

# HMF Single Duct Cabin Unit

for Passenger And  
Crew Cabins



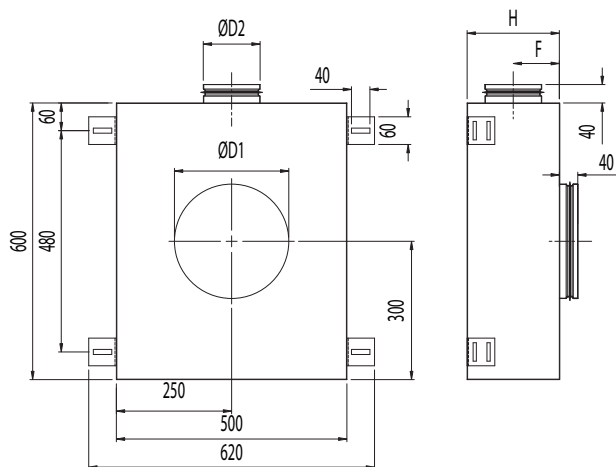
The Halton HMF is an automatic or semi-automatic single duct cabin unit with intergrated reheater. Automatic operation is facilitated by continuous airflow measurement and damper regulation by intelligent room thermostat. Automatic HMF adapts to variations in ductwork pressure and maintains individual conditions in each cabin and is thus pressure independent. Semi-automatic cabin unit does not include airflow measurement and are thus pressure dependent.

- Pressure range from 200 Pa up to 1000 Pa
- Airflow range 120 m<sup>3</sup>/h...500 m<sup>3</sup>/h
- 230 VAC ±10%, max 10A, 50/60 Hz
- Inbuilt airflow measurement (automatic models)
- Damper min. / max. position settings (semi-automatic)
- Triac controlled reheating coil(s), adjustable heating power (PWM) 0...100%
- Master/slave functionality: several slave cabin units can be connected to one master cabin unit

- Internal fuses 8A or 10A and 63 mA
- 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
- Energy efficiency functions to reduce unnecessary cooling / heating costs available as an option
- All parameters can be preset at the factory or set onsite during commissioning by PDA
- All cable connections with fast connectors
- Easily tailored for different types of installations
- 90 °C manual reset safety switch with state detection indication to room thermostat
- Minimum flow alarm (automatic model) and inbox temperature measurement with overheat limit to cut-off reheater power
- HMF cabin unit is supplied with room thermostat and interconnection cable
- MED approved for B-0/B-15 installations

PART	MATERIAL	PART	MATERIAL
Casing	Hot galvanized steel	Reheat coil	AISI 304
Spigots	Hot galvanized steel and EPDM rubber	Cables	Halogen free
Insulation	Mineral wool, s = 25 mm, MED approved	Measurement wings	Aluminium / polyurethane
I/O unit	Aluminium / plastic / electronics		

## GENERAL HMF drawing



## DIMENSIONS TABLE

HMF Dimensions				
	H	$\varnothing D1$ male/ female	$\varnothing D2$ male/ female	F
HMF-100	200	199/201	99/101	100
HMF-125	240	249/251	124/126	110

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

Note:  
Standard dimensions, modifications possible

## HMF PRODUCT MODELS

### Cabin units

- Automatic versions (VAV/CAV)
- Semi-automatic version

### ROOM THERMOSTAT FEATURES

Halton Marine HMF cabin units are available with three different room thermostat models; with rotating knob, push buttons and touch buttons.

### Common features

- Cabin temperature measurement
- Connector for PDA communication adapter to set cabin parameters
- PDA software for parameter setting and trouble shooting
- Different colour options and custom labeling available as an option
- Delivered with IC-Cable (interconnection cable)
  - For room thermostat - cabin unit connection
  - Prefabricated with plugs on both sides
  - Cable plug on thermostat side is designed to be pulled through standard installation pipe
  - Halogen free and flame retarding
  - Standard length 7 meters

### Room thermostat with rotating knob

- Temperature adjustment by rotating knob

### Room thermostat with push buttons

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

### Room thermostat with touch buttons

- Temperature adjustment by touch 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



Room thermostat models; push button and rotating knob



Halton LCD room thermostat

## ACCESSORIES FOR HMF 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 retarding
- Standard length is 7 meters

### PDA Communication adapter

- Infrared or Bluetooth communication
- For wireless connection to set cabin unit parameters and trouble shooting
- One adapter per PDA needed

### Network adapters

- Network adapter 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

### Reheaters available

- 400 W
- 800 W
- 400 W + 800 W
- 1200 W
- 1800 W

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.

