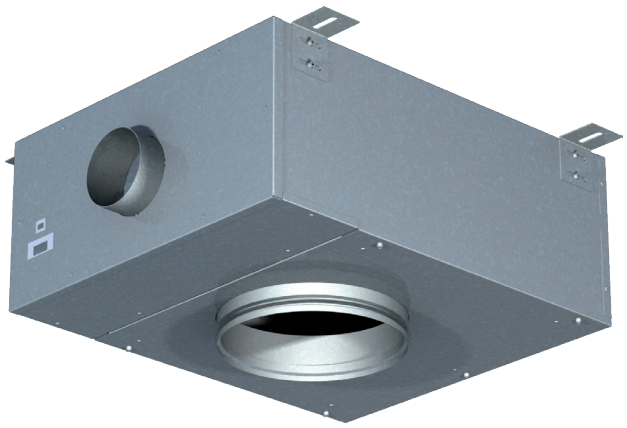
HMF SINGLE DUCT CABIN UNIT

For passenger and crew cabins



MATERIALS

PART	MATERIAL	NOTE
Casing	Hot galvanised steel	Available as an option: stainless steel EN 1.4404 (AISI316L)
Casing thickness	0.5 mm	As an option: 0.75/1.0 mm
Spigots	Hot galvanised steel and EPDM rubber	Available as an option: stainless steel EN 1.4404 (AISI316L)
Insulation	Mineral wool, s=20 mm, MED approved	As an option: s=25 mm
I/O unit	Aluminium/plastic/ electronics	-
Reheat coil	Stainless steel EN 1.4301 (AISI304)	-
Cables	Halogen-free	-
Airflow measurement probes and tubes	Aluminium/polyurethane	-

HMF PRODUCT OPTIONS

- Pressure independent model (VAV/CAV)
- Pressure dependent model (VAV)
- 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

APPLICATIONS

Halton HMF is pressure independent (VAV/CAV) or pressure dependent (VAV) single duct cabin unit with intergrated reheater. Pressure independent VAV or CAV operation is facilitated by continuous airflow measurement and damper regulation by intelligent controller. Pressure independent HMF adapts to variations in supply ductwork pressure levels and maintains individual fresh supply airflow rate to each cabin. Pressure dependent VAV operation is facilitated only by damper regulation by intelligent controller. Pressure dependent HMF adapts to room temperature changes by regulating airflow between pre-set minimum and maximum damper positions.

FEATURES

- Pressure range from 200 Pa up to 1000 Pa
- Airflow range 120 m3/h...500 m3/h
- 230 VAC ±10%, 50/60 Hz
- Inbuilt airflow measurement (pressure independent models)
- Damper min. / max. position settings (pressure dependent models)
- Triac controlled reheating coil(s), adjustable heating power (PWM) 0...100%
- Master/slave functionality: several cabin units can be controlled by one control panel
- Internal fuses included
- All parameters can be set onsite during commissioning by external device or preset at the factory
- All cable connections with fast connectors
- Easily tailored for different types of installations
- 90 °C safety switch with state detection and manual reset
- Minimum flow alarm (pressure independent model) and inbox temperature measurement with overheat limit to cut-off reheater power
- HMF cabin unit is supplied with control panel and interconnection cable
- MED approved for B-0/B-15 installations

