

HMR – Dual duct cabin unit



Overview

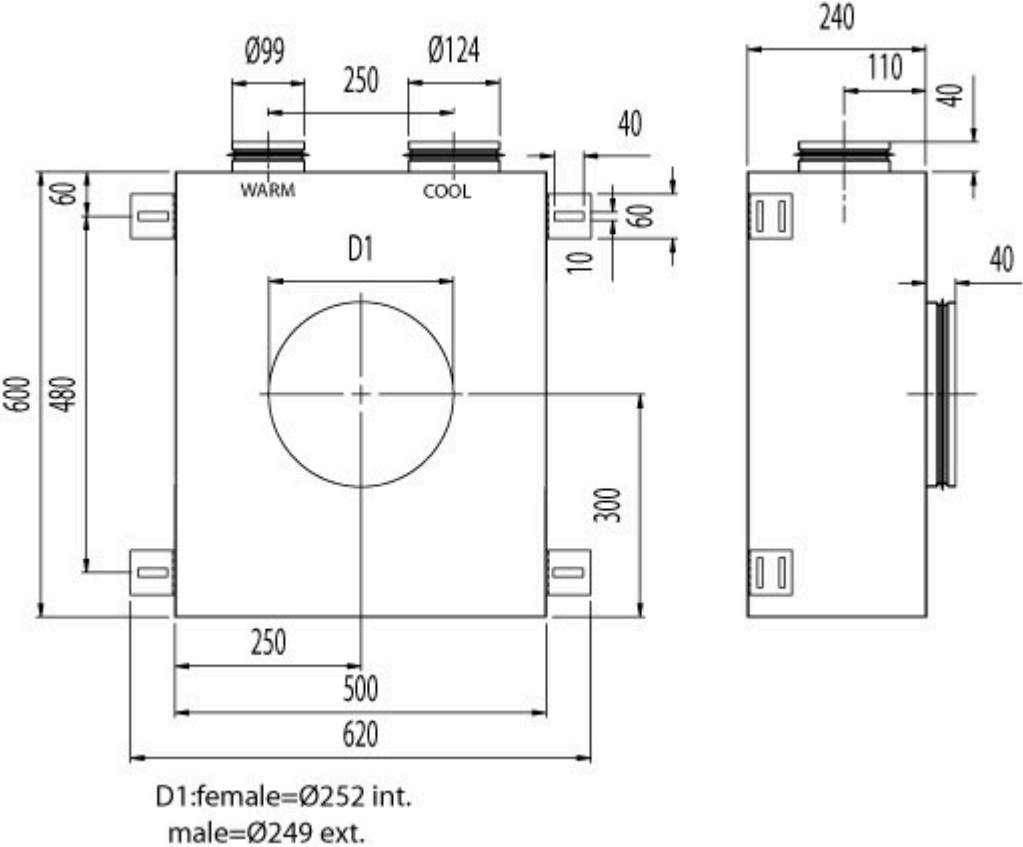
- Pressure range from 200 Pa up to 1000 Pa
- Airflow range 120 m³/h...400 m³/h
- 230 VAC ±10%, 50/60 Hz
- Inbuilt airflow measurements
- Master/slave functionality: several cabin units can be controlled by one control panel
- Internal fuse included
- All parameters can be set onsite during commissioning by external device or preset at the factory
- Different regulation principles available according to supply air temperatures (see regulation diagrams)
- HMR cabin unit is supplied with control panel and interconnection cable
- MED approved for B-0/B-15 installations

Specification

Halton HMR is pressure independent dual duct cabin unit. The airflow is continuously measured from the warm air spigot, as well as for total air volume. Pressure independent HMR adapts to variations in ductwork pressure and maintains individual conditions in each cabin.

Dimensions

HMR dimensions



	H	$\varnothing D1$ male/female	\varnothing warm duct / \varnothing cool duct
HMR-240	240	249/251	99/124

Note:
Male connection: outer dimensions
Female connection: inner dimensions

Material and Finishing

PART	MATERIAL
Casing	Hot galvanized steel or EN 1.4404 (AISI316L) as an option
Spigots	Hot galvanized steel and EPDM rubber or EN 1.4404 (AISI316L) as an option
Insulation	Mineral wool, s = 25 mm, MED approved
Input/output unit	Aluminium/plastic/electronics
Cables	Halogen free
Airflow measurement probes and tubes	Aluminium/polyurethane

Product Models and Accessories

HMR product options

- Pressure independent model (VAV/CAV)
- Inputs for external switches such as balcony door and key card switches available as an option
- Network compatible with adapter for advanced energy efficiency and supervision system available as an option
- Energy efficiency functions to reduce unnecessary cooling / heating costs available as an option

Control panel features

Halton Marine HMR cabin units are available with three different control panel models; with rotating knob, push buttons with LED bar graph (available as option: IP54) and push buttons with LCD-display (available as option: IP54).

