

HMR 双管布风器

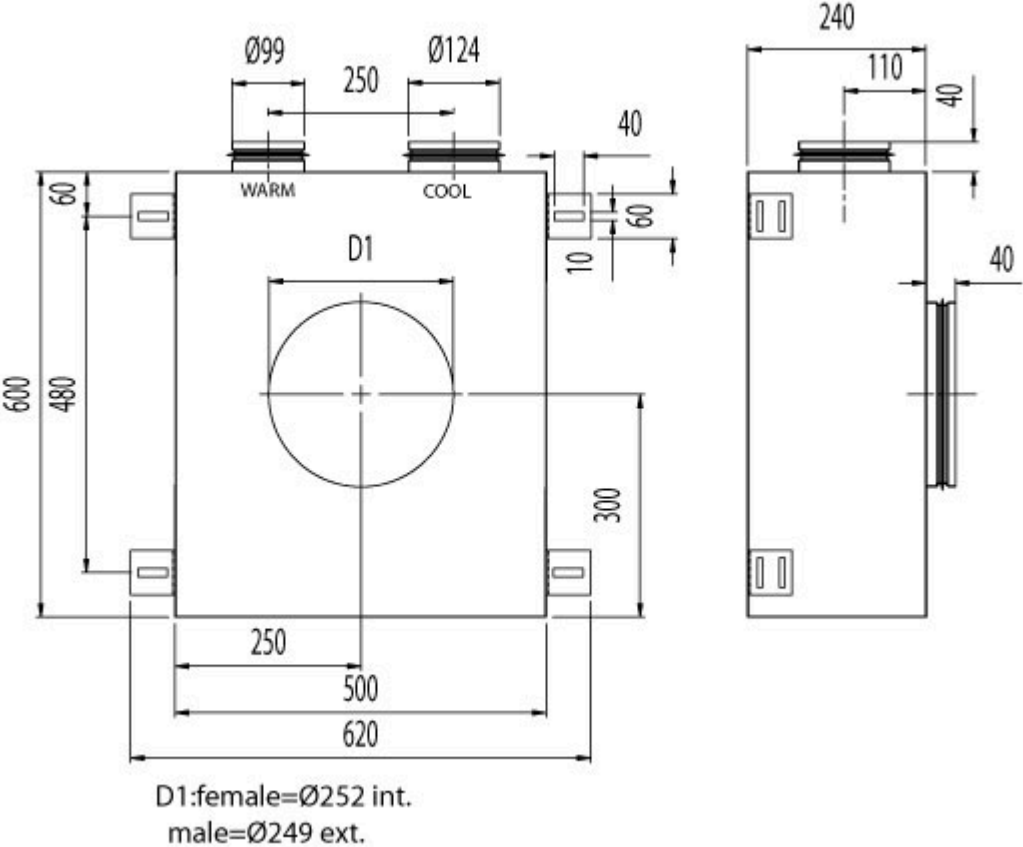


概述

- 压力范围 200 Pa 到 1000 Pa
- 气流范围 120 m³/h 到 400 m³/h
- 230 VAC 610%，最大 1A，50/60 Hz
- 内置流量测量
- 主/辅功能：多个辅助布风器可以连接到一个主布风器上
- 主/辅功能：多个辅助布风器可以连接到一个主布风器上
- 可选配外部开关（如阳台门开关和钥匙卡开关）的输入端
- 可选配连接阳台门或其它外部设备的输入端
- 可选配能效功能，以减少不必要的冷却/加热成本
- 所有参数可在工厂预设或在调试时通过 PDA 现场设定
- 可根据供气温度（参见调节图）选用不同的调节方法
- HMR 布风器可配备控制板和互连电缆
- 获得 MED 认证的 B-0/B-15 安装等级

Dimensions

HMR dimensions



	H	ØD1 male/female	Ø warm duct / Ø 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
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
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 (NAV, 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
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
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.

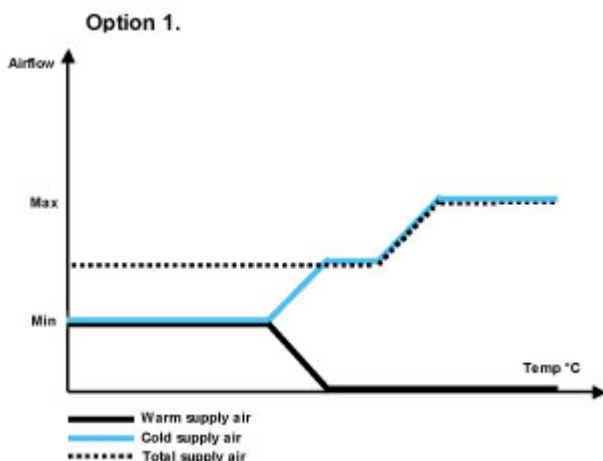
Function

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.

