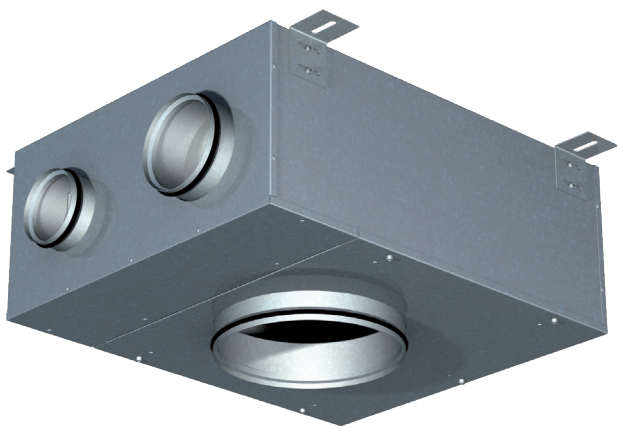


# HMR DUAL DUCT CABIN UNIT

For passenger and crew cabins



## MATERIALS

PART	MATERIAL	NOTE
Casing	Hot galvanised steel	Available as an option: stainless steel EN 1.4404 (AISI316L)
Spigots	Hot galvanised 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 compatibility 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

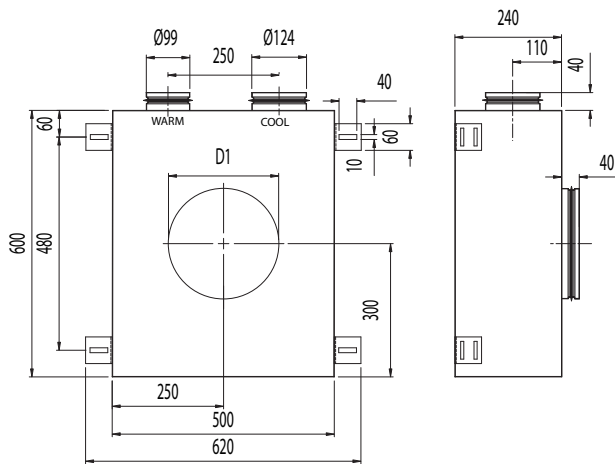
## APPLICATIONS

The Halton HMR is a pressure-independent dual duct cabin unit. It features continuous airflow measurement from the warm air spigot, as well as total air volume measurement. The pressure-independent HMR unit adjusts to changes in ductwork pressure and ensures consistent conditions in each cabin.

## FEATURES

- Pressure range: 200 Pa to 1000 Pa
- Airflow range: 120 m<sup>3</sup>/h to 400 m<sup>3</sup>/h
- Power supply: 230 VAC ±10%, 50/60 Hz
- Inbuilt airflow measurements
- Master/slave functionality: multiple cabin units can be controlled by one control panel
- Internal fuse included
- Onsite parameter configuration during commissioning using an external device or factory presets
- Different regulation principles available based on supply air temperatures (refer to regulation diagrams)
- HMR cabin unit includes 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: for male connections, the dimensions refer to the outer dimensions, while for female connections, the dimensions refer to the inner dimensions.

**FUNCTION**

The control panel of the HMR includes various special features such as diagnostics function, room brightness measurement, and re-programmability. The power supply and data transfer between the cabin unit and control panel are facilitated through the interconnection cable. The temperature range can be adjusted via software between 10°C and 30°C.

**FUNCTION OF VAV UNIT**

When a passenger requests a lower temperature, the damper opens the cold air duct to increase the flow of cool air towards the maximum setpoint. At the same time, the damper closes the warm air duct. Once the desired temperature in the cabin is reached, the damper positions are maintained until there is a change in temperature demand. This operation is reserved for heating mode.

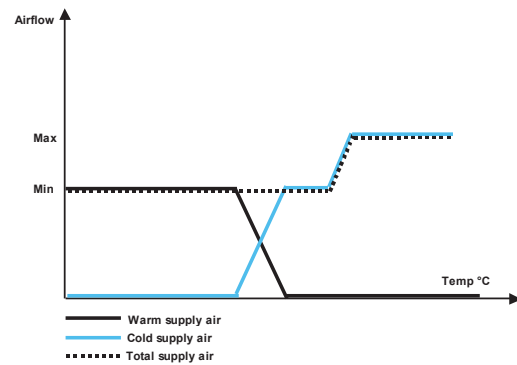
**FUNCTION OF CAV UNIT**

The CAV unit maintains a pre-set airflow level regardless of the conditions. When a passenger requests a lower temperature through the control panel, the damper opens the cold air duct to increase the flow of cool air. Simultaneously, the damper closes the warm air duct. Once the desired temperature in the cabin is achieved, the damper positions are held until there is a change in temperature demand. This operation is also reserved for heating mode.

