

Halton Marine Galley Ventilation

FAQ

The most frequently asked questions about Halton's galley ventilation products and solutions



About the FAQ

Providing our customers with excellent customer support is very important to us. That's why we have made a collection of our customers' most frequently asked questions about our galley ventilation solutions, such as galley hoods, and provide the questions with answers. To prepare this FAQ, we read through numerous questions from our customers and gathered the answers from our galley ventilation experts.

Halton has supplied user-friendly and energy-efficient ventilation solutions for over 200 big cruise ships. The company offers different types of galley ventilation solutions and technologies for ships and ferries, such as galley hoods and canopies, a control cabinet for galley hoods called CCW-M, demand-controlled ventilation system called M.A.R.V.E.L., and an autonomous mobile cooking station called Halton MobiChef.

About Halton Marine

Halton Marine is one of the world's leading suppliers of HVAC solutions specifically designed for demanding environments. Halton's track record includes deliveries to well over 200 major cruise ships, 200 oil & gas projects both offshore and onshore, and over 150 naval vessels.

8 May 2020 - Lahti, Finland

Contact

Salla Ahlberg

Mobile +358 40 831 6404

salla.ahlberg@halton.com

Contents

3

Halton galley hoods

9

CCW-M control cabinet

10

Halton M.A.R.V.E.L.

12

Halton Marine MobiChef

Halton galley hoods

What is the difference between galley hoods and galley hood modules?

Galley hood consists of one or several hood modules. For example, three hood modules create one hood.

How is the interconnection of galley hood modules done?

The work is done by an installation contractor and that's why it is not part of Halton's scope of supply. Instructions for the interconnection of galley hood modules can be found from Halton's installation manual for hoods (welding and moulding). Most of the cases installation contractors have followed these instructions. There is a line of holes in the upper edge of galley hood modules for the bolt fastening. In most cases, a fire damper has been fitted to the galley hood at the factory. The fire damper is connected to the ductwork with a sealed bolt connection. This method is mentioned in the fire damper manual.

Can two galley hood modules be connected in a way that they use only one extraction connection?

There needs to be one exhaust connection per a galley hood module. Otherwise, the exhaust air comes mainly from the nearest module, and airflow in the other module is not sufficient.

How is the gap between galley hood modules covered?

The gap between galley hood modules is covered with moulding, following guidelines of USPH. The moulding is not part of Halton's scope of supply. The lower edges of separate galley hood modules are pressed together and welded according to the installation manual.

Drainage of water wash hoods, galley hood modules

Halton's hoods have drain connections. The design and installation of drainage is the responsibility of the client. The standard size of the drain connection is 48,3 mm. To prevent flooding, the size of the drain pipe should not be reduced after the drain connection.

What kind of connection options do we offer for drainage?

As a standard solution, we offer a straight plain end to which contractors will weld the desired joint option, for example, a thread or collar. Alternatively, we can supply the drain with a threaded connection as a ready solution. In some cases, a connection at both ends of the hood will also ensure that the drained liquid is discharged even if the ship is slightly inclined.

Halton galley hoods

How can a client-side / restaurant-floor drain be arranged because architects do not accept drain pipes in the middle of the restaurant?

The Halton hood has only drain connections. Other drainages are done and designed by the customer. Also, the so-called grease cup is in use, which can be detached and drain can be connected to the drain system by hose, etc. during washing, in which case the hood cannot have a water washing system but must be manually washed.

What should be taken into consideration when placing the hoods?

The layout of the galley should be designed to achieve optimal air distribution. Generally speaking, all galley appliances that produce impurities, heat and grease must be fitted with a hood or similar exhaust ventilation unit. The high-velocity airflow placed near the hood, for example from certain types of supply air diffusers, creates turbulence that interferes with the operation of the hood. Here's a link to the Halton Kitchen Design Guide as an example. USPHS rules must be checked carefully and taken into account as they may differ from this guide.

