HVAC for Oil & Gas Industry

Enabling Wellbeing

Halton

How HVAC can
on oil & gas insta

Enabling Wellbeing for people

Halton is passionate about indoor environments. The company offers business enhancing solutions for safe, comfortable and energy efficient environments for companies that value wellbeing and productivity of their customers and personnel.
HVAC can play a vital role in improving safety by providing good thermal conditions and protecting against hazards in the production process.

Quality

Designing and selecting equipment should always be done according to the operation environment. The HVAC installation should always maintain the designed performance level. New technologies that are utilizing automation enable a supervision and monitoring system that add value to the operators.
Type approvals from the major classification societies and worldwide references are a solid proof about the product quality. A reliable manufacturer has also paid attention to cerficiations like ISO 9001, ISO3834-2, ISO 14001, OHSAS 18001 and ATEX.

The technology developed during the past years has enabled companies to operate in more extreme conditions than ever before. The equipment and materials chosen must be designed for demanding conditions.

maintain safety
allation

Halton's Expertise

Protecting people against hazards in oil & gas production process

Gas leakage in production

Through a well-managed HVAC it is possible to take following things into consideration.

1. Securing the Temporary Refuge room with a good HVAC system
   - Creating over pressure for the TR room in order to restrict the gas leakage into the room. This can be done with an intelligent HVAC solution.
2. Isolating the TR room and the HVAC ducting in case of gas detection
   - Knowing the available reaction time in case of gas leakage
   - Fast closing of the HVAC ducting with an efficient shut-off damper is mandatory
   - Low leakage of a shut-off damper is a necessity

Blast situation

The building should be protected against a possible blast in order to avoid the blast progression into the building via HVAC system. It is highly important to define the possible forces of blast, choose the correct and sufficiently sized blast protection equipment and install the equipment correctely into the HVAC system.

Fire risk

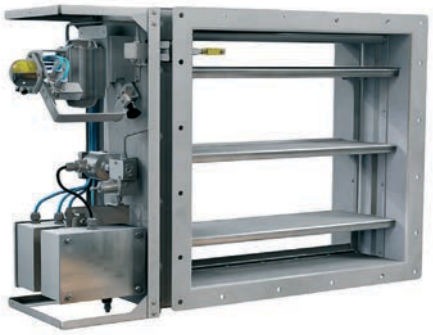
A fire can ignite during the production process even if all precautions have been taken. It can also start in other areas like accommodation or galleys. Fire and gas dampers installed in HVAC ducts have a significant role in preventing the progression of fire, smoke and gases. As smoke and other toxic gases can be more dangerous than the fire itself, it is important that the chosen fire damper also prevents smoke and gas from spreading.
Fire can also start in accommodation areas and spread from room to room, not via ductwork. In that case it is possible to utilize Halton Active Smoke Control solution.

Photo for illustration purposes courtesy of Øyvind Hagen / Statoil

HVAC dampers for all applications

Safety comes first in extreme working conditions.

Because smoke and toxic gases can be more dangerous than fire itself, it is important that the fire dampers prevent smoke from spreading. Halton is the manufacturer of gas-tight fire dampers.



INDUSTRY PREFERRED

A0(60) fire and gas dampers and H-Class fire dampers

Halton Marine A0(A60) fire damper range includes the world's best-selling marine fire and gas danper FDB2, as well as FDA fire and gas damper, specifically designed for oil & gas applications. Halton FDH dampers are developed to meet H-Class integrity. Halton offers a wide range of ATEX approved dampers.

Blast dampers

Blast dampers are designed for protection of ventilation systems against destructive blast forces. Halton BDH is designed to be installed in protection of industrial facilities like platforms and refineries in Oil & Gas industry and chemical facilities in Heavy industry.

NEW 2020

CE-marked fire damper

Halton FCE fire dampers are CE-marked according EN 15650:2010 and tested according to EN 1366-2 standard. Halton FCE fire dampers are used as safety related components in ventilation systems. The FCE fire damper is used to prevent fire and smoke spreading through ducting.

Shut-off and airflow control dampers

A wide range of products to control and balance the supply of fresh air. When necessary, dampers can be used to shut-off the ventilation ducts (possible emergency situation).
HML airflow units for large air volumes come with centralized airflow heating.