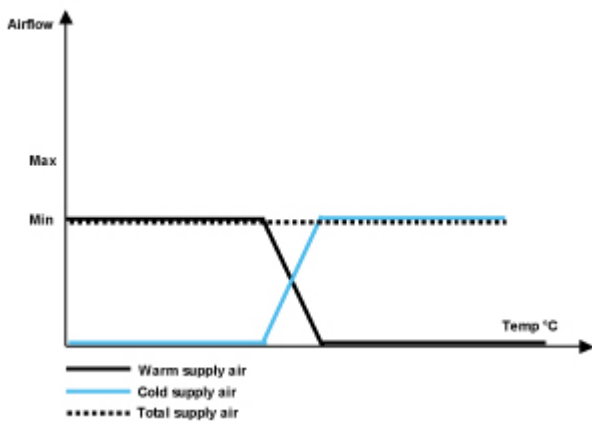
Regulation diagram, VAV



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%

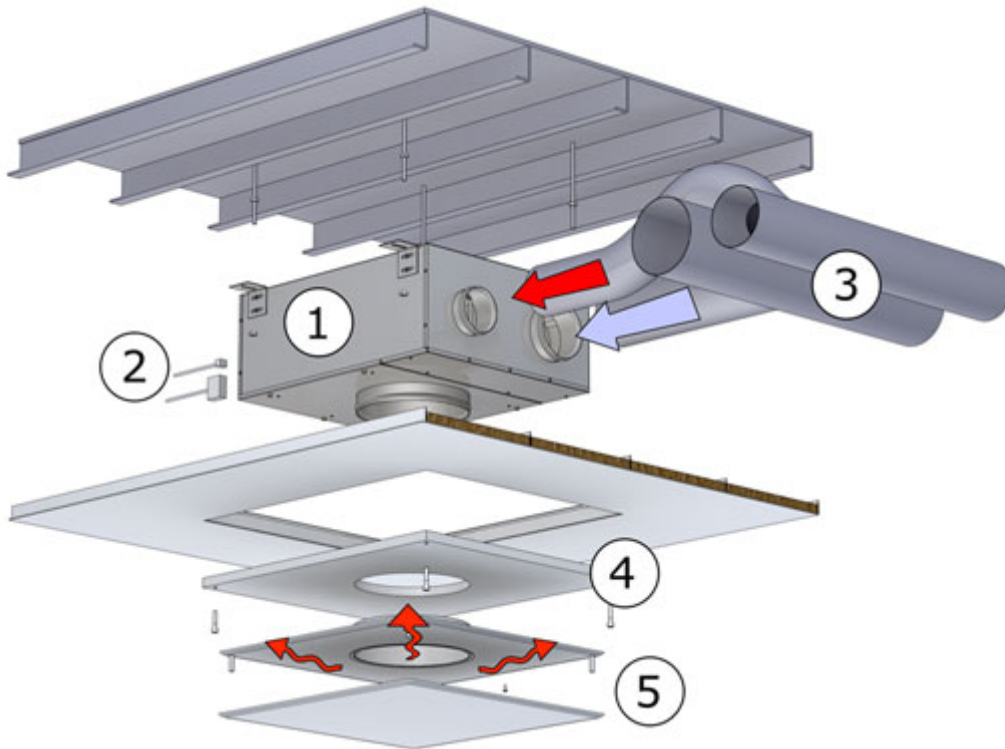
* ductwork pressure 200 – 1000 Pa (optimal)

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, Ø 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.

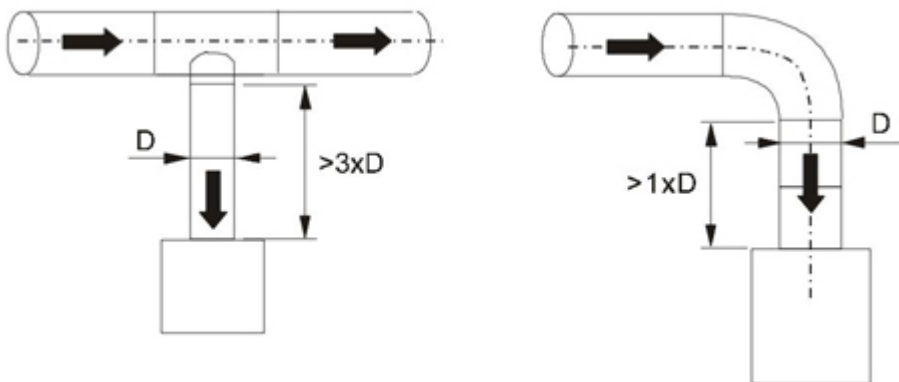
The LRC-1 CP unit should be positioned on the wall inside the room it will regulate. It is advised to avoid direct sunlight or position near heating/cooling source object

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

HMR product code

HMR ver 3									
(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