HVAC FOR CRUISE SHIPS & FERRIES

Enabling Wellbeing

Halton

SAFE, ENERGY-EFFICIENT AND COMFORTABLE INDOOR AIR

Our way of doing business

- Halton production emphasizes tailoring, which means that solutions can be adapted for each customer's specific needs
- Own manufacturing in 9 countries
- Flexible, high-tech production with certified welders
- Comprehensive project management & documentation capabilities
- Testing and simulation services
- The well-established but flexible company, offering long-term business relationships and after-sales service
- Holding up-to-date product certifications aligned with industry standards

"MARINE-PROVEN VENTILATION SYSTEMS DESIGNED TO ENSURE SAFE, COMPLIANT, AND HIGH-PERFORMANCE INDOOR ENVIRONMENTS AT SEA.

Marine HVAC Solutions

In cruise ships and ferries, HVAC systems play a critical role in ensuring onboard comfort, air quality, and safety at sea.

Fire and smoke dampers are essential for protecting life and assets onboard. Designed to prevent the spread of fire, smoke, and toxic gases through ventilation ductwork, Halton's marine-certified dampers support safe evacuation and firefighting operations. With over 30 years of experience and 200,000+ units delivered, Halton is a proven global leader. Products are widely approved by major classification societies, while selected models are ATEX and IECEx certified and tested for vibration and shock resistance.

Halton offers a complete damper portfolio—from fire and shut-off to VAV, pressure relief, and gas-tight solutions. Robust designs and global manufacturing ensure consistent quality and performance close to customers.

Beyond safety, Halton enhances onboard experience and efficiency:

Galley & display cooking ventilation

Designed to manage grease, heat, and cooking effluents, helping reduce fire risk and keep galleys cleaner. Demand-based ventilation (e.g. M.A.R.V.E.L.) optimises airflow and lowers energy use without compromising performance. Solutions also support open galley concepts by controlling odours and heat in customer-facing areas.

Cabin ventilation

Compact, energy-efficient systems deliver high comfort with low noise and lifecycle cost. Solutions like Halton CaBeam REC and complete cabin units ensure reliable climate control, while upgrade options allow modernisation of existing systems with significant energy savings.

Airflow management & air distribution

Engineered for draft-free, quiet, and even air distribution in passenger and crew spaces, supporting superior onboard comfort.

Air intakes & environmental protection

High-efficiency droplet separators protect HVAC equipment from sea spray and harsh conditions, reducing maintenance, downtime, and lifecycle costs.

Individual cabin ventilation

Silent, user-friendly and energy-efficient solutions

Halton offers HVAC solutions for crew and passenger cabins. Cabin terminal units with intelligent automation and a thermostat can operate as a stand-alone unit or in a network that enables the indoor air conditions to be controlled, monitored and adjusted by a supervision system.

Cabin Units

Halton pressure-independent cabin units individually control and maintain airflow in each cabin, ensuring optimal sound levels and comfort. The units continuously monitor the environment and automatically adapt to changing conditions.

Pressure-dependent models are also available without airflow measurement.

These manually operated units include either a reheater with a control unit or a manual damper, both allowing manual adjustment of airflow.

Uses 100% fresh air, maximizing indoor air quality in spaces where air recirculation is not permitted.

Chilled Beams

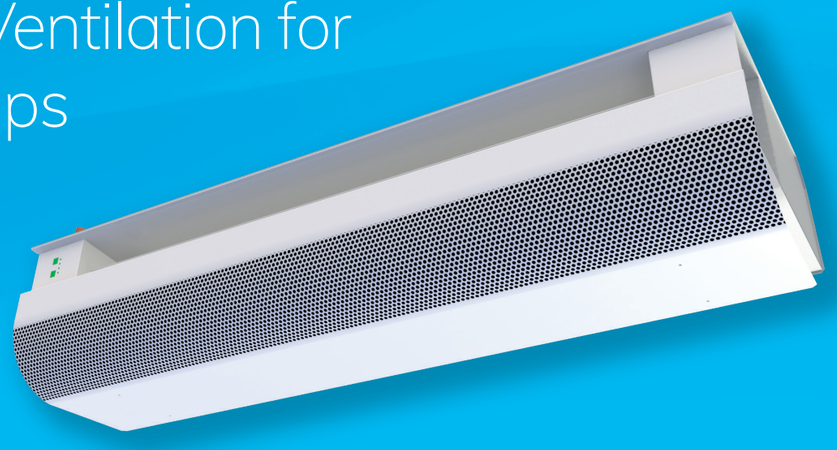
Halton is redefining cabin ventilation with a patented, next-generation solution that sets a new benchmark for onboard comfort. By optimizing air distribution and significantly reducing HVAC noise levels, the system creates a quieter, more balanced, and truly comfortable cabin environment.