Non-return and pressure relief dampers

Halton BLD non-return dampers prevent backflow and protect the fan and other system components against pressure. BRD pressure relief dampers regulate over pressure in designated areas and vent excess pressure e.g. in applications of gaseous fire fighting systems.

The actuated pressure control damper

The feature combines any Halton Marines' fire or shut-off dampers with a modulating actuator and a separate controller thus eliminating the need of a pressure relief or balancing damper. The controller constantly monitors the pressure in the room and communicates directly to the actuator to adjust and maintain the pressure.

Droplet separators

In adverse conditions...

Even the calmest weather conditions contain moisture, salty spray particles, and airborne aerosol particles that must be removed to protect e.g. HVAC systems, engine room intakes, machinery spaces, and diesel and gas turbines engine air intakes. The high-efficient droplet separator results in maintenance, repair and replacement cost savings.

PROVEN RESULTS

Droplet separators

Halton DSH droplet separators are designed for demanding applications where reliability, easy installation and special design play an important role.
Separator vanes are designed to restrict the passage of moisture, salt spray and rain water e.g. into HVAC systems or engine room intakes. Unique form of separator vanes enables high efficiency separation.
Halton DSH is used in a wide range of applications, where there are differences in wind speed and direction, levels of local turbulence, rate and droplet size, distribution of rainfall and surface water flow from the surrounding structure.
DSH has been tested according to the EN13030 performance test for louvers subjected to simulated rain. The tests were made at the VTT Technical Research Centre of Finland, where the droplet separator reached A-Class results.

For cold conditions

Halton DSA high-efficiency droplet separators with electrical heated vanes keep intakes clear during critical weather conditions.
A solution for continuous operation during extreme conditions such as real arctic fog conditions is also available.

External louvres

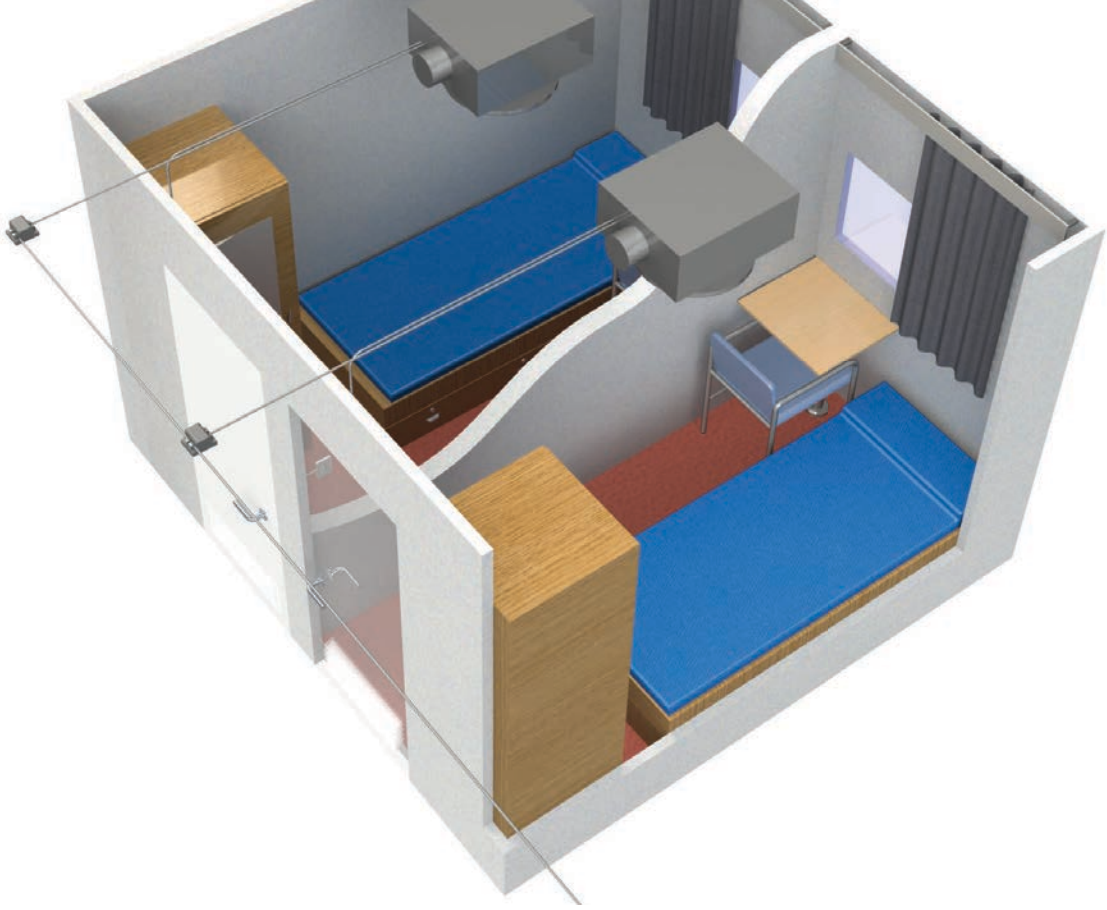
When droplet separation is not needed, an external louvre is effective in preventing objects entering into the ductwork. Louvre can be also used in air intakes.