Halton

AVAILABLE REHEATERS

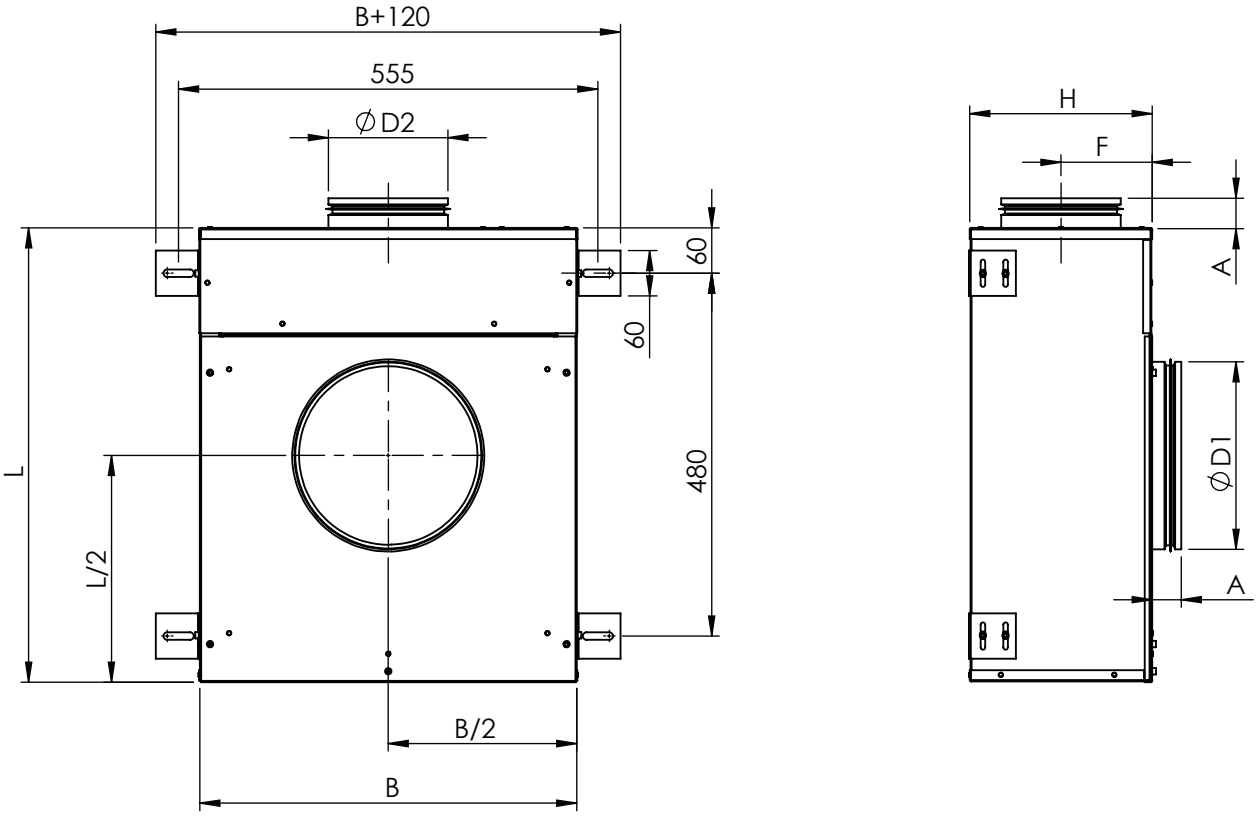
- Standard reheaters: 400W, 800W, 400+800W, 1200W, 1500W, 1800W
- Offshore reheaters: 400W, 800W, 1200W, 1600W (surface temperature below 90°C on operating airflow)

Practical power level may be software adjusted cabin by cabin. Cable and power supply design has to be done according to maximum available heating power.

HMF WEIGHTS, KG

Casing thickness	HMF-100	HMF-125
0,5 mm	11	11,5
0,75/1,0 mm	17	18

GENERAL HMF DRAWINGS



HMF DIMENSIONS, UNIT MATERIAL THICKNESS 0.5 MM

	L	B	H	F	A	ØD1 male/ female	ØD2 male
HMF-100	590	490	190	88	45	199/201	99
HMF-125	590	490	230	118	45	249/251	124
HMF-160	590	490	230	118	45	249/251	159

Note: male connection: outer dimension, female connection: inner dimensions. Note: Standard dimensions, modifications possible

HMF DIMENSIONS, UNIT MATERIAL THICKNESS 0.75/1.0 MM

	L	B	H	F	A	ØD1 male/ female	ØD2 male
HMF-100	600	500	200	88	40	199/201	99
HMF-125	600	500	240	120	40	249/251	124
HMF-160	600	500	240	120	40	249/251	159

Note: male connection: outer dimension, female connection: inner dimensions. Note: Standard dimensions, modifications possible

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.

FUNCTION OF VAV UNIT

When passenger demands lower temperature by using control panel unit, the damper opens in order to increase the flow of cold air towards the maximum value. When the required temperature in the cabin is achieved, the damper reference is held until the temperature demand changes. In heating mode, the damper restricts the airflow towards its minimum rate, and if the required temperature in the cabin is not thus achieved, the controller activates the electric reheater inside the unit in a stepless manner.

