed above the ceiling. A suspended ceiling will conceal whilst giving the benefits of easy access but plasterboard is also a practical solution with ducted outlets allowing connection to a variety of air distribution grilles.



Dimensions



Daytime Performance

MFS Solution	Winter Heat Recovery		Summer Bypass			Max Operating Current	Peak Current
	Nominal (5l/s/pp)/SPL (dBA)	Max High Airflow(l/s) /SPL (dBA)	Nominal (8l/s/pp)/SPL (dBA)	Max High Airflow (l/s)/SPL(dBA)	Summer Boost Flow (l/s)/SPL (dBA)		
2xMFS-HR1-OS300 (No Coil)	160/30	218/35	256/28	360/35	440/40	1.4 A total	2.8A
2xMFS-HR1-C-OS300 (With Coil)	160/31	206/35	256/30	342/35	418/40	1.4A total	2.8A
1xMFS-HR1-OS300 (SEN-No Coil)	60/23	100/30	96/22	166/30	205/35	0.7A total	1.4A
1xMFS-HR1-C-OS300 (SEN-With Coil)	60/24	90/30	96/24	150/30	190/35	0.7A total	1.4A

MFS Solution	Energy Recovered, Optimum Efficiency (kW)	Airflow on Warm Up (l/s)	Warm-up Performance (50/40, air on 13°C) in W	Winter SFP	Summer SFP	Mean Annual SFP	MFS-HR Weight (kg)
2xMFS-HR1-OS300 (No Coil)	3	n/a	n/a	0.26	0.12	0.16	80
2xMFS-HR1-C-OS300 (With Coil)	3	480	4540	0.26	0.12	0.16	90
1xMFS-HR1-OS300 (SEN-No Coil)	1.1	n/a	n/a	0.22	0.09	0.13	80
1xMFS-HR1-C-OS300 (SEN-With Coil)	1.1	240	2270	0.23	0.1	0.14	90

Each unit requires a 3A Fused spur and a voltage of 220/230V AC 1ph 50 Hz.

For more detailed performance data please refer to the specific data sheets for each application on our website.