Photo for illustration purposes courtesy of Øyvind Hagen / Statoil

Room and cabin ventilation

Safe, controlled and comfortable environments for people to work and live in.

Photo for illustration purposes courtesy of Kjetil Alsvik / Statoil



Halton offers total air-conditioning packages for different types of cabins and rooms. VAV/CAV unit with intelligent automation and room thermostat can operate as stand-alone unit or in a network. Network enables air-conditioning in cabins to be controlled, monitored and adjusted by supervision system.

Cabin units

Halton pressure-independent cabin units control and maintain airflow individually in each cabin and thus sound levels and comfort are kept in optimal conditions. The cabin unit is actively monitoring the environment and adapting to the changing conditions.
Halton Marine cabin ventilation equipment can operate on a LON, Ethernet or Wi-Fi network with a dedicated network adapter.
Halton cabin units are also available without airflow measurement as pressure dependent units. The manually operated cabin units include reheater and control unit or just a manual damper (manual model) which both allow the manual adjustment of airflow quantity.

Fancoils

Halton fancoil is a vertisile solution for air treatment and control that has been specifically designed for silent cabin comfort. The compact design possibilities and excellent performance levels make Halton fancoil solution easily adaptable for different type of projects.

CaBeam

Halton revolutionizes cabin ventilation by bringing to the market a completely new kind of patented ventilation solution which offers the next level of comfort what comes to air distribution and HVAC sound levels in cabins. The operating costs for the system is substantially lower than with any mechanical HVAC solution.

Active smoke control

Halton Marine cabin ventilation system can be equipped with components and controls that, combined with the ship's or platform's fire alarm system, act as an Active Smoke Control system.
In case of fire, the solution keeps the escape routes clear from smoke and prevents toxic gases spreading to non-affected areas.
Halton's Active Smoke Control solution is compatible with different kinds of emergency and evacuation strategies.

Network takes it to the next level

What if you were able to control, monitor and adjust cabin indoor climate centralized via network?

Network offers many advantages

In a network, selected HVAC parameters can be managed through a HMI (Human Machine Interface). Network solution opens numerous possibilities to include additional safety and energy efficiency features in cabin ventilation. Units can be adjusted and controlled by a HMI according to customer's needs. It is also possible to connect additional sensors, e.g. pressure and fire detection in cabin units. All selected parameters and indications are visible on the HMI.
The network also enables optimization of the cabin ventilation system. Halton pressure-independent operation system working in a network enables the lowest energy consumption. It also gives a possibility to trace the trend of each cabin on the HMI. Monitoring and controlling can be done without entering the cabin.

