

Central Vacuum Cleaning System for Ships & Offshore Rigs



Photo for illustration purposes courtesy of Tallink Silja

Central Vacuum Cleaning System

Simply the most clever way for cleaning
with superior benefits



Tallink Megastar

Halton ProClean system is in use on board Tallink Megastar as well as in seven other Tallink ships sailing on Baltic Sea.



Top 10 Advantages

1. Ecological

Halton ProClean central vacuum cleaning system is designed to last as long as the vessel.

2. Healthier

Usage of Halton ProClean promotes healthier environment by removing hazardous micro dust and not creating dust raising swirls.

3. Image

Represents sustainable development and green values.

4. Minimized disturbance

Silent and odor free operation. No need for isolating spaces due to cleaning.

5. Efficient

Lightweight, fast and easy to use.

6. Safer

No need to make illegal electric wire extensions, where conventional hoover's standard cord is too short.

7. Space saving

Unties space for cabin and public area design.

8. Low maintenance

Less technical service needed, extremely low maintenance costs.

9. Saves A/C

Allows more cleaner indoor air and reduces the need of A/C filter cleaning and change.

10. An easy choice

Available from components to whole scope including design services and installation.

Proven efficiency is ProClean

Cleaner and healthier
environment throughout the ship



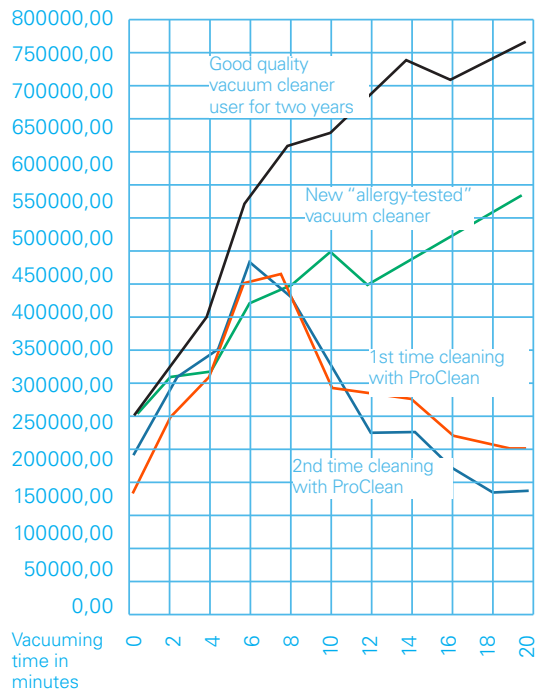


Halton ProClean central vacuum cleaning system promotes healthier environment by removing hazardous micro dust and not creating dust raising swirls.

Dr. Ilmari Lindgren of Helsinki University Hospital / Allergy Hospital conducted two studies on the differences between traditional vacuum cleaners and central vacuum cleaning system. The results show that traditional vacuum cleaners are not optimal for human health. According to the study regularly used central vacuum cleaning system cleans indoor air nearly as pure as the fresh outdoor air. Central vacuum cleaning system is practically the only suitable cleaner specifically for people suffering of allergies.

Quantity of harmful dust particles (<0,5 microns) per sq.m. air

Halton ProClean system effects in practise



Halton ProClean central unit

Requires minimum of
maintenance





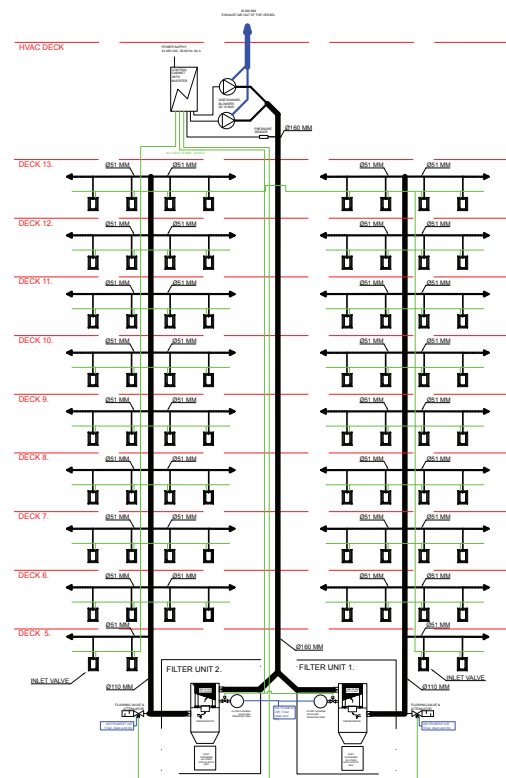
Halton ProClean System Description

Halton has developed a unique module based design of central vacuum cleaning system together with the Technical University of Tampere, Finland.





Every Halton ProClean vacuum unit serves multiple simultaneous users. The module design minimizes investment and maintenance. A single fire zone can be operated even with only one central vacuum cleaning unit. A module contains a central unit (complete unit with two stage filtration: cyclone and a fine filter, dust container, control cabinet, automatic filter cleaning), piping, inlet valves, pipe cleaning valves and vacuum cleaning equipment. When a cleaning hose is plugged into an inlet valve, central unit starts. Sensors optimize vacuum power and minimizes power consumption continuously. When unplugged, the system is inactive. The Halton central vacuum cleaning requires minimum maintenance which results in less maintenance costs.

Central unit, inlet valves and cleaning valves are all made of robust materials. Pipelines are designed to withstand vibrations, heavy use and high suction pressure.