Common features

- Cabin temperature measurement
- Connector for bluetooth / communication adapter to set cabin parameters
- Software for parameter setting and trouble shooting
- Different colour options and custom labeling available as an option
- Delivered with IC-Cable (interconnection cable)
 - For control panel – cabin unit connection
 - Prefabricated with plugs on both ends
 - Cable plug on panel side is designed to be pulled through standard installation pipe
 - Halogen free and flame-retardant

- Standard length 7 meters. Other lengths available.

Control panel with rotating knob

- Temperature adjustment by rotating knob

Control panel with push buttons and LED bar graph

- Temperature adjustment by push buttons
- Self diagnose function
- LED intensity control and auto dimming

Control panel with push buttons and LCD-display

- Temperature adjustment by buttons
- Self diagnose function
- LCD intensity control and auto dimming
- Display for actual and set point temperatures available as an option
- Time display available as an option
- A customized background picture available as an option
- Several frame options available



Control panel models; push buttons and rotating knob



LCD control panel

Cabin ventilation configuration table

	UNIT	HMM	HMM	HME	HME	HMF	HMF	HMF	HFR/M	HFR/M	HFR/M	HMR	HMR	HML
TERMINAL UNIT WITH JUNCTION BOX	CONTROL PACKAGE	K01	D03	K01	D03	M00	M01	M02	M00	M01	M02	D21	H21	B00
	Damper	manual	manual	manual	manual	electric	electric	electric	electric	electric	electric	electric	electric	electric
	Airflow measurement and control (VAV, CAV)	no	no	no	no	yes	no	yes	yes	no	yes	yes	yes	yes
	In-box temperature measurement	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	yes
	Reheater safety switch, manual reset	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	yes
	Safety switch state detection	no	yes	no	yes	yes	yes	yes	yes	yes	yes	no	no	yes
	Spare inputs (balcony door etc.)	no	no	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes
	Parameter setting by service tool	no	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
CONTROL PANEL	Cabin temperature measurement	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
	Controller with push buttons, 18 led bar	no	yes	no	yes	yes	no	no	yes	no	no	yes	no	yes
	Controller with knob	yes	no	yes	no	no	yes	yes	no	yes	yes	no	yes	no
	LCD room thermostat	no	optional	no	optional	optional	no	no	optional	no	no	optional	no	optional
	LED intensity control and auto dimming	no	yes	no	yes	yes	no	no	yes	no	no	yes	no	yes
	Self diagnose functionality	no	yes	no	yes	yes	no	no	yes	no	no	yes	no	yes
	Network compatible with adapter	no	yes	no	yes	yes	yes	yes	yes	yes	yes	yes	no	yes
	CO2 sensor available as an option	no	yes	no	yes	yes	no	no	yes	no	no	yes	no	yes
CABLES	Interconnection cable	IC4-X	IC6-X	IC4-X	IC6-X	IC6-X	IC6-X	IC6-X	IC6-X	IC6-X	IC6-X	IC6-X	IC6-X	IC6-X
	Master-Slave cable	MS4-X	MS2-X	MS4-X	MS2-X	MS2-X (MS5-X)	MS3-X	MS3-X	MS2-X (MS5-X)	MS3-X	MS3-X	MS2-X	MS3-X	MS2-X

Please note: HMM and HME units are also available without a control package.

Manually controlled airflows

Single duct units; HMM, HME

Pressure dependent units

Single duct units: HMF, HFR/M

Pressure independent units

Single duct units; HMF, HFR/M, HML

Dual duct units; HMR

ACCESSORIES FOR HMR CABIN UNITS

MS-Cable (master-slave cable)

- For master cabin unit – slave cabin unit/units connection
- Prefabricated with plugs on both sides
- Halogen free and flame-retardant
- Standard length is 7 meters. Other lengths available as an option.

Communication adapter

- Bluetooth communication to external device
- For wireless connection to set cabin unit parameters and trouble shooting

Network adapters

- Network adapter (also available as WiFi) expands a stand-alone unit to network compatible unit (LON or Ethernet network)
- Enables supervision and advanced energy efficiency functions
- For more information, see Halton Networks for cabin ventilation -brochure or contact Halton Marine Sales office.