Advanced energy efficiency

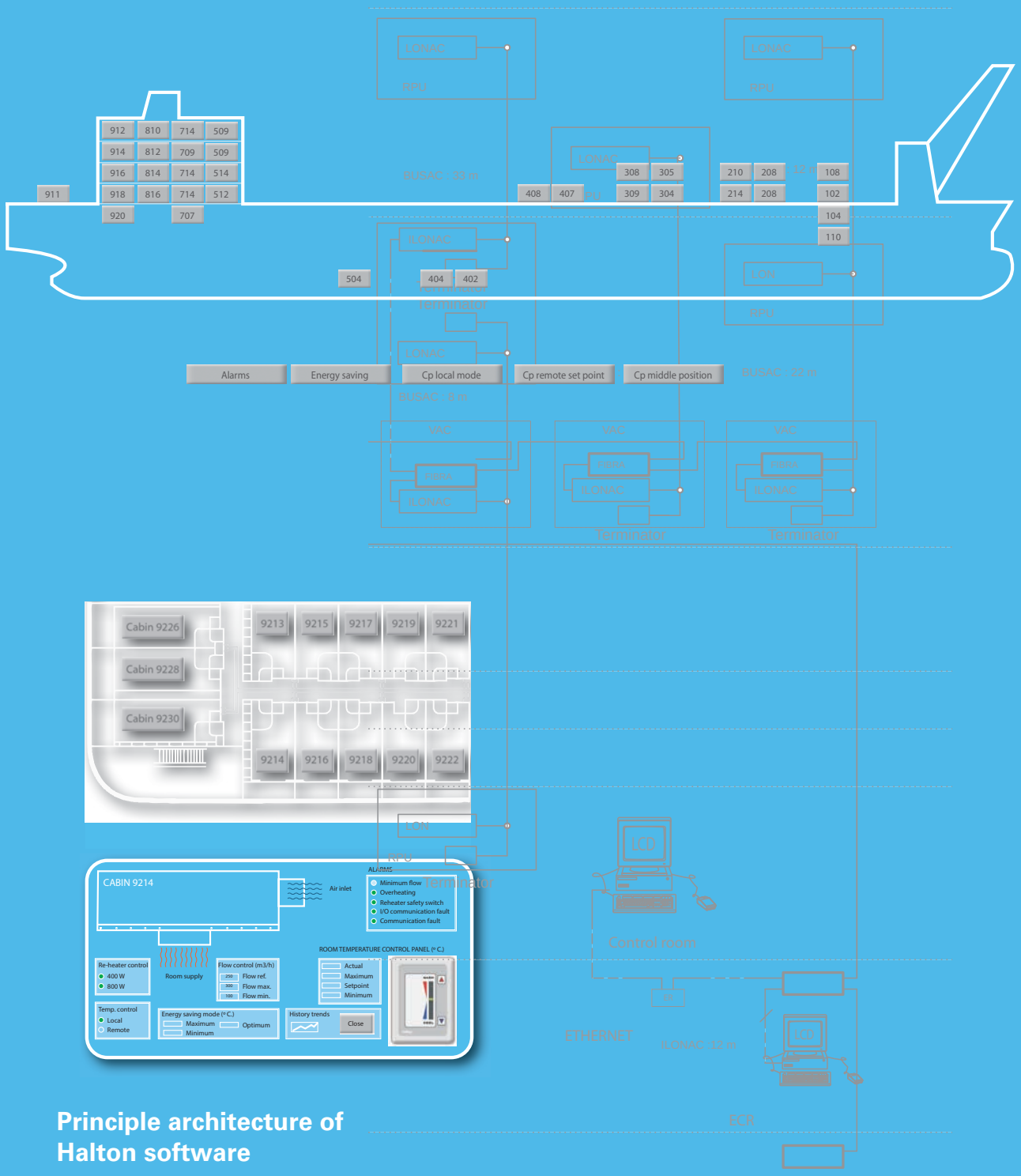
The Halton calculator collects the information from each terminal unit and signals to the Air Handling Unit (AHU) to adapt to the demand. Based on the information from terminal units, AHU's supply air temperature is regulated to cut down unnecessary cooling and prevent unnecessary electrical heating inside the terminal unit. The supply air temperature is kept actively at an optimum level together with humidity control. With Halton Marine advanced energy efficiency technology it is possible to save up to 35% in cabin HVAC energy consumption.

Halton networks

Halton Marine cabin ventilation solutions can be connected to LON, Ethernet or Wi-Fi networks or a combination of them.
Cabin ventilation products operating as stand-alone are easy to connect to a network simply by adding a network adapter.
Halton network solution can be adapted to an existing Ethernet network built on board, which is normally used for other services such as IP-telephone, Internet, multimedia, IP-television etc.

Network architecture

Halton Marine offers its services for designing the network architecture.



Principle architecture of Halton software

The software offers an overview from a cabin ventilation system, to each cabin that can be individually adjusted, controlled and monitored via network. Halton's supervision system interface is always built according to the customer's needs.

Halton's Vita solutions offer intelligent and efficient management of laboratory exhausts, as well as laboratory room pressure conditions and thermal comfort in health care and industrial laboratories.

Laboratory solutions

Exceptionally safe and efficient workspaces for laboratory professionals.