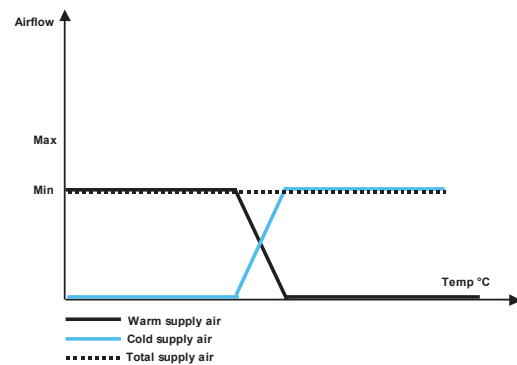
**OPERATING RANGE FOR HMR**

HMR-240
120 m3/h - 400 m3/h

**REGULATION DIAGRAM, VAV**



**REGULATION DIAGRAM, CAV**



**CABIN UNIT'S AIRFLOW MEASUREMENT**

**ACCURACY**

Accuracy*	AIRFLOW (m3/h)			
	120-150	151-200	201-300	301-400
	±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 (6 10 m3/h).

## CONTROL PANEL FEATURES

Halton Marine HMR cabin units offer three different control panel models:

- Control panel with a rotating knob
- Control panel with push buttons and LED bar graph (IP54 option available)
- Control panel with push buttons and LCD display (IP54 option available)

## COMMON FEATURES

- Cabin temperature measurement
- Connector for Bluetooth/communication adapter to set cabin parameters
- Software for parameter setting and troubleshooting
- Option for different colors and custom labeling
- Delivered with an IC-Cable (interconnection cable) for control panel-cabin unit connection
  - Prefabricated with plugs on both ends
  - Cable plug on the panel side is designed to be pulled through a standard installation pipe
  - Halogen-free and flame-retardant
  - Standard length is 7 meters, with other lengths available

## CONTROL PANEL WITH ROTATING KNOB

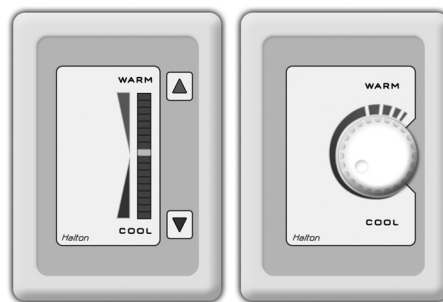
- Temperature adjustment using the rotating knob

## CONTROL PANEL WITH PUSH BUTTONS AND LED BAR GRAPH

- Temperature adjustment using push buttons
- Self-diagnosis function
- LED intensity control and auto-dimming

## CONTROL PANEL WITH PUSH BUTTONS AND LCD DISPLAY

- Temperature adjustment using buttons
- Self-diagnosis function
- LCD intensity control and auto-dimming
- Option for display of actual and set point temperatures
- Option for time display
- Option for a customized background picture
- 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
	CONTROL PACKAGE	K01	D03	K01	D03	M00	M01	M02	M00	M01	M02	D21	H21
TERMINAL UNIT WITH JUNCTION BOX	Damper	Manual	Manual	Manual	Manual	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
	In-box temperature measurement	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Reheater safety switch, manual reset	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Safety switch state detection	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No
	Spare inputs (balcony door etc.)	No	No	No	No	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
CONTROL PANEL	Cabin temperature measurement	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
	Controller with knob	Yes	No	Yes	No	No	Yes	Yes	No	Yes	Yes	No	Yes
	LCD room thermostat	No	Optional	No	Optional	Optional	No	No	Optional	No	No	Optional	No
	LED intensity control and auto dimming	No	Yes	No	Yes	Yes	No	No	Yes	No	No	Yes	No
	Self diagnose functionality	No	Yes	No	Yes	Yes	No	No	Yes	No	No	Yes	No
	Network compatible with adapter	No	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
	CO2 sensor available as an option	No	Yes	No	Yes	Yes	No	No	Yes	No	No	Yes	No
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
	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