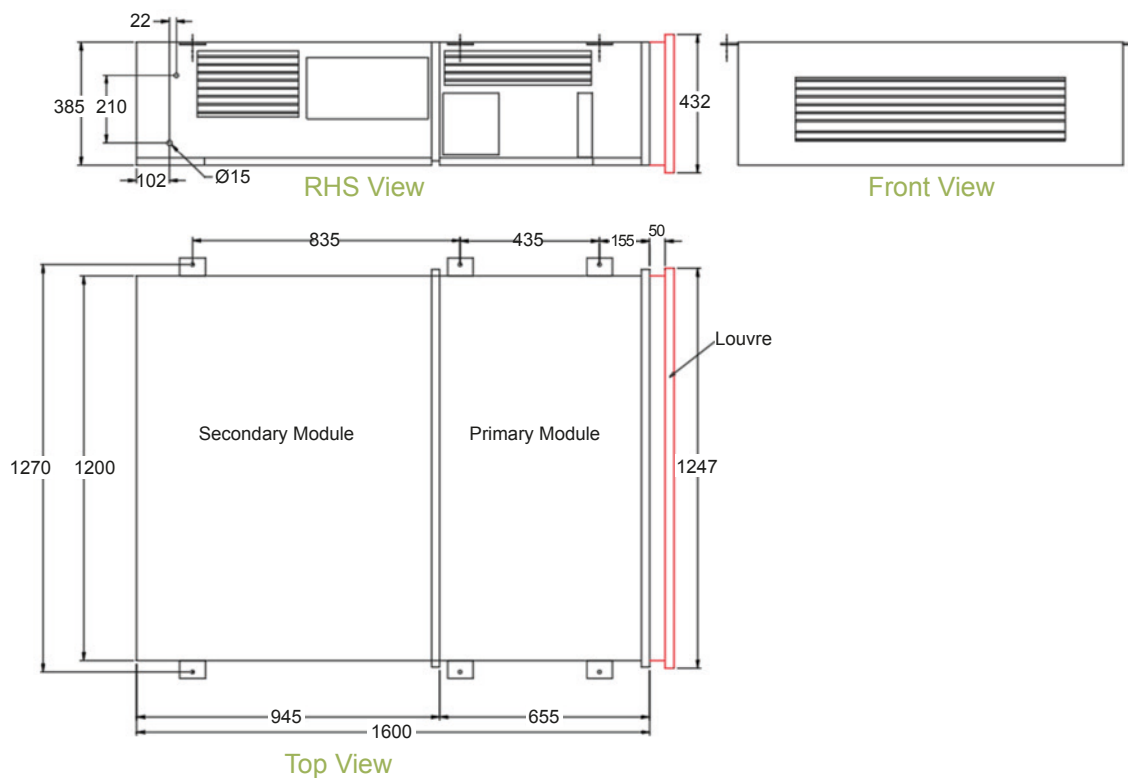
Solutions

MFS-HR2 Exposed

Standard solution is to fix at high window level and leave units exposed. With a white powder coat the MFS-HR provides a white goods appearance perfectly at home in an office or classroom environment.



Dimensions



Daytime Performance

MFS Solution	Winter Heat Recovery		Summer Bypass			Max Operating Current	Peak Current
	Nominal (5l/s/pp)/SPL (dBA)	Max High Airflow(l/s)/SPL (dBA)	Nominal (8l/s/pp)/SPL (dBA)	Max High Airflow (l/s)/SPL(dBA)	Summer Boost Flow (l/s)/SPL (dBA)		
1xMFS-HR2-K15 (No Coil)	160/27	230/35	256/31	304/35	360/40	1.4A total	2.8A
1xMFS-HR2-C-K15 (With Coil)	160/27	220/35	256/31	290/35	340/40	1.4A total	2.8A

MFS Solution	Energy Recovered, Optimum Efficiency (kW)	Airflow on Warm Up (l/s)	Warm-up Performance (50/40, air on 13°C) in W	Winter SFP	Summer SFP	Mean Annual SFP	MFS-HR Weight (kg)
1xMFS-HR2-K15 (No Coil)	3	n/a	n/a	0.22	0.12	0.15	145
1xMFS-HR2-C-K15 (With Coil)	3	472	6120	0.22	0.13	0.16	160

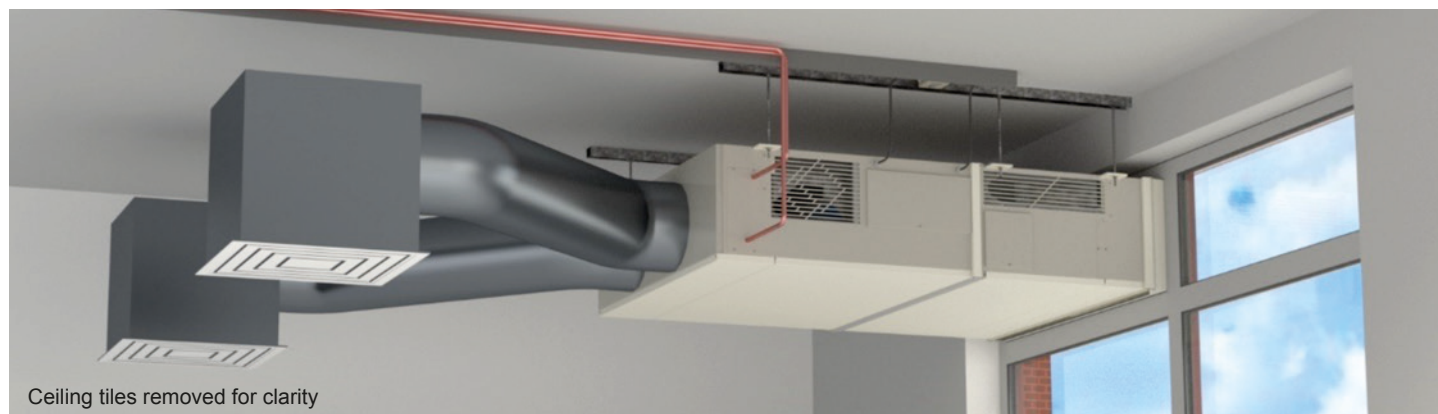
Each unit requires a 5A Fused spur and a voltage of 220/230V AC 1ph 50 Hz.

For more detailed performance data please refer to the specific data sheets for each application on our website.