In industry applications the laboratories are often used to carry out tests that are hazardous, often contain explosion risks and involve toxic materials. Halton range includes different material options to suit actual needs. In laboratories with explosion risk, Halton supplies system with ATEX compliant components.

Halton Vita Lab Solo

Halton Vita Lab Solo is a fast and accurate airflow management solution for all types of fume cupboards and exhausts in laboratories where safety needs to be ensured in all conditions.

- Suitable for all fume cupboards and laboratory exhausts
- Constantly safe operations with fast response
- User-friendly control and alarm panel
- Enhanced energy efficiency with occupancy control

Halton Vita Lab Room

Halton Vita Lab Room provides intelligent and efficient control of laboratory pressure and thermal comfort for optimal space management.

- Thermal comfort and safety for the entire room
- Energy efficiency
- User-friendly control and alarm panel
- Integrated temperature control

Halton Vita Lab Zone

Halton Vita Lab Zone provides enhanced system stability with integrated zonal pressure management. The system ensures constant conditions for the Vita Lab Solo and Vita Lab Room solutions.

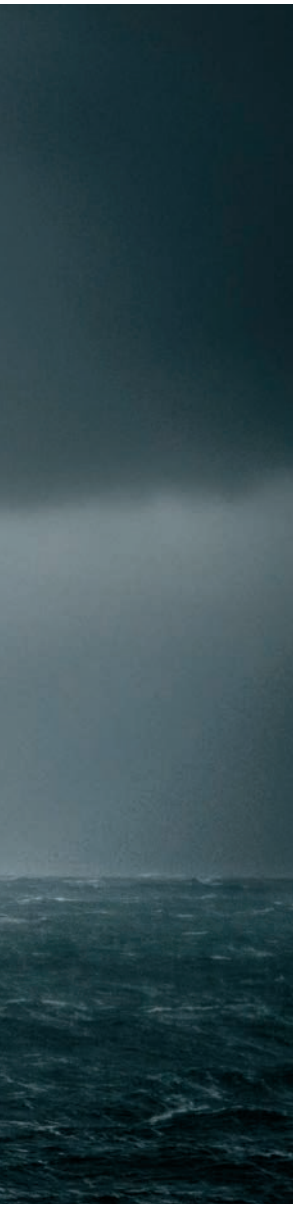
- Prevents zone-to-zone fluctuation
- Enhances safety by maximum airflow limitation
- Easy design and layout modification with simple installation and maintenance

Central vacuum cleaning system

Good indoor air quality enables a more productive and healthier workplace.

Inlet valve

Central unit



Studies have shown that indoor air can be up to five times as polluted as outdoor air, causing harmful effects on people's health. Halton has risen to the challenge of improving indoor air quality on onshore oil and gas facilities and platforms at sea.

The central vacuum cleaning system

Halton's central vacuum cleaning system (CVC) improves indoor air quality significantly by removing detrimental micro-dust efficiently from indoor spaces without circulating it back to the indoor air as traditional vacuum cleaners do. The various benefits of Halton's CVC system contribute to employee satisfaction and performance.

System description

The facility is divided into sections by the needed number of cleaners. Each section has its own module. One module serves multiple simultaneous users. CVC's central unit powers the entire system. There are inlet valves (hose connection points) installed throughout the facility. To minimize injuries, inlet valves are placed at a height that permits the user to reach them in an ergonomic position. When a cleaning hose is plugged into an inlet valve, the system starts to vacuum. Sensors control optimal vacuuming performance while minimizing electricity consumption. When the hose is unplugged, the central unit's motor stops. After each session of vacuum cleaning, the CVC system's self-cleaning cycle activates, preventing the pipes from clogging, and reducing the need for maintenance.

Sustainability

Halton's central vacuum cleaning system is simply the best and most sustainable choice when compared to any other vacuum cleaner. A life-cycle of a traditional vacuum cleaner is short. Throughout the full service-life of an oil and gas facility, many vacuum cleaners will eventually be replaced with newer units, generating a massive amount of waste. Halton's CVC system is designed to serve as long as the facility itself. The system is not just promoting sustainability, it is also increasing the value of the facility.