A system design option for 24 users in one fire zone



Halton ProClean for ships

	 Promiss	 Pro 3	 Pro 6	 Multivac
Number of simultaneous users	2	3	6	12
Nominal motor power	5,0 kW	5,5 - 6,3 kW	12,5 - 14,5 kW	25 - 29 kW
Max. air volume	400 m ³ /h	500 - 630 m ³ /h	1000 - 1200 m ³ /h	2000 - 2400 m ³ /h
Trunk pipe	2 x Ø50 mm	Ø75 mm	Ø110 mm	Ø160 mm / 2 x Ø110mm
Exhaust pipe	Ø110 - 125 mm	Ø125 mm	Ø125 - 160 mm	Ø160 mm / 2 x Ø110 mm
Max. pipe length to last inlet	50 - 125 m	125 m	150 - 200 m	150 - 200 m
Automatic pipe flushing	Optional with Ø75 mm trunk pipe	Yes	Yes	Yes
Automatic filter cleaning	No	Yes (pressure shock)	Yes (pressure shock)	Yes (pressure shock)
Option for separate vacuum and filtration units	Optional	Optional	Optional	Standard

Halton ProClean system general features

Motor drive method	Demand based, energy efficient variable-frequency speed drive
Vacuum measurement	Pressure transmitter
Control method	Start signal when vacuum hose is plugged or manual start buttons/timer
Materials	Powder coated steel, all components are sturdy industrial quality
Pressure air for filter and pipe cleaning	Vessel's local air supply utilized (optional pressure air compressor for the vacuum unit)
Filter change need	Normally 1-2 times/year, depending on the use
Maintenance needs	Minimal, even on continuous operation
Wet vacuuming	With a mobile water separator (optional)
Pipe blockage prevention	Automated pipe flushing function
Restraint of use	Vacuum inlet valves are opened only with a special key hook
Information to BAS	Potential free status informations and optional fieldbus
Exhaust air	F7 (EU7) filtered and guided to outside air with metal piping
Vacuum pipe material options	Plastic, GRP (glass fiber reinforced plastic), stainless steel AISI304, AISI316
Suction inlets	Powder coated steel (optional color coding) or brushed stainless steel (AISI304)

Piping

Diameter of the pipeline affects to the maximum number of simultaneous users. Every project will be designed according to owner's needs and wishes.

Pipelines are designed to endure heavy use and high vacuum pressures.

All branches are done with 45 degree angles and all bends are with a gentle angle to prevent pipe blockages and to minimize pressure drop.

Pipe materials available for Marine use:

- Plastic (ABS, PE, PVC-U, GPR)
- GRP (glass fiber reinforced plastic)
- AISI 304 (EN 1.4301)
- AISI 316 (EN 1.4401)

Piping		
Pipe size	No. of users	Max. length
Ø50	1	50 m
Ø63	2	50 m
Ø75	3	120 m
Ø110	6	150 - 200 m
Ø160	12	200 m
Ø200	18	200 m

Inlet valves

Inlet valves are made of robust steel and are highly durable to withstand heavy use. The installation height is approximately 1000 mm from the deck level which enables easy, fast and ergonomic usage. Inlet valve locations are designed so, that the cleaning hose reaches every corner. The length of the hose can be between 6 to 12 meters. Typically the hose is 10 meters long.

Inlet valves are designed to be opened with a simple keyhook. This prevents that passengers or small children are not opening the inlet valve by accident.



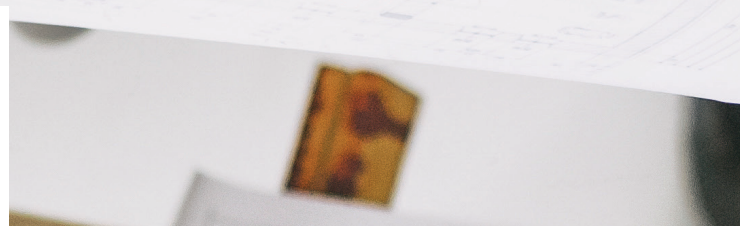
Inlet valves on board are relatively unnoticeable when integrated with ship design

At your service

From components to whole scope including design services and installation



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 and the Achilles Joint Qualification System, for suppliers to the Oil & Gas industry. Download the latest certificates on www.haltonmarine.com. *





Halton Marine 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 ProClean offering

- Available from components to whole scope including custom system pre-design service and installation
- Product training and technical back-up for projects
- Well-established but flexible company offering long-term business relationships and after-sales service

References

ProClean systems have been delivered for over 2500 projects including:

- | | |
|------------------------|-----------------------------------|
| • NASR-2 | Living Quarter (Offshore oil rig) |
| • NVC 395 POLAR | Special Purpose Vessel |
| • Megastar | Ropax |
| • Polaris | Icebreaker |
| • MT 6024 (hull 152-1) | DSV |
| • MT 6024 (hull 121) | DSV |
| • SEA CHALLENGER | Offshore installation vessel |
| • SEA INSTALLER | Offshore installation vessel |
| • HSC Leonora C. | High-speed craft |
| • Stena Hollandica | Ropax |
| • Baltic Queen | Cruise ship |

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

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
103 Industrial Drive
Scottsville, KY 42164
The United States of America
Tel. +1 (270) 237 5600
Fax +1 (270) 239 6381

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, 200120
The People's Republic of China
Tel. +86 (0)21 6887 4388
Fax +86 (0)21 5868 4568

About us

Halton Marine

Halton Marine, one of the world's leading suppliers of marine HVAC, develops, manufactures and markets reliable, high-quality ventilation solutions specifically designed for shipbuilding, oil & gas, energy and naval applications. 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 30 countries around the world, with annual sales of €200 million and over 1450 employees. The company has production facilities in Brazil, Canada, China, France, Finland, Germany, Hungary, Malaysia, Norway, United Kingdom and USA.