Designed with efficiency in mind, the solution not only enhances passenger and crew experience but also delivers substantially lower operating costs compared to conventional mechanical HVAC systems while combining superior performance with long-term energy savings.

Designed for connected operations, Halton cabin ventilation solutions can be integrated into bus, Ethernet, and Wi-Fi networks through a dedicated network adapter.

CaBeam 2.0 REC

The Next Generation of Cabin Ventilation for Cruise Ships



Next-Generation Comfort

Halton CaBeam is a cooling, heating, and ventilation solution specifically designed to provide the best indoor comfort for demanding marine applications such as cabins on cruise ships and passenger ferries or living quarters on offshore substations.

The Halton CaBeam units have been specifically designed for silent cabin comfort with sophisticated air treatment and control. The Halton CaBeam is available as an exposed, recessed or integrated installation. The new version Halton CaBeam REC differentiates from traditional chilled beams by more efficient cooling from compact unit with integrated functions.

> **Optimizing cabin comfort while reducing energy and maintenance requirements**

Why CaBeam?

Marine-Specific Design
CaBeam REC is designed specifically for passenger and crew cabins and optimized for ship conditions and lifecycle demands (not a repurposed land product).

Compact, high-capacity solution with flexible integration
High performance is packed into a compact unit, with flexible integration options (including automation, lighting, and speakers).

Ultra-low sound & draught-free comfort
Efficient induction mixing supports stable, draught-free comfort — and with no fans in the cabin, sound levels stay ultra-low.

Water moves energy better than air
CaBeam transfers most cooling/heating via water, so supply air can be reduced to what occupants actually need.

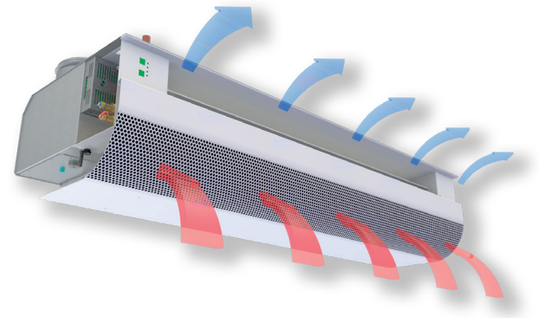
Dry cooling with condensation-prevention technology
The system is based on dry cooling, with controls designed to eliminate condensation risk while keeping energy efficiency high.

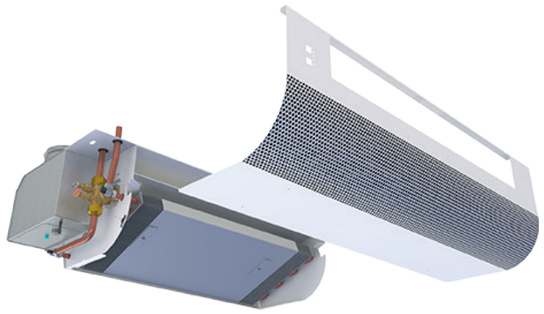
Smarter chilled-water temperatures
CaBeam can use higher chilled-water temperatures (14–16°C), which improves system efficiency and can enable free cooling or use of return water from other systems when suitable.

Minimal Maintenance by Design
No fans, no filters, and no condensate drain means fewer service points and lower upkeep over time.

Customer Benefits

- Plug and play unit
- Compact size
- Automation, lighting and speakers
- Ultra-low sound levels
- Lower lifecycle and maintenance costs
- Stable, draught-free comfort with individual control





Smart Cabin Comfort and Environmental Monitoring

Optimizing cabin comfort while minimizing energy consumption

Halton Sense

Halton Sense is an intelligent ecosystem designed to provide seamless integration between climate control devices, monitoring systems and onboard management platforms. At the heart of the cabin climate control system is the Halton CaBeam unit, which works together with room temperature controllers and gateway solutions to create a comfortable, healthy and energy-efficient indoor environment.