### Minimum airflows for HMF cabin unit

Minimum airflows		
Reheater Power (W)	Min. airflows (m <sup>3</sup> /h)	
	HMF-100	HMF-125
0	120	150
400	120	150
800	130	150
1200	170	170
1800	170	170

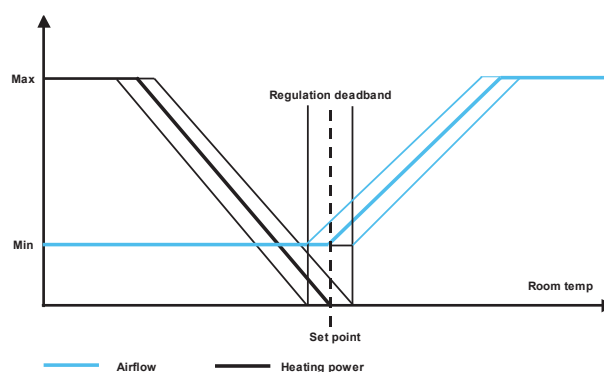
## FUNCTION

When passenger demands for a lower temperature by using room thermostat, the damper opens in order to increase the flow of cool air towards the maximum value. When the required temperature in the cabin is achieved, the damper reference is held until the temperature demand changes. When passenger demands for a higher temperature, the damper restricts the airflow towards its minimum rate, and if the required temperature in the cabin is not thus achieved, the cabin unit activates the electric reheater inside the unit. Room thermostat 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 room thermostat is carried out via interconnection cable. Temperature range is software adjustable between 10 and 30°C.

### Operating range for HMF

HMF	
HMF-100	HMF-125
120 m <sup>3</sup> /h - 350 m <sup>3</sup> /h	150 m <sup>3</sup> /h - 500 m <sup>3</sup> /h

### Regulation Diagram, VAV



### Cabin unit's airflow measurement accuracy

Airflow (m <sup>3</sup> /h)					
	120-150	151-200	201-300	301-400	401-500
Accuracy*	±20%	±15%	±10%	±8%	±6%
* ductwork pressure 200-1000 Pa (optimal)					

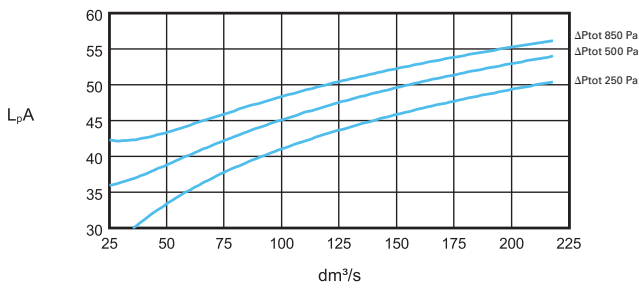
#### Note:

When comparing airflow measurements between cabin unit and other device, cabin unit's airflow regulation dead-band has to be taken into account (± 10 m<sup>3</sup>/h).