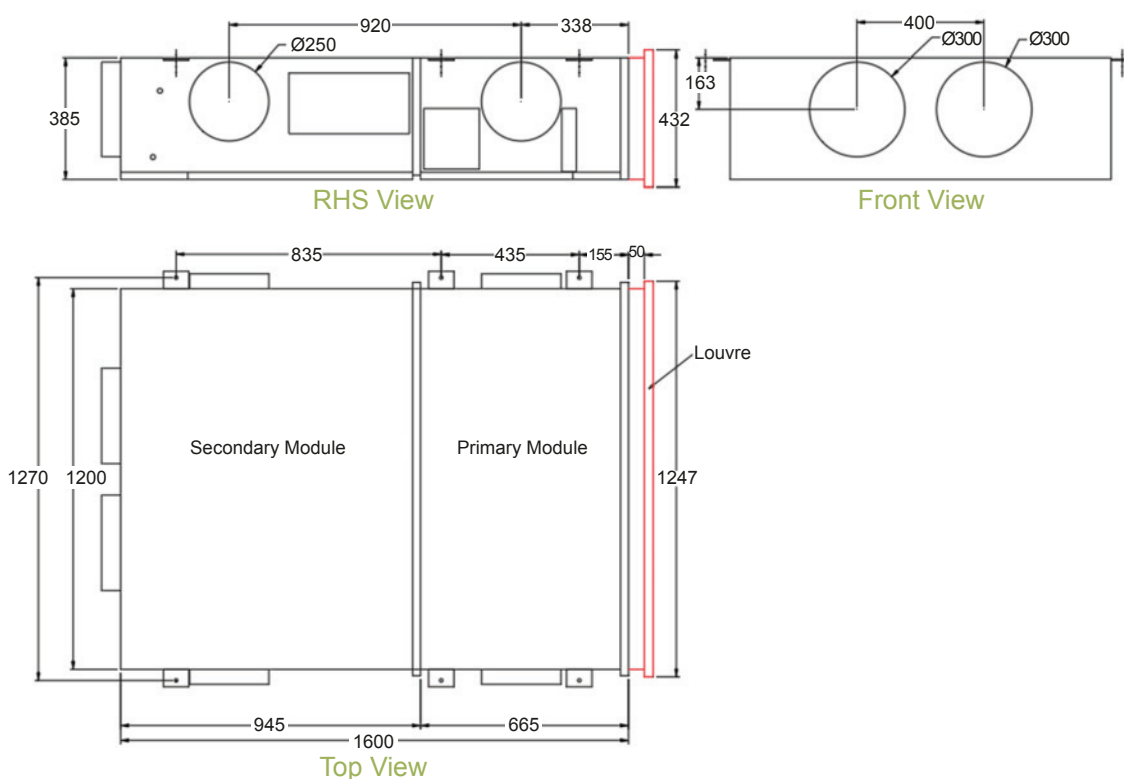
Solutions

MFS-HR2 Concealed (above Ceiling)

Where space permits MFS-HR can be installed above the ceiling. A suspended ceiling will conceal whilst giving the benefits of easy access but plasterboard is also a practical solution with ducted outlets allowing connection to a variety of air distribution Grilles.



Dimensions



Daytime Performance

MFS Solution	Winter Heat Recovery		Summer Bypass			Max Operating Current	Peak Current
	Nominal (5l/s/pp)/SPL (dBA)	Max High Airflow(l/s) /SPL (dBA)	Nominal (8l/s/pp)/SPL (dBA)	Max High Airflow (l/s)/SPL(dBA)	Summer Boost Flow (l/s)/SPL(dBA)		
1xMFS-HR2-OS300 (No Coil)	160/26	254/35	256/28	342/35	408/40	1.4A total	2.8A
1xMFS-HR2-C-OS300 (With Coil)	160/26	250/35	256/29	322/35	380/40	1.4A total	2.8A

MFS Solution	Energy Recovered, Optimum Efficiency (kW)	Airflow on Warm Up (l/s)	Warm-up Performance (50/40, air on 13°C) in W	Winter SFP	Summer SFP	Mean Annual SFP	MFS-HR Weight (kg)
1xMFS-HR2-OS300 (No Coil)	3	n/a	n/a	0.22	0.12	0.15	145
1xMFS-HR2-C-OS300 (With Coil)	3	474	6150	0.22	0.13	0.16	160

Each unit requires a 5A Fused spur and a voltage of 220/230V AC 1ph 50 Hz.

For more detailed performance data please refer to the specific data sheets for each application on our website.

