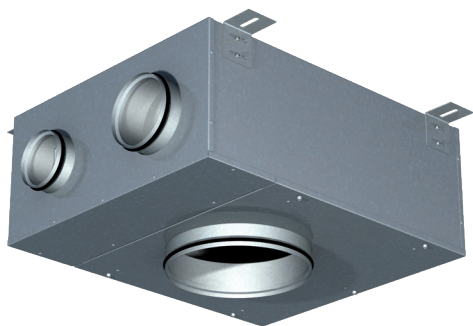


HMR DUAL DUCT CABIN UNIT

For passenger and crew cabins



APPLICATIONS

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.

MATERIALS

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

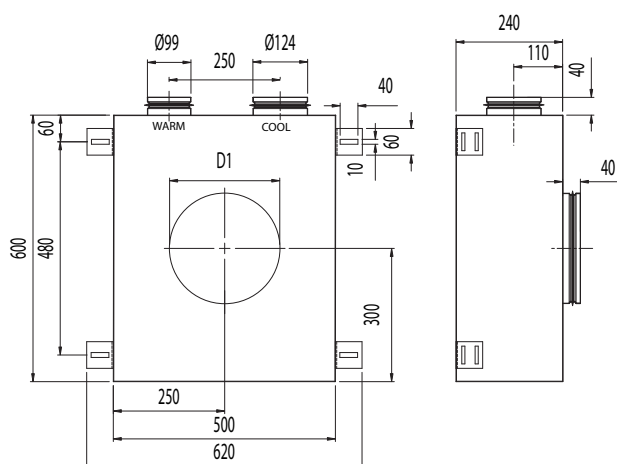
HMR PRODUCT OPTIONS

- 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

FEATURES

- Pressure range from 200 Pa up to 1000 Pa
- Airflow range 120 m³/h...400 m³/h
- 230 VAC $\pm 10\%$, 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

GENERAL HMR DRAWINGS



HMR DIMENSIONS

	H	ØD1 male/ female	Ø warm duct/ Ø cool duct
HMR-240	240	249/251	99/124

Note: male connection: outer dimension, female connection: inner dimensions

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.

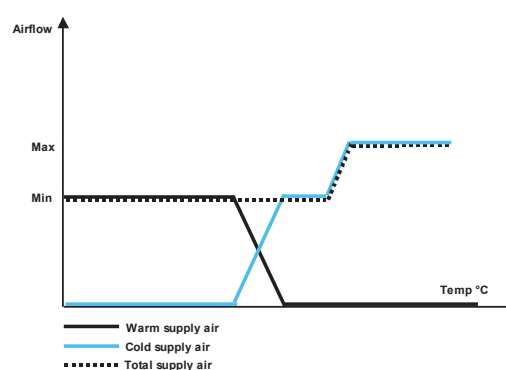
FUNCTION OF VAV UNIT

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.

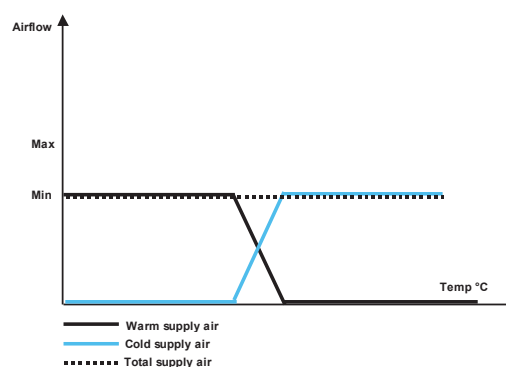
FUNCTION OF CAV UNIT

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, VAV



REGULATION DIAGRAM, CAV



OPERATING RANGE FOR HMR

HMR-240
120 m³/h - 400 m³/h

CABIN UNIT'S AIRFLOW MEASUREMENT ACCURACY

	AIRFLOW (m³/h)			
	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 (± 10 m³/h).