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
- Dual duct units: HMR

## ACCESSORIES FOR HMR CABIN UNITS

### MS-CABLE (MASTER-SLAVE CABLE)

- Used for connecting master cabin unit to slave cabin unit/units
- Prefabricated with plugs on both ends
- Halogen-free and flame-retardant
- Standard length is 7 meters, with other lengths available as an option

### COMMUNICATION ADAPTER

- Enables Bluetooth communication with external devices (only available with D03 control package)
- Allows for wireless connection to configure cabin unit parameters and troubleshoot (only available with D03 control package)

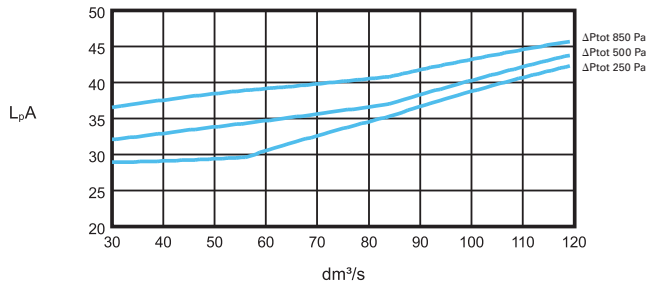
### NETWORK ADAPTERS

- Expands a stand-alone unit to a network-compatible unit (available in both Ethernet and WiFi options)
- Enables supervision and advanced energy efficiency functions
- For more information, please contact Halton Marine Sales

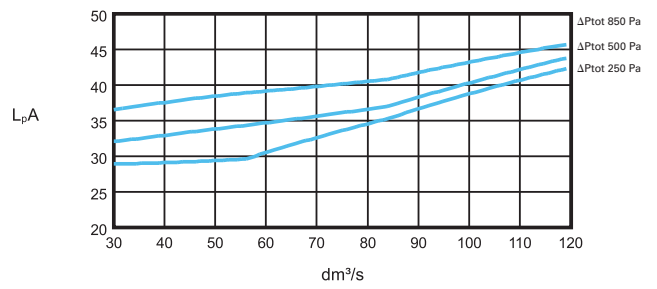
**PERFORMANCE DATA**

**SOUND LEVELS, CABIN SOUND ABSORPTION 4 DB(A)**

**HMR-100/125-200**

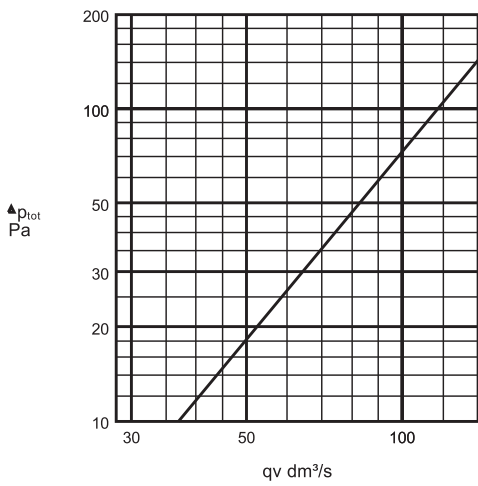


**HMR-100/125-250**

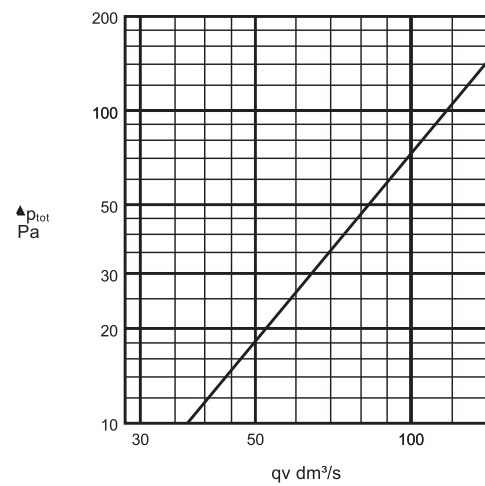


**PRESSURE DROP**

**HMR-100/125-200**



**HMR-100/125-250**



**SOUND ATTENUATION (DB)**

	f(Hz)	63	125	250	500	1000	2000	4000	8000
HMF-100/125	ΩL(dB)	3.9	8.3	16.9	25.6	35.3	38.6	38.4	37.4

ΩL: Sound attenuation not including end reflection