Advantages

- Removes detrimental micro-dust effectively
- The air is fresh and odourless after use
- Lightweight, fast and easy to use
- Silent operation
- Long life cycle up to 30 years
- Low annual maintenance costs
- Reduces absences at work due to bad indoor air
- Available from components to the whole scope

High-efficiency galley ventilation

Meet proven reliability, usability and hygienic conditions with low maintenance needs

Halton Marine is the leading supplier of galley ventilation equipment. With more than 25 years of experience, Halton Marine provides a wide range of solutions for demanding applications with technological advantages.

Capture Jet³ technology enables maximum capture with reduced airflows, smaller ducts, fans and reduced sound levels

Halton Capture Jet³ prevents the heat and impurities produced by cooking appliances spreading to a galley. Compared to conventional galley hoods, Capture Jet³ technology enables a hood to operate with up to 45% lower exhaust airflow rates with the same capture efficiency. This opens a possibility to design smaller fans and ductwork. In the supply side, less make up air is needed for cooling purposes, enabling savings in air handling units and chillers. The technology results in savings of weight, space and energy consumption. Capture Jet³ does not necessarely require a separate supply air duct. In this case, Capture Jet Fan takes the required air from the galley. This also saves space as well as contruction and operational costs.

Water wash system for easy service

Halton KWH, KWT and KW3 hoods are equipped with an automatic washing system that cleans the filters, UV-lamps and the exhaust plenum at 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.

AWARD WINNING

M.A.R.V.E.L. demand based ventilation

The Halton M.A.R.V.E.L. system monitors the activity of cooking and optimizes the airlows in galleys. This intellegent system enables substantial savings in energy consumption while keeping the indoor environment conditions at an excellent level. Hundreds of customers worldwide rely on Halton M.A.R.V.E.L..

ALSO FOR RETROFITS

The best grease filtration in the market

Based on Halton's patented highly efficiency Capture Jet solution and advanced mechanical KSA filter technology, the UV-light technology feature with scheduled maintenance keeps the plenum and duct virtually grease-free and mitigates the cooking odor and emissions. This also helps to reduce a serious fire risk and repetitive cleaning of the ducts.

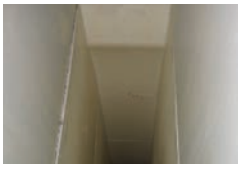
WITHOUT UV-LIGHT TECHNOLOGY

Exhaust duct

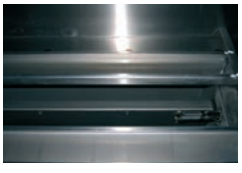
Hood damper

WITH UV-LIGHT TECHNOLOGY

Exhaust duct



Hood damper



At your service

Halton Marine bases its business on flexibility, reliability and customer orientati

Certified Quality. In addition to ISO 9001, ISO 14001, quality and environmental management certificates, Halton Marine Oy has been certified according to OHSAS 18001 occupational health and safety management system. Halton Marine is also qualified by FPAL, for suppliers to the Oil & Gas industry. Download the latest certificates on www.halton.com. *

on

Halton Marine production emphasizes tailoring, which means that solutions are adapted for each customer's specific needs. Halton Marine supplies solutions not only for new-builds, but also for refurbishments.

Halton Marine offering

- Flexible, high-tech production with certified welders and short delivery times
- The comprehensive project management includes product design, delivery, commissioning and testing of product assemblies, plus a spare-part service
- Product training and technical back-up for projects
- Global project support, complete technical and installation information
- Testing and simulation services from full-scale mock-ups, leakage tests, fire tests, shock tests to CFD simulation services
- Well-established but flexible company offering long-term business relationships and after-sales service

For galleys and cabins

- Commissioning services with offshore qualified personnel (EPIM no. 150181)
- Design services
- User training of ventilation systems
- Maintenance services for galley UV-light technology
- UV-light technology and M.A.R.V.E.L system for hoods as a retrofit installation
- Mock-up installations and verification tests

*) Note: available certificates might vary on different Halton manufacturing facilities.

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About us

Halton Marine

Halton Marine, one of the world's leading suppliers of marine HVAC, develops, manufacturers and markets reliable, high-quality ventilation solutions specifically designed for different types of ships, offshore oil & gas, heavy industry and offshore wind. Our track record includes deliveries to over 150 major cruise ships, 200 oil & gas projects and 100 naval vessels.

Halton Group

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 €220 million and over 1600 employees. The company has production facilities in Brazil, Canada, China, France, Finland, Germany, Malaysia, United Kingdom, and the USA.

Enabling Wellbeing

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