External Louvre Solution

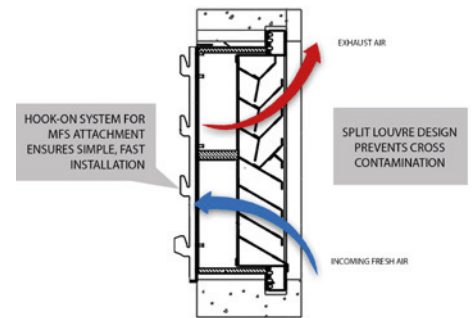
Intake/Discharge Combined Louvre

Designed as the air inlet and exhaust outlet for the MFS terminals. Specific frame borders allow the unit to glaze into windows or be fitted to wall and cladding surfaces.

Cross Contamination

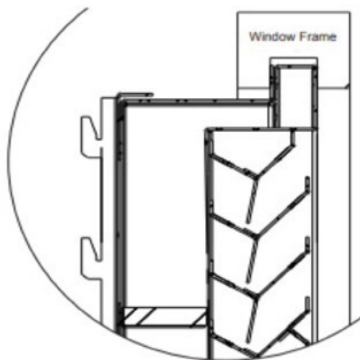
The design of Mistrale MFS Combination Louvre means that cross contamination (where stale air enters the supply/fresh airstream) is eliminated. The terminal includes separate internal supply and return air chambers which connect to the specially designed external louvre.

In turn the louvre is profiled and segregated to exhaust warm stale air through the top section and draw cool fresh air through the lower section.

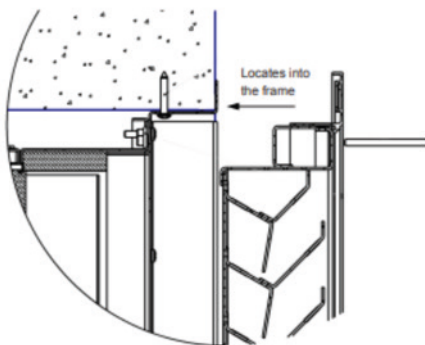


Border Styles

WMZ-Glazed In Louvre



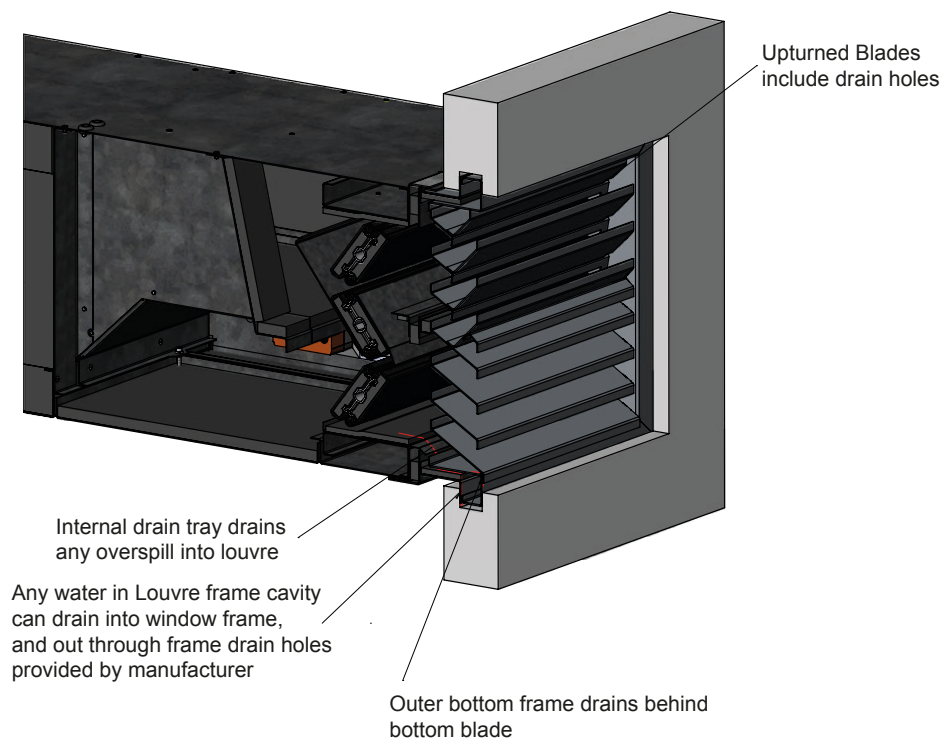
WMF-Flanged Louvre



Louvre Arrangements

Louvre-Standard Solution

The standard louvre solution comprises of a louvre that connects directly to the MFS-HR unit. The louvre can bead into a window or be fitted directly to the wall cladding