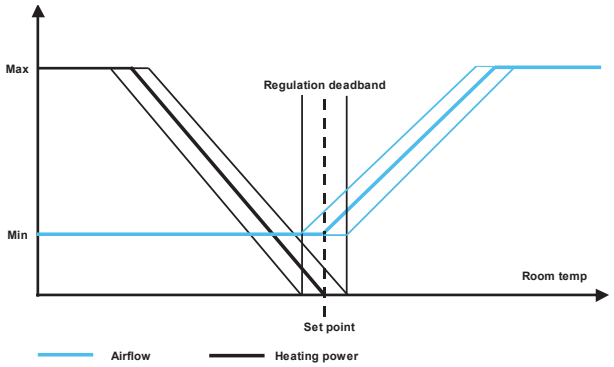
FUNCTION OF CAV UNIT

Airflow is kept in pre-set level in any condition. When passenger demands for a higher temperature by using control panel, the electric reheater inside the cabin unit will be activated in a stepless manner towards to maximum heating capacity or until desired temperature is achieved. When passenger demands for a lower temperature by using control panel, the electric reheater inside the unit will be deactivated in a stepless manner towards to zero heating capacity or until desired temperature is achieved.

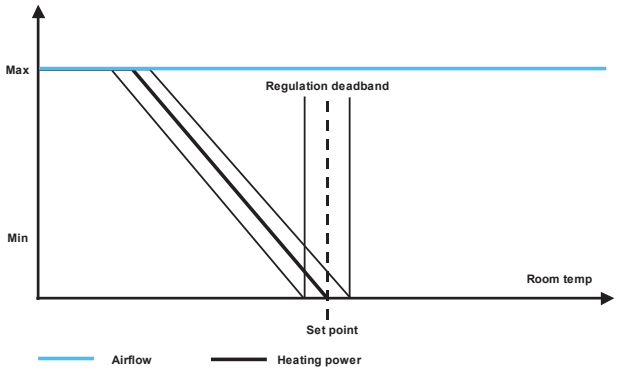
OPERATING RANGE FOR HMF

HMF-100	HMF-125
120 m^3/h - 350 m^3/h	150 m^3/h - 500 m^3/h

REGULATION DIAGRAM, VAV



REGULATION DIAGRAM, CAV



CABIN UNIT'S AIRFLOW MEASUREMENT

	AIRFLOW (m^3/h)				
	120-150	151-200	201-300	301-400	401-500
Accuracy*	±20%	±15%	±10%	±8%	±6%

* 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 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 a touch panel

COMMON FEATURES

- Cabin temperature measurement
- Connector for Bluetooth / communication adapter to set cabin parameters (only push button and rotating knob models)
- Software for parameter setting and trouble shooting
- Different colour options and custom labeling available as an option (only push button and rotating knob models)
- 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 are available.

4,3” HALX TOUCH PANEL SERIES

- Temperature measurement and adjustment
- Screen auto dimming and proximity activation
- Self-diagnose function
- Service socket for the maintenance purpose
- Keycard holder as an option
- VOC, CO2 and Humidity measurements as an option
- Cabin light control as an option
- Curtain control as an option

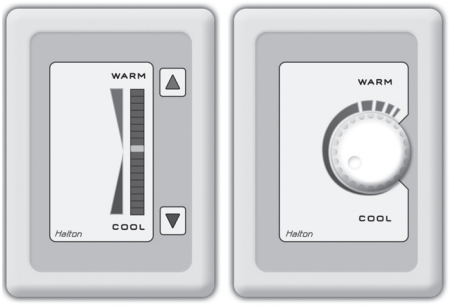
CONTROL PANEL WITH PUSH BUTTONS AND LED BAR GRAPH

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

CONTROL PANEL WITH ROTATING KNOB

- Temperature adjustment by rotating knob

LCD control panel



Control panel models; push button and rotating knob

CABIN VENTILATION CONFIGURATION TABLE

	UNIT	HMF	HMF
	CONTROL PACKAGE	M00	M01
TERMINAL UNIT WITH JUNCTION BOX	Damper	Electric	Electric
	Airflow measurement and control (VAV, CAV)	Yes	No
	In-box temperature measurement	Yes	Yes
	Reheater safety switch, manual reset	Yes	Yes
	Safety switch state detection	Yes	Yes
	Spare inputs (balcony door etc.)	Yes	Yes
	Parameter setting by service tool	Yes	Yes
CONTROL PANEL	Cabin temperature measurement	Yes	Yes
	Controller with push buttons, 18 led bar	Yes	No
	Controller with knob	No	Yes
	LCD room thermostat	Optional	No
	LED intensity control and auto dimming	Yes	No
	Self diagnose functionality	Yes	No
	Network compatible with adapter	Yes	Yes
	CO2 sensor available as an option	Yes	No
CABLES	Interconnection cable	IC6-X	IC6-X
	Master-slave cable	MS2-X (MS5-X)	MS3-X