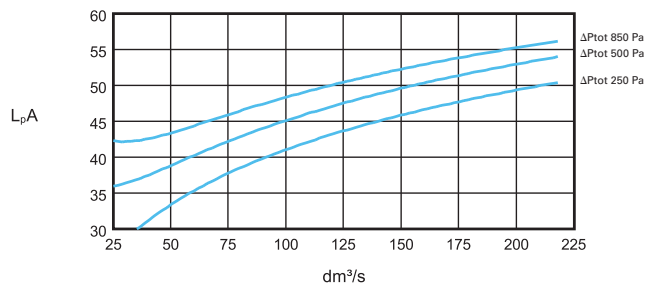
## Performance data

### Sound levels, cabin sound absorption 4 dB(A)

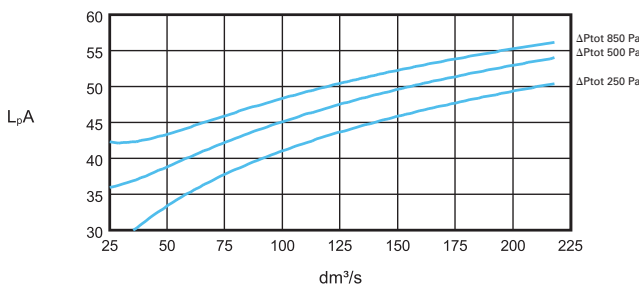
HMF-100-160



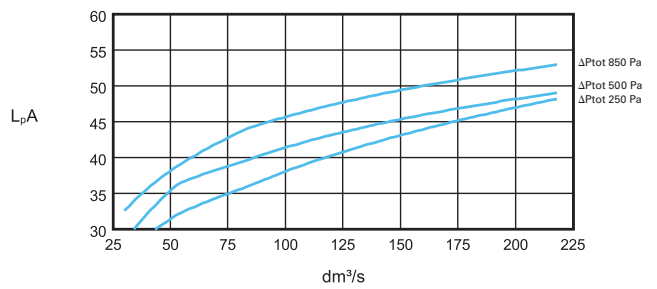
HMF-100-200



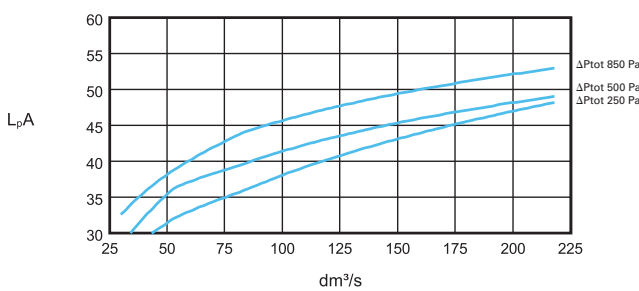
HMF-100-250



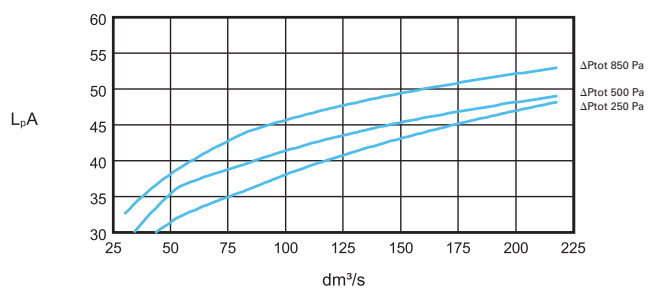
HMF-125-160



HMF-125-200



HMF-125-250



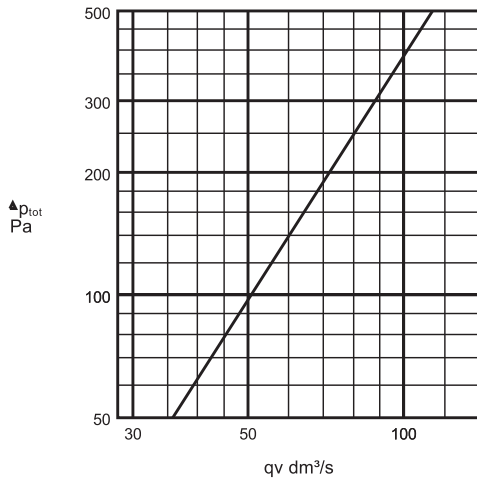
## Sound attenuation

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

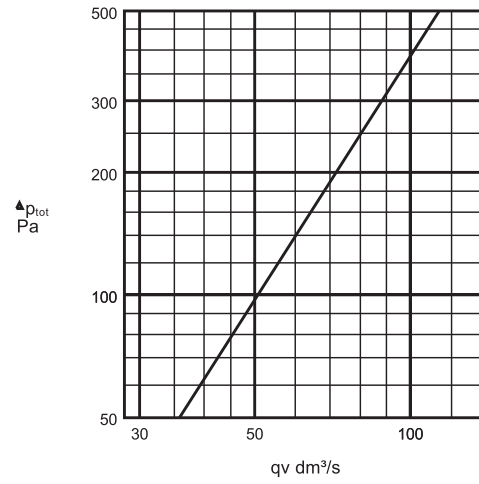
$\Delta L$ : Sound attenuation not including end reflection

**Pressure drop**

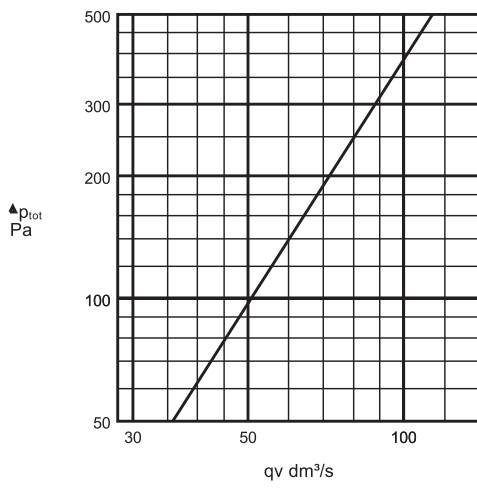
HMF-100-160



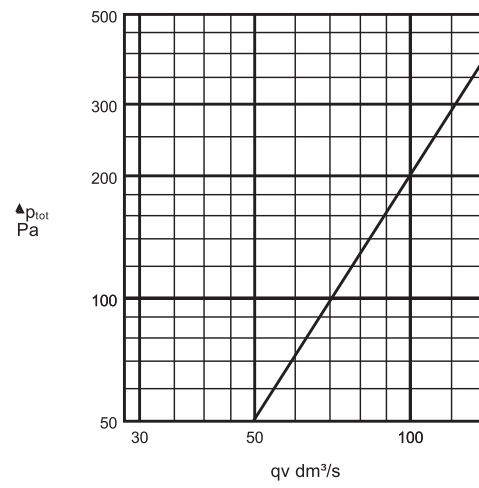
HMF-100-200



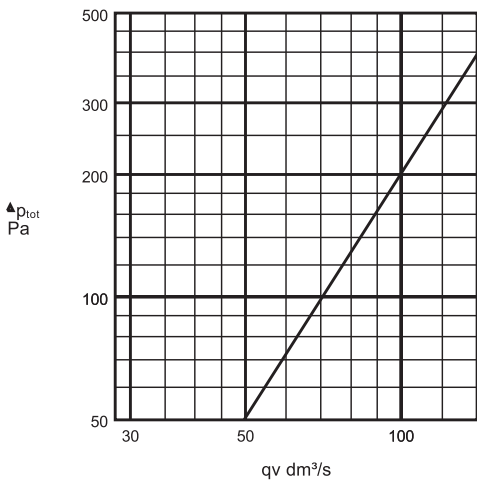
HMF-100-250



HMF-125-160



HMF-125-200



HMF-125-250