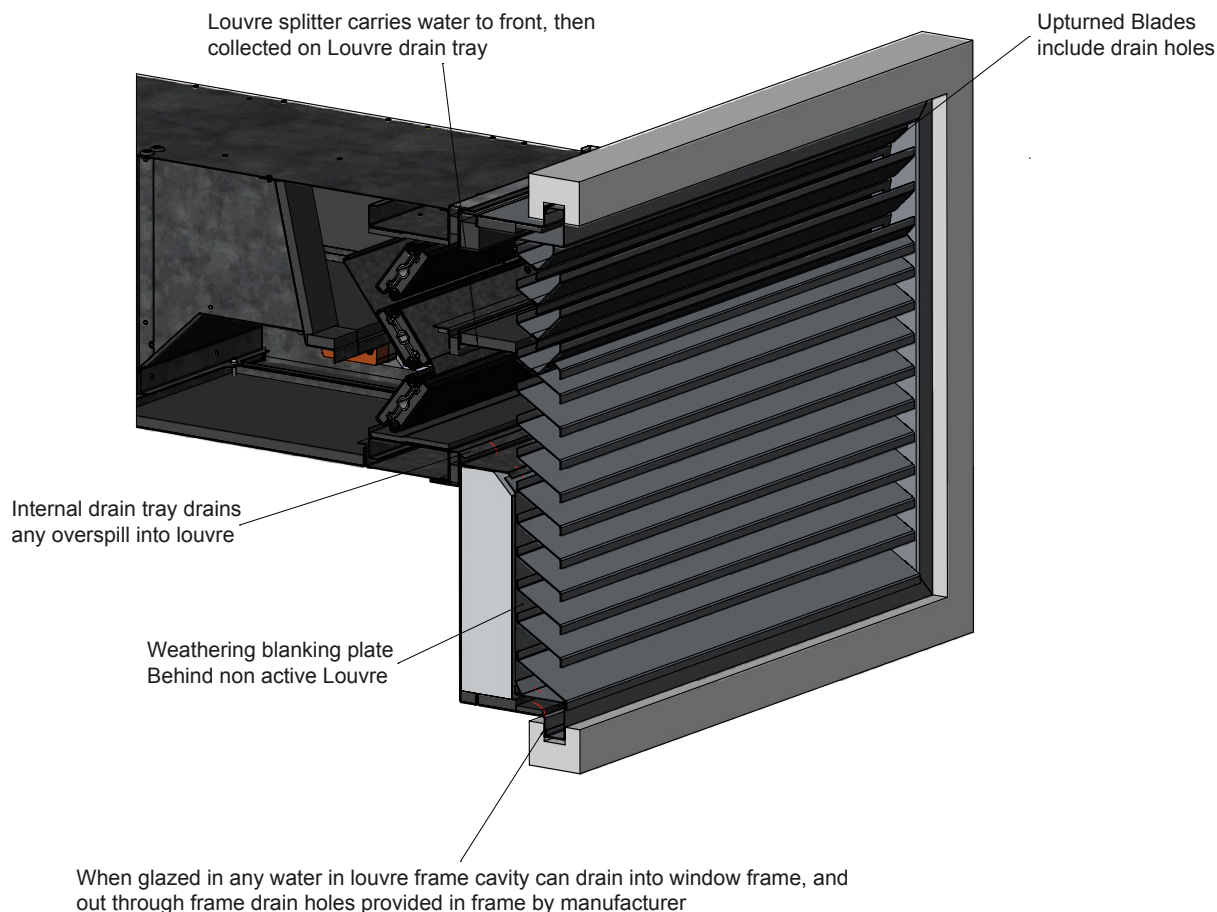
Notes

1. The internal drain tray has up-turned edges behind drive gears and internally behind blades ensuring any droplets landing on the blades are collected and drained into the louvre and out
2. — Std water >99.5%, Up to 13m/s wind speed
— Rejection of 0.5% not captured by Louvre but rejected via drain trays.

Louvre-Large Format Solution

The louvre has been designed with added size flexibility which means that it does not have to match the size of the MFS-HR unit. The louvre can be manufactured larger in length, height or both dimensions in order either to match the glass aperture size, match with any other louvres or create a design aesthetic.

In all cases integrity against water rejection and cross contamination of airflow is maintained.