PRESSURE DEPENDENT UNITS

- Single duct units; HMF

PRESSURE INDEPENDENT UNITS

- Single duct units; HMF

ACCESSORIES FOR HMF 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

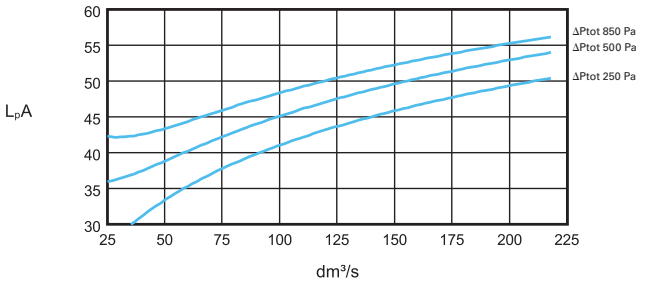
NETWORK ADAPTERS

- 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 MEI (Marine, Energy and Infrastructure) Sales office.

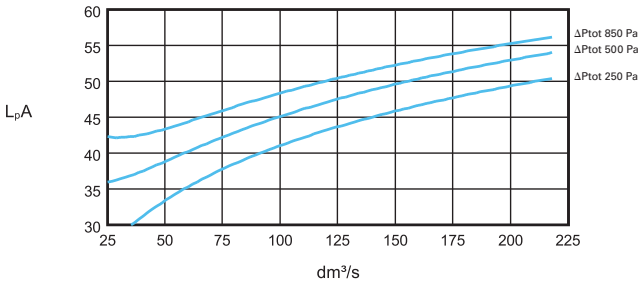
PERFORMANCE DATA

SOUND LEVELS, CABIN SOUND ABSORPTION 4 DB(A)

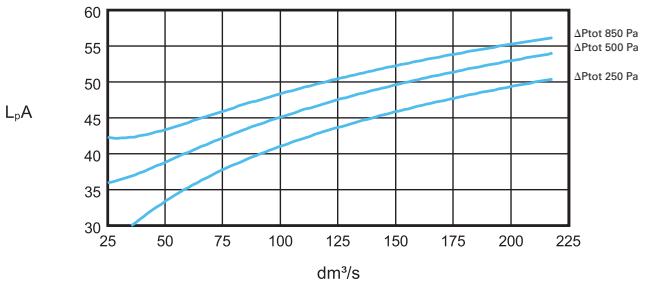
HMF-100-160



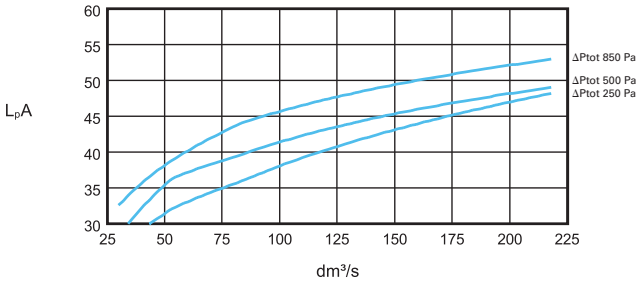
HMF-100-200



HMF-100-250



HMF-125-160



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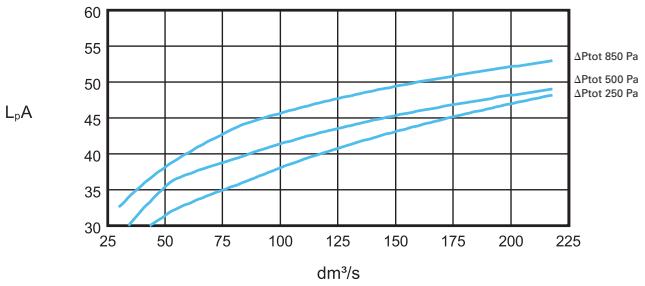

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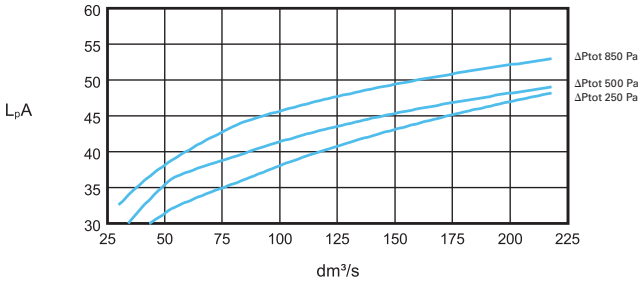