How are galley hoods dimensioned?

Dimensions according to USPH rules (including overhang). The dimensions of the devices below also determine the dimensions of the hood. As a rule of thumb, the hood should be at least 30 cm wider than the units below. If the required amount of the air volume is large, the hood may be longer than the standard overhang requires.

How do other galley appliances, walls, screens, and space use affect the placement of the hoods?

The placement of galley appliances is of great importance, for example, for the amount of exhaust air in the hoods. This must be taken into account in the galley design. The galley appliance should be placed next to the wall for the best possible capture efficiency. In this case, the wall surface limits the free cross-sectional area in which the warm airflow can rise. The exhaust airflow required for a device placed in the middle of the floor is approximately 1.6 times that of a similar device located adjacent to the wall. However, in practice, devices often also have to be located in the middle of the floor. In this case, it is advisable to place the most powerful / steam generating devices next to the walls. This procedure optimizes the total amount of exhaust air in the galley and ensures that the exhaust capacity is sufficient, even in the island hoods above the center of the appliances.

Halton galley hoods

Are there any requirements for the placement of galley appliances that affect the placing or the dimensions of hoods?

Shipbuilding aspects e.g. frame structure, working area clear heights, and USPH requirements affect hood placement and dimensions. The island is usually designed so that you can work on both sides of the island.

How should room temperature sensors be placed in the galley? What needs to be considered in their placement?

Room temperature sensors should be located so that they are in the most central and undisturbed place possible to measure the room temperature.

How the supply air units should be positioned in relation to the hood?

Contaminated air that has been exhausted through the hood must be replaced by fresh supply air. When mixing ventilation units are used, they preferably locate as far as possible from the hoods or near the hood blowing air away from the hood. The location of the supply air units must not either disturb the galley staff. Low-velocity units can be mounted in the ceiling in front of the hood or the wall.

Do accessories installed on the hood, such as heat lamps and shelves, affect the placement, operation, or exhaust air volumes of the hood?

These should not be fitted to the hood. Halton assumes no responsibility for the effects of these. In some cases, shelves or other similar devices have been added to the galley ventilation unit, but in that case, hood requires special structures that can affect the price and delivery time.

How many IR sensors are placed per a hood module (M.A.R.V.E.L. hoods)?

Maximum 4 pcs per a hood module. This depends on the galley equipment placed below the hood.

Is it possible to install a fire damper outside the hood?

The fire damper can be installed outside the hood, as long as the requirements of SOLAS are taken into account in the installation. In this case, the fire damper must have a service hatch, for example.

Halton galley hoods

Can the light fixture be moved?

Yes, within certain limits. To achieve sufficient light output, the lighting must be long enough in respect of the length of the hood. The light fixture can be moved within the length and depth direction of the hood but there are some limitations due to the structures of the hood.

How to solve the opening of the hatch when there is a high oven under the hood?

By removing the entire hatch/light fixture.

Some galley appliances must be installed off the wall (cleaning). Does the hood work when the filters are behind the oven and the steam comes from the front edge? This is also related to condensation and hood placement.

The location of the supply air device in the optimal location must also be taken into account here. Works, but Halton recommends separate ducting in these cases, such as local exhaust from the oven outlet pipe is ducted closer to the filters. Sufficient overhang in front of the oven, for example, reduces the spillage of a steam cloud into the galley space when the door is opened.

Why does steam condensate on the outer surface of the hood?

Condensation depends on two values: temperature and humidity. The warmer the air, the more water the air can absorb. When the temperature of humid airdrops, condensation can happen. This may occur when humid warm air hits a colder surface of the hood.

Moisture is generated in the galley from cooking, dishwashing, and people. Hoods remove the humid air from the galley before it mixes with the rest of the room air.

How has Halton solved condensation problems?

A separate heating film can be added on the ceiling of the hood to prevent condensation by heating the surface above the dew point temperature. The heating film is insulated to minimize heat loss above the ceiling.