The system continuously monitors cabin conditions and enables occupants to easily adjust temperature settings while providing valuable operational data to vessel management systems.

Intelligent Environmental Monitoring

The CaBeam unit continuously measures and monitors key environmental parameters within the cabin:

Temperature
Maintains a comfortable cabin environment according to user preferences and predefined operating limits.

Indoor Air Quality (CO_2)
Integrated CO_2 monitoring provides valuable insight into occupancy levels and ventilation performance. The information can be used to optimize indoor environmental conditions and support smarter facility management.

Relative Humidity
Continuous humidity monitoring helps identify abnormal conditions, such as excessive moisture levels that may indicate ventilation issues or potential water leakage. Humidity data also provides useful information regarding cabin occupancy and overall comfort.

By continuously collecting and analyzing environmental data, the system can provide valuable operational insights and support proactive maintenance activities.

User-Friendly Temperature Controllers
Halton Sense offers two room controller alternatives to suit different project requirements.

Button-Based Room Controller
The compact room controller provides simple and intuitive temperature adjustment through (remove “dedicated”) up and down buttons. Five integrated RGB LED indicators provide clear visual feedback by displaying the current temperature level, confirming when a new temperature setting has been selected. as well as showing which new target temperature is being approached to.

Touchscreen Room Controller
The advanced touchscreen controller features a modern 3-inch display and enhanced user experience.
In addition to temperature control, the display can show:

- Relative humidity levels
- Cabin environmental status
- Optional CO_2 indication

For easy interpretation, air quality information can be presented using simple color indications such as green, yellow and red.

Connectivity and System Integration
The Halton Sense ecosystem is built on open communication standards to enable smooth integration with vessel automation and building management systems.

The CaBeam unit communicates via RS-485 Modbus RTU to a bridge device such as the Halton BX-1 gateway. A single gateway can connect and manage multiple CaBeam units within the system.

Through the gateway, monitored environmental data and operational parameters can be transferred to higher-level automation systems using protocols such as BACnet.

Available Data
The following information can be monitored and made available to vessel management systems:

- Room temperature
- Temperature setpoint
- Relative humidity
- CO_2 levels
- Airflow measurement data

This enables operators to gain a comprehensive view of cabin conditions and system performance throughout the vessel.

Future-Ready Platform
In addition to environmental monitoring, future CaBeam models can support airflow adjustment capabilities. This enables automatic responses to changing cabin conditions, such as elevated CO_2 concentrations or increased humidity levels. Airflow is adjusted based on actual demand, ensuring maximum comfort while reducing energy consumption when, for example, ventilation needs are lower or the cabin is unoccupied.

High-efficiency galley ventilation

Designed to manage grease, heat and cooking effluents

Experience proven reliability, usability, and hygienic operation with minimal maintenance. As a leading provider of galley ventilation solutions, Halton combines decades of expertise with advanced technology to deliver high-performance systems for even the most demanding applications.

High-Quality Grease Filtration Performance

Combining Halton's high-efficiency Capture Jet™ technology with advanced KSA mechanical filtration, automated washing, and UV technology, the solution minimizes grease accumulation in the plenum and ductwork. It also helps reduce cooking odors and emissions, lowering fire risk while minimizing the need for frequent duct cleaning.

Automated Water Wash for Effortless Maintenance

Halton KWH, KWT and KW3 hoods are equipped with an automatic washing system that cleans the filters, exhaust plenum and optional UV-lamps at a programmable time. The washing cycle is automated with a separate control cabinet. KWH, KWT and KW3 are especially designed for high capacity utilization in demanding applications where improved hygienic conditions, safety and reliability play an important role.

Intelligent Demand-Based Ventilation

Halton M.A.R.V.E.L. is an advanced demand-based ventilation system that continuously monitors cooking activity and optimizes airflow in real time delivering a powerful combination of performance, efficiency, and control.. By adjusting ventilation precisely to actual demand, the system significantly reduces energy consumption while maintaining excellent indoor climate conditions.