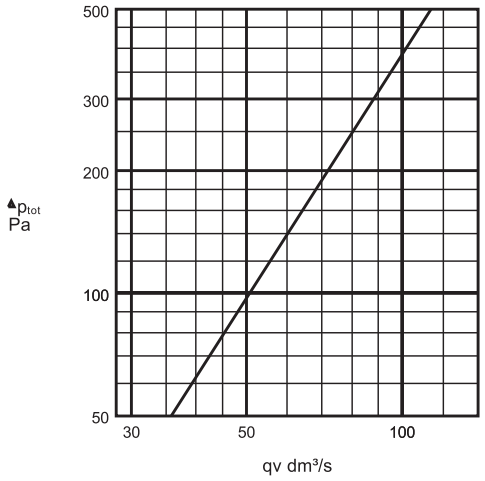
SOUND ATTENUATION (DB)

	f(Hz)	63	125	250	500	1000	2000	4000	8000
HMF-100	ΩL(dB)	6,4	11,3	15,9	25,8	34,8	37,9	35,3	34,7
HMF-125	ΩL(dB)	4,9	9,6	16,2	24,9	33,4	36,8	35,4	35,6

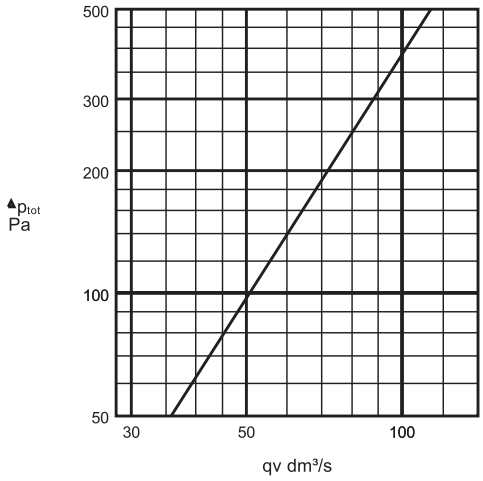
ΩL: Sound attenuation not including end reflection

PRESSURE DROP

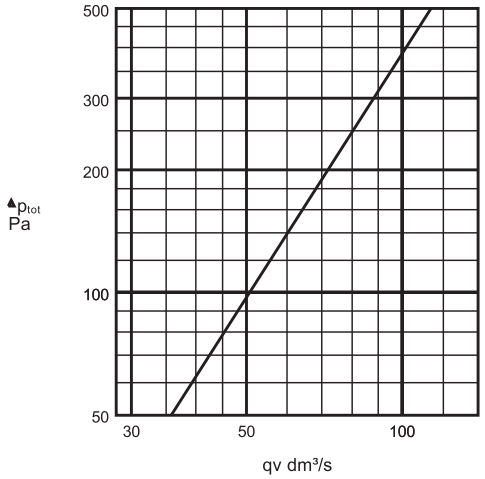
HMF-100-160



HMF-100-200



HMF-100-250



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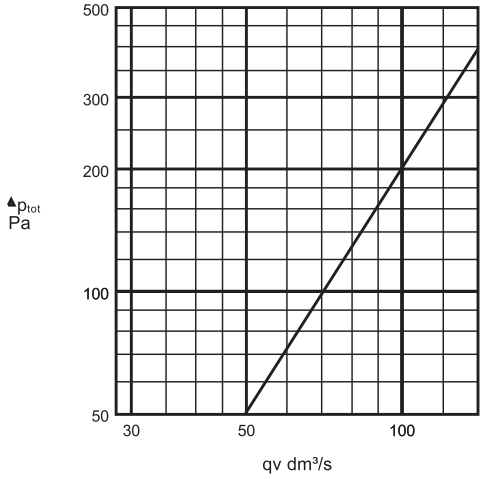

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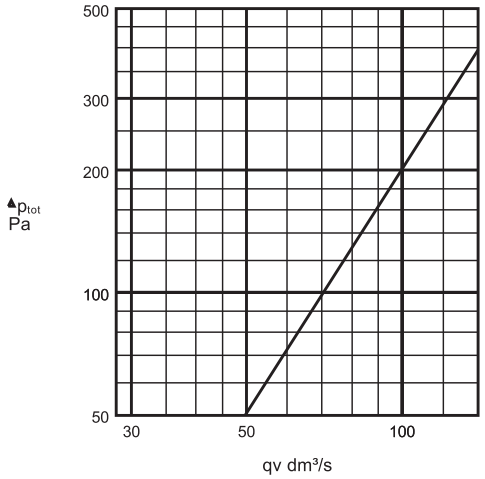

HMF-125-250