How to calculate exhaust air volumes?

Air volume calculations can be done by various standards or other guidelines. There are several calculation methods and the calculation of air volumes is started depending on the method used for either the supply air or the exhaust airflow.

Halton galley hoods

What is Halton's calculation method based on?

Accurate air volume calculation should be based on equipment type, power output, and hood efficiency. The most accurate dimensioning of the exhaust airflow is done by taking into account the properties of the heat source, such as convective heat output. The convection flow properties of galley appliances are substantially influenced by the cooking process and the equipment used. Halton can offer calculation of air volumes if needed. Halton's method of calculation is based on VDI (VDI 2052) and ISO standards (ISO 9943), as well as research data and formulas collected from Halton's products.

Capture Jet™ and reducing exhaust airflow. Is it possible to always reduce the amount of exhaust air?

The amount of exhaust air can be reduced in hoods using the Capture Jet™ feature. Halton hoods use Halton Capture Jet™ technology, which allows the hood to operate with up to 45% lower exhaust airflow rates than traditional hoods.

How is the supply air dimensioned in comparison with the exhaust air volume? How does Capture Jet™ affect air volumes?

The supply air volume is always lower than the exhaust air volume to keep under pressure in the galley, preventing unwanted air impurities from spreading. Capture Jet™ reduces the amount of exhaust air needed, which also reduces the amount of supply air.

How to avoid draught problems?

Draught problems can be avoided by using low-velocity supply air units. Air is distributed with low velocity and therefore it does not cause a draught. Another solution is to select the correct type of mixing ventilation units and position those so that they do not cause draught in the occupied zone.

What types of supply air units exist and how does their operation affect the total air volumes?

Supply air units can be divided into mixing and low-velocity units. Mixing ventilation units are commonly used even if they are not the best possible solution in the galley. Low-velocity units give better performance because they do not disturb the hood function. The type of supply unit affects also the exhaust flow because hood efficiency depends on the air movements close to the hood.

Halton galley hoods

Can air be supplied between the dining area and the galley? What needs to be considered here? How to prevent impurities and odors from spreading outside the galley area?

The main activity in the galley is the cooking process. This activity generates heat and effluent that must be captured and exhausted from the space to control odor and thermal comfort. The galley supply air, whether mechanical or transfer or a combination of both, should be of an amount that creates a small negative pressure in the galley. This will avoid odors and contaminated air escaping into surrounding areas such as the dining area. Therefore the correct exhaust airflow quantity is fundamental to ensure good system operation, thermal comfort, and improved IAQ. Similar conditions should be given to washing-up, food preparation, and serving areas.

CCW-M control cabinet



How does the CCW-M control cabinet work? What is the purpose of it?

The purpose of the control cabinet is to control the automated washing of the hoods utilizing a graphical user interface. Washing cleans the filters, the exhaust air chamber, and UV tubes in the hood. CCW-M cabinet can also be used to control UV and M.A.R.V.E.L. functions.

How many hoods can be combined in one CCW-M control cabinet (wash hoods and UV system compatible hoods)?

16 hood modules.

How many fire zones can be combined in one CCW-M control cabinet?

It depends on automation requirements. The control cabinet can only control one circuit of fire dampers during washing. This is important to notice if, for example, fire dampers are in two different fire zones and you do not want to close them at the same time. Halton M.A.R.V.E.L. can be divided into several areas.

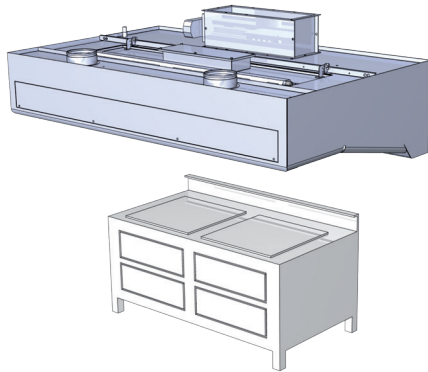
How should CCW-M control cabinets be placed in the galley?