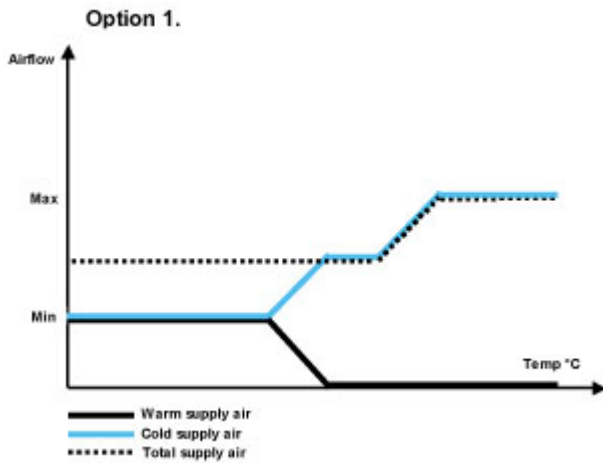
Function

Control panel includes also a number of special features such as diagnostics function, room brightness measurement and re-programmability. The power supply and data transfer between cabin unit and control panel is carried out via interconnection cable. Temperature range is software adjustable between 10 and 30°C degrees.

FUNCTION OF VAV UNIT

When passenger demands for a lower temperature, the damper opens the cold air duct in order to increase of flow of cool air towards to maximum setpoint. Simultaneously the damper closes the warm air duct. When the required temperature in the cabin is achieved, the damper references are held until the temperature demand changes. In a heating mode, the operation is reserved.

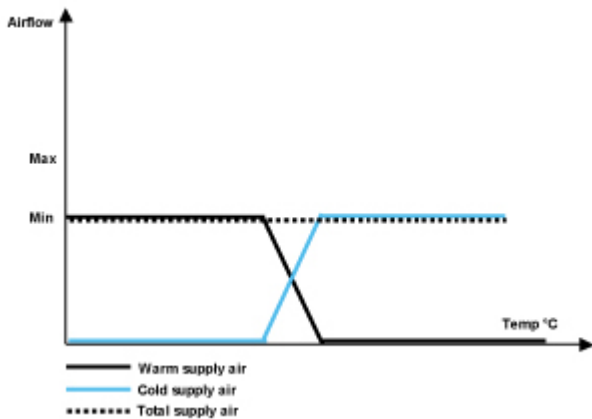
Regulation diagram, VAV



FUNCTION OF CAV UNIT

Airflow is kept in pre-set level in any condition. When passenger demands for a lower temperature by using control panel, the damper opens the cold air duct in order to increase of flow of cool air. Simultaneously the damper closes the warm air duct. When the required temperature in the cabin is achieved, the damper references are held until the temperature demand changes. In a heating mode, the operation is reserved.

Regulation diagram, CAV



Cabin unit's measurement accuracy

	120-150	151-200	201-300	301-400
Accuracy*	±20%	±15%	±10%	±8%

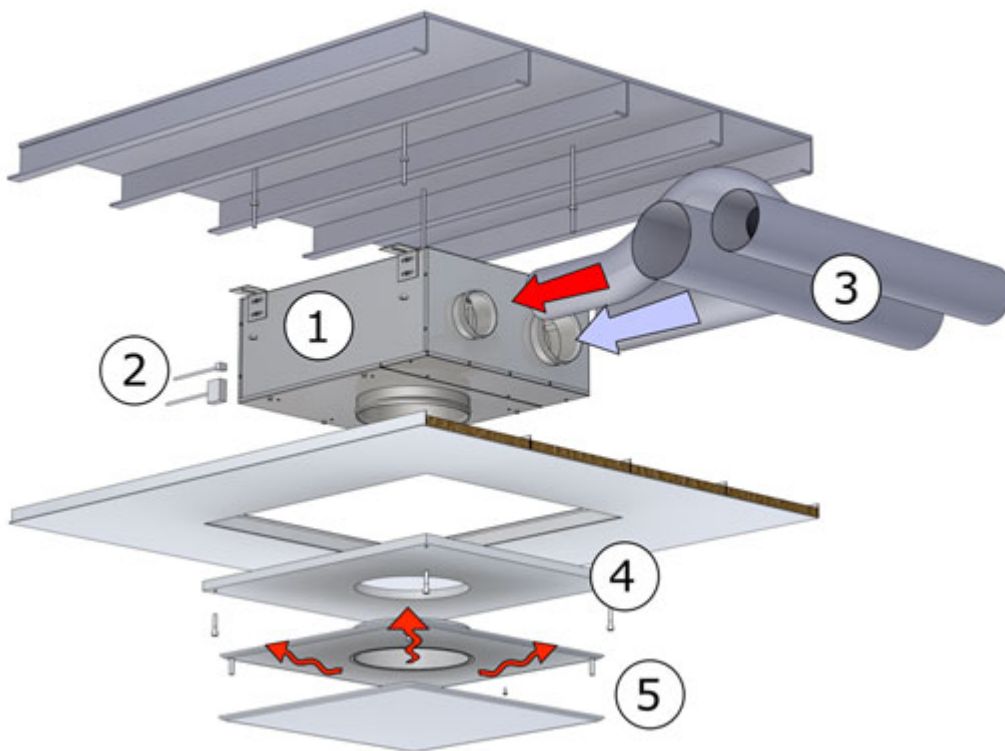
* ductwork pressure 200 – 1000 Pa (optimal)

Note:
When comparing airflow measurements between cabin unit and other device, cabin unit's airflow regulation dead-band has to be taken into account ($\pm 10\text{m}^3/\text{h}$).