CONTROL PANEL FEATURES

Halton Marine HMF 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

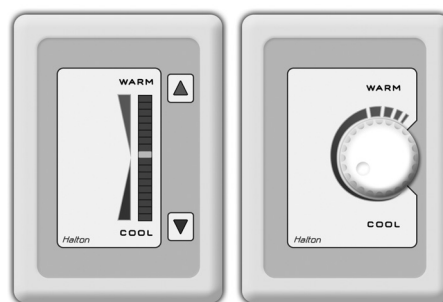
- Temperature adjustment by rotating knob

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 button 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 AIRLOWS

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 ends
- 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

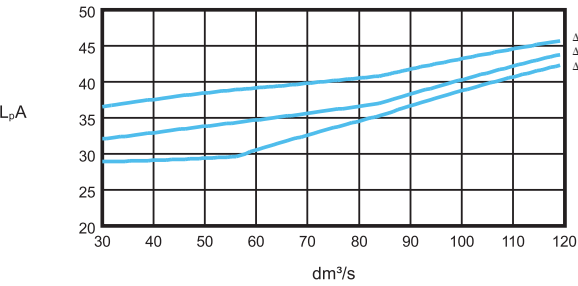
NETWORK ADAPTERS

- 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.

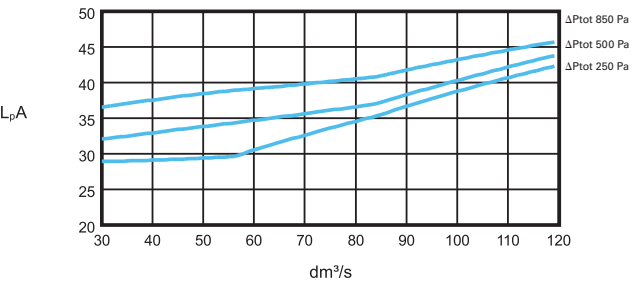
PERFORMANCE DATA

SOUND LEVELS, CABIN SOUND ABSORPTION 4 dB(A)

HMR-100/125-200

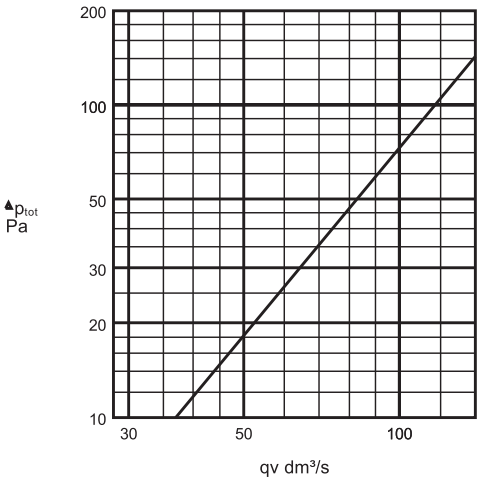


HMR-100/125-250

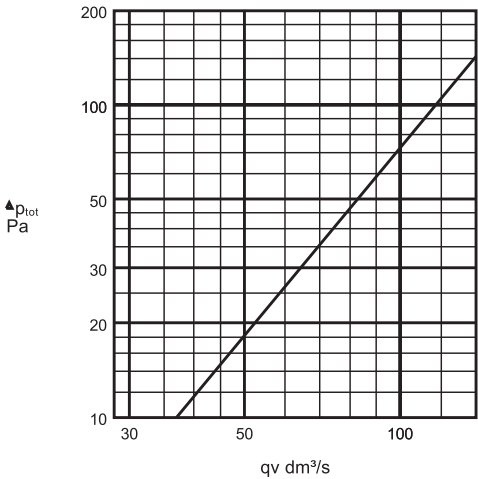


PRESSURE DROP

HMR-100/125-200



HMR-100/125-250



SOUND ATTENUATION (dB)

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

ΔL: Sound attenuation not including end reflection