Technical Specification

1. Building Interface -The Louvre

- A.** The external louvre is designed specifically to work with MFS-HR. Key features include an inverted chevron top exhaust section that directs the soiled air (which is always warmer and more buoyant) upwards preventing contamination and recirculation of the fresh air. Specific test reports are available illustrating how this configuration is the optimum interface arrangement. (FOS 4.4.1.2).
- B.** The external louvre/damper/sleeve arrangement is tested to Class 'A' weathering performance. (FOS 4.4.18.2). The testing has been carried out at BSRIA, but since this type of louvre is not available in 1m² individual modules it has been tested with the highest inward airflow rate for each section of the louvre. Test report available on request.
- C.** The louvre has special drainage points to ensure all the water collected is directed out over the bottom blade of the louvre to ensure that the glazing internal drainage system is not overwhelmed.
- D.** All grilles and louvres comply with Annex 2C: External Fabric and Annex 2D: Internal Finishes. (FOS 4.4.17.1.a)
- E.** The louvre is designed to fit into many different types of glazing system and can cater for various thicknesses. The frame is with a two-piece fabrication comprising an outside section, which includes the blades, and an inside section which includes the thermal insulation and a splitter that ensures that the warm outgoing air is deflected upwards. The two halves are separated using plastic spacers to ensure no cold bridging (FOS 4.4.10.1.i).
- F.** Where a larger louvre needs to be used to match the glazing on the façade, the rear half of the louvre includes an integrated blanking plate for any areas not used by the MFS-HR. The blanking plate is insulated with 50mm insulation to minimise any unnecessary energy losses, (FOS 4.4.10.1.i) and to prevent external ambient noise break in. (FOS 4.4.1.3).
- G.** The inside glazing bead face of the louvre is part of the rear blanking plate system and is fully sealed from inside prior to fixing to the exterior louvre section. When the louvre is installed in the façade it creates an excellent air seal between the room and the window frame. (FOS 4.4.17.1.b).
- H.** The louvre is fitted with a 'hanging flange' to facilitate easy jointing and an integrated seal between the external louvre and the heat recovery unit. A suite of specially designed 'hang on' duct sections are available if the MFS cannot be directly fitted to the louvre.

2. MFS-HR Primary Components

Primary Air Control damper.

- A.** Immediately behind the louvre is an insulated high seal air damper. The Façade air seal when the damper is closed is less than 3 m³/hr/m², and the energy loss through the section of the façade which is allocated to the ventilation system is less than 1W/m²/K. (FOS 4.4.18.1) With our WM louvre building interface arrangement the ventilation equipment does not require to be 'bagged off' when testing to prove the building seal.

3. MFS-HR Primary Components - Fans

- A.** The MFS-HR contains fans, arranged along with some internal dampers to operate in a number of different ways. They may be controlled to operate in parallel or separately with one as an intake, and the other one as exhaust in conjunction with a heat exchanger.
- B.** The fans are selected to be most efficient at the design airflows/pressure drops for the installed system. Fans comply with AD-L (FOS 4.4.14.2.a)
- C.** Although the fans are maintenance free, access for maintenance is required (FOS 4.4.14.2.b). To gain access, a removable panel on the underside reveals the fans, providing enough space to remove or replace.



Green Manufacturing

We take environmental awareness seriously, and we go beyond the basics. We deliberately design and engineer every component to balance performance and cost-effectiveness with its final environmental impact.

We invest in machinery that supports the optimisation of our environmental policies. Our modern powder coating plant uses less powder, water, and gas while achieving superior finish application and quality. Our two combi lasers and punch press now nest and optimise components to minimise wastage. As far as possible, our primary materials are aluminium and steel, which are highly recyclable. We employ LED lighting throughout and voltage optimisation hardware, and we benefit from a 327kw array of solar panels on our roof space.

Our commitment to reducing our carbon footprint extends beyond the manufacturing processes. We offer additional environmental services to our customers, including pallet retrieval and recycling and an industry-first, flat-packed plenum delivery.



GILBERTS

Gilberts Head Office and Works, GILBERTS (BLACKPOOL) LTD, Gilair Work, Clifton Road, Blackpool, Lancashire, FY4 4QT
Telephone: (01253) 766911 | e-mail: sales@gilbertsblackpool.co.uk | Web: www.gilbertsblackpool.co.uk

Gilberts (Blackpool) Ltd reserve the right to alter the specification without notice. For our latest product data please visit www.gilbertsblackpool.com. All images and drawings are for illustrational purposes only and are not intended to deliver an exact visual representation. Minor variations can be expected due to the different manufacturing processes
The information contained in this brochure is correct at time of going to press © 2025.