As close as possible of the hoods so that the pressure drop in the water wash piping and sizes of the pipes remain reasonable.

How many CCW-M control cabinets do you need in the galley? What is the recommended number?

It depends on the number of hoods to be controlled. One control cabinet can control sixteen hood modules, which is sufficient in most cases.

Halton M.A.R.V.E.L.



How does Halton M.A.R.V.E.L. work?

The Halton M.A.R.V.E.L. is the first truly intelligent, responsive, and completely flexible demand-controlled ventilation (DCV) system specifically designed for Halton hoods. The Halton M.A.R.V.E.L. can identify the current status of the cooking equipment (switched off, heating to cooking temperature, or cooking in progress). Halton M.A.R.V.E.L. adjusts the amount of exhaust air per hood as needed and the exhaust air fan as needed for the entire galley. See Halton's M.A.R.V.E.L. brochure.

How does Halton M.A.R.V.E.L. adjust the supply and exhaust air volumes and the galley pressure ratios correctly?

The amount of exhaust air is adjusted according to the heat load caused by the galley equipment. The amount of supply air follows the amount of exhaust air, thus keeping the pressure ratio in the galley correct. An HVAC contractor must take into account the M.A.R.V.E.L. system already in the design phase, also the adjustability of supply and exhaust air volumes. Halton also has a solution for directing the supply air locally to the right place to avoid internal airflows in the galley.

How do Halton M.A.R.V.E.L.'s air volume adjustment and control work?

Air volume settings per hood can be adjusted from the control panel of the cabinet. Required air volume depends on the type of galley appliances and the connection power.

How Halton M.A.R.V.E.L. controls canopies which are connected to the same ductwork as hoods - how to control the system correctly / efficiently?

By adjusting the air volume of the canopies with the control damper and the air volume measuring device which forms a similar combination as in the hood. This combination can be for each canopy or group of canopies. Balancing between a group of canopies can be done with manual balancing dampers.

Is the control of the Halton M.A.R.V.E.L. system linked to the ship's HVAC system?

Usually yes.

Halton M.A.R.V.E.L.

Is Halton M.A.R.V.E.L. controlling exhaust and supply fans?

If necessary, yes. Fan control automation can be implemented in many ways.

Is it possible to get UV / M.A.R.V.E.L. Junction Box lower or installed elsewhere?

The UV / M.A.R.V.E.L. Junction Box can be removed and relocated keeping in mind that the UV system power cable is only 1.5 meters long. The length of the UV system power cable is limited to 1.5 meters. If the cable is longer than 1.5 meters, Halton cannot guarantee that the UV system will work as designed.

Halton Marine MobiChef



In what kind of environments and facilities can Halton MobiChef be used? How does MobiChef work, whether it is used indoors or outdoors?

Halton MobiChef can be used indoors or outdoors within the limits of local fire safety regulations. For example, the connection power of the galley appliances may be limited. In the marine environment, MobiChef must be secured to its base more securely than simply locking the wheel brakes.

Europe

Halton Marine Oy
Pulttikatu 2
15700 Lahti, Finland
Tel. +358 (0)2079 2200
Fax +358 (0)2079 22060

haltonmarine@halton.com
www.haltonmarine.com

Halton Marine's sales offices,
distributors and agents are listed
at www.haltonmarine.com

America

Halton Group Americas
101 Industrial Drive
Scottsville, KY 42164
The United States of America
Tel. +1 (270) 237 5600
Fax +1 (270) 237 5700

Asia

Halton Ventilation (Shanghai) Co., Ltd.
浩盾通风设备(上海)有限公司
Room 182/186, No 3058, Pusan Road
Pudong, Shanghai, 200123
The People's Republic of China
Tel. +86 (0)21 6887 4388
Fax +86 (0)21 5868 4568

About us

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, the United Kingdom, and the USA.