Operating range for HMR

120 m³/h – 400 m³/h

Installation



Cabin unit mounting instruction

Projects requirements and possibilities should be taken into account when designing the installation. For more information on the possibilities contact Halton Marine sales office.

Main principles in cabin unit installation:

1. Fix cabin unit above false ceiling using thread bar (as seen on picture) or frame installation
2. Connect power supply and IC cable to the unit. (cable installation should be done before this phase, see Interconnection Cable Mounting Instructions). As standard cabin unit has Ensto NAC 31 plug for the power supply (counterpart NAC 32 not include).
3. Connect supply air ducts to cabin unit inlets.
4. Close maintenance / installation hatch.
5. Connect and assemble diffuser to the cabin unit outlet.

Control Panel mounting instruction

1. Install LRC-1 CP unit back plate to the provided leveled place on the wall.
2. Fasten 3 screws (DIN 7981 or similar, \varnothing 3 mm, **max. head height 3 mm**) to fix CP unit to its place.
3. Connect LRC-1 interconnection cable to the interconnection connector. Max. allowed tractive force is 30 N.
4. Install LRC-1 CP unit front plate to the back plate
5. Fasten the screw in the bottom carefully. Max. Torque 0,3 Nm.

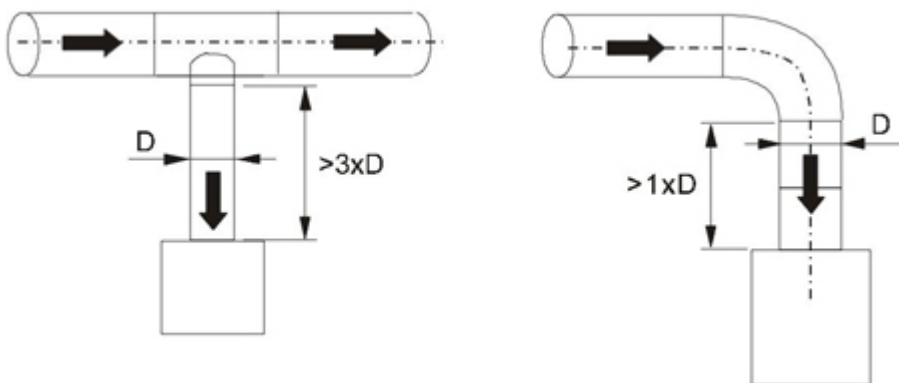
The LRC-1 CP unit should be positioned on the wall inside the room it will regulate. It is advised to avoid direct sunlight or position near heating/cooling source object

Interconnection Cable mounting instructions

Interconnection cable comes prefabricated with plugs on both sides. To install, draw it through the provided tube from Cabin unit to CP unit (the plug on CP unit is small enough to allow drawing through \varnothing 16 mm tubes). Max. allowed tractive force is 30 N. On the CP side, in the room, leave approximately 8 cm of the cable (the wires) outside the tube. The near end of the tube (CP-unit side) must be blocked (e.g. foam) to prevent condensation and thermal transfers reaching CP unit.

Safety distances

A required safety distance as illustrated must be taken into account when installing the cabin unit. Airflow measurement accuracy cannot be guaranteed if safety distances are not taken into account.



Commissioning

All parameters can be preset at the factory according to order. During commissioning all parameters can be modified wirelessly with portable device using LRC manager software.

Halton also provides supervision and commissioning services for the projects.

For more information contact Halton Marine Sales office.

Weights

NS	KG
HMR-125/100	18

Product Code

(D)=Diameter of inlet connection (cold)
125

(C)=Diameter of inlet connection (warm)
100

(E)=Diameter of outlet connection
200

(C2)=Outlet connection type

(A) Male with gasket

(B) Male without gasket

(C.) Female

(CU)=Control Unit

(H2) H21 (Knob)

(ZT)=ETO Processing

(Y) Yes

(N) No

AC=Accessories

Code example

HMR-125-100-250,C2=A,CU=D2,ZT=Y

Sound attenuation

Sound attenuation (dB)

	f(Hz)	63	125	250	500	1000	2000	4000	8000
HMR-100/125	Ω (dB)	3,9	8,3	16,9	25,6	35,3	38,6	38,4	37,4

Ω L: Sound attenuation not including end reflection