Galley Hoods

Cooking processes generate heat, grease, and airborne contaminants that, if not properly managed, can increase fire risk, reduce hygiene, and impact overall operational efficiency. Halton provides advanced galley hoods designed to capture and control these effluents, helping to maintain safe, clean, and comfortable kitchen environments.

Key models: KW3, KWT, KWH, KFM, KVM

TAILORED SOLUTIONS TO THE DEMANDING CONDITIONS OF MARINE AND OFFSHORE ENVIRONMENTS

Damper Portfolio

Safety is the number one priority on board

Fire and Gas Dampers

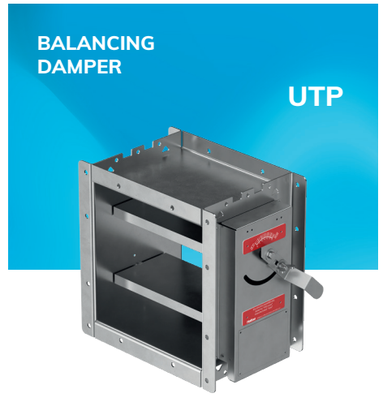
Sudden and uncontrolled fire is not only a life-threatening risk for people and the environment, but it also creates remarkable additional costs due to the stop of operation or production. Halton provides fire and gas dampers to prevent the progress of fire and gases through ventilation ductworks. ATEX & IECEx certification is available as an option.

Key models: FDB2, FDA & FDO

Airflow Management Dampers and Air Distribution

Airflow and pressure adjustments in HVAC systems require a range of dampers and air distribution solutions to ensure reliable operation and indoor comfort. Halton provides a comprehensive portfolio of airflow management dampers and air distribution products for these demanding applications.

Key models: UTA, UTG, UTP



Air Intake Systems

Halton's air intake systems have been designed to protect critical equipment from the damage caused by sea spray and rainwater, allowing for less maintenance and downtime while ensuring reliable operation.

Key models: DSH, DSA

Sustain Peak Performance in Galleys

Halton Yearly Maintenance Contracts

Why regular maintenance matters?

Operational Reliability
Prevent unexpected failures that could disrupt food service, impact passenger satisfaction, or create operational risk.

Energy & Cost Efficiency
Well-maintained systems consume less energy, extend equipment lifespan, and avoid costly emergency repairs.

Fire Risk Reduction
Expert inspection of hoods, UV, Water Wash systems, and certified fire dampers mitigates one of the most critical onboard safety risks.

Extended Asset & System Lifecycle
Modernized controls and optimized operation reduce unnessary wear. Protects the value of existing assets and postpones full system replacements.

Manufacturer-Certified Expertise
Only Halton technicians have the full system knowledge to diagnose, calibrate, and optimize advanced ventilation technologies such as M.A.R.V.E.L. demand-controlled ventilation.

How services are executed

01 **Pre-check by crew**
Precheck of status of the equipment and spare parts needed for the service with the crew on board.

02 **Component readiness**
Delivery of required components and spare parts before survey.

03 **Halton maintenance visit**
System inspection; visual and functional testing of Halton equipment and optimizing performance. Corrective actions / recommendations and instructions for future use, including our latest program updates and crew training.

04 **Documentation and reporting**
Documented report with findings and recommendations.

05 **Crew training and recommended spares**
Expert guidance to secure operational continuity.

Contract customer benefits

- Guaranteed service resources for scheduled surveys
- Recommended spare parts with contractual/ discounted prices
- Prioritized customer service
- First service visit free of charge for newbuild vessels after 12 months of operation (new contracts)
- We also offer tailor-made maintenance contracts that are designed to meet your specific service needs

> **Well-maintained systems consume less energy, extend equipment lifespan, and avoid costly emergency repairs.**

ABOUT US

Halton Group specializes in indoor environment solutions, ranging from public and commercial buildings to foodservice facilities. Founded in Finland in 1969, Halton operates today in over 35 countries around the world, with annual sales of ca. 340 MEUR and over 2000 employees. The company has production facilities in Brazil, Canada, China, France, Finland, Germany, Malaysia, the United Kingdom, and the USA.

www.halton.com

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