

# USR-F

## Capture Ray™ low proximity hood

◦ Special fryers ◦ Freestanding model ◦ Open sides for fries basket passing ◦ Capture Jet™ technology ◦ KSA aerosol separators ◦ UV-C Capture Ray™ technology ◦ Halton Skyline LED Lighting ◦ Integrated power supplies ◦ Optional flat-packed delivery



Product certification(s)



Components certification(s)



## Main technologies and options



**Capture Jet™ technology**  
Up to 48% reduction in exhaust airflow thanks to a better capture efficiency



**Side Capture Jets**  
Enables a large opening of the sides



**KSA aerosol separators + MFA mesh filters**  
Up to 99% efficient on 10 microns particles



**UV-C Capture Ray™**  
Neutralises grease vapors and particles



**UV On Demand (Option)**  
Saves up to one in two sets of UV-C lamps



**Halton FireWatch**  
Detects a fire risk before it occurs (Combined with "On Demand" feature)



**HCL Halton Skyline**  
Daylight similar LED Culinary Lighting and human centric



**Integrated power supplies**  
Sockets for electrical cooking appliances



**Halton Touch Screen**  
Simplified and intuitive LCD user interface



**Halton Connect®**  
Cloud-based control platform with distant monitoring capabilities (1)



**Option for decarbonized stainless steel**  
An ecological and sustainable choice

(1) The access to Halton Connect® web portal is included in the 1-year warranty period. After this period, it is subjected to one of the Halton Care service offer.

## Recommended combinations



**Further increase the energy savings and improve staff's comfort** <> Go for M.A.R.V.E.L. airflow and energy optimization technology



**Establish restaurants in premium locations and increase profitability** <> Go for PolluStop pollution control units and reassure neighborhood



**Don't risk bankrupt or business downtimes because of a cooking fire** <> Go for FSS Fire Suppression System pre-installed from factory



**Optimize the ductwork cleaning costs and further improve your safety** <> Go for KGS grease deposition level monitoring system for ductwork



## Applications

Halton Capture Jet™ hoods and ventilated ceilings are all suitable for [LEED](#) (1), [BREEAM](#) (2), [DGNB](#) (3), [RE2020](#) (4) etc. projects, particularly when combined with M.A.R.V.E.L. airflow and energy optimization technology..

USR hoods are ideally suitable for frying and grilling hubs equipped with medium-duty electric appliances. In addition to the *Capture Jets*, they are also equipped with the *Capture Ray™* technology. They are therefore more typically used for Ghost Kitchens or Quick Service Restaurants, especially those located in dense urban areas or whose ducts are difficult to access.

## Description

The *Capture Jet™* technology enables significant reductions in airflow rates leading to savings on construction costs, mainly due to the reduced size of ducts and HVAC equipment. It typically pays for itself upon the startup of the kitchen or within few months. The energy savings it generates then directly contribute to an increase in profitability, while the staff benefits from improved working conditions.

USR hoods are installed closer to the cooking appliances; The smoke, steam, and heat released are then captured more efficiently. The *Capture Jets* combined with a capture "at closest from the source" reduce the exhaust airflow rates to the lowest possible level.

The side *Capture Jets* allow for a large opening on the sides for the passing of the fries baskets to the salting tray, for instance. As for the combination of the front and side Jets, it allows for a negative overhang to improve the view on the cooking surfaces and the ergonomic.

The *Capture Ray™* technology neutralizes the small grease particles, the grease vapors and a portion of the VOCs that can't be removed by any primary mechanical filtration. It truly represents a unique ensemble of benefits, from savings on cleaning costs to optimal hygiene and fire safety levels, through to lower kitchens' environmental impact on the neighborhood.

USR-F has on the back a services distribution unit that integrates the cooking appliances' power supplies.

## Considerable energy savings

- The *Capture Jet™* technology allows for up to a 48% reduction in exhaust airflow rates.
- The combination with M.A.R.V.E.L. airflow and energy optimization technology allows for reducing the exhaust volumes by up to an additional 44% on top of that of the *Capture Jet™* resulting in up to a 64% total reduction.
- The energy savings on heating/cooling the makeup air then become massive (less air out, less air in!).
- The reduction of the draft risk and noise levels improves the working conditions for the staff.

## Improved safety, maintenance savings and respect for the neighborhood

- Two mechanical filtration stages. **KSA** cyclonic aerosol separators constructed of stainless steel in compliance with EN 16282-6. They are up to 95% efficient on 10 microns particles or larger. Also certified UL 1046, NSF, and LPS 1263. **MFA** Mesh filters as second filtration level to bring the total efficiency to up to 94% on 5 microns particles.
- **KSA** aerosol separators - together with **MFA** filters - only require the *Capture Ray™* neutralization technology to be used for medium to small grease particles, grease vapors, and VOCs.
- The *Capture Ray™* technology keeps the exhaust plenums and ductwork virtually free of grease deposits. The ductwork cleaning operations are cut down to the minimum legal frequency (if applicable) or to the strict minimum, leading to important savings.
- Hygiene and fire safety levels of the extract circuit are moreover kept at an optimum level.
- The *Capture Ray™* technology also significantly reduces the odors discharged outdoor and thus lowers the kitchens' environmental impact on the neighborhood and the risk of complaints or legal action.
- The **UV On Demand** option activates the lamps only when cooking appliances are actually used. It saves up to one lamps-set where other UV systems require two.

## Other features and benefits

- Construction compliant with NF EN 16282-2 (5).
- Minimum space used. Integrated self-supporting structure.
- Integrated fan for the *Capture Jet™* technology. No additional duct is required.
- Capture Jets are automatically switched off when the hood is not used or operates at a minimum airflow.
- The side Capture Jets allow for a large opening on both sides for the passing of the fries baskets.
- Total access security to UV-C lamps that includes the detection of each filter presence.
- Advanced 24/7 distant monitoring capabilities thanks to **Halton Connect** IoT (Internet of Things) platform.

- Highest value of ownership thanks to **Halton Connect & Care** smart services available as an option from kitchens commissioning.
  - **Halton Skyline** (HCL) LED culinary light provides the best visual comfort while contributing to further improve safety and energy savings.
  - When extended to the whole kitchen and surrounding areas, the Human Centric version of **Halton Skyline** (HCL) directly contributes to chefs' and their teams wellbeing.
  - Exhaust airflow rates are determined using an EN 16282-1 based calculation method, which takes into account the loads of the cooking or dishwashing equipment, the makeup air strategy, the configuration of the hoods or ventilated ceilings, and their capture and containment efficiency.
  - Capture and containment efficiency tested in accordance with the ASTM 1704 standard.
  - Optional flat pack delivery to make transportation and handling easier, while remaining easy and quick to assemble on site.
  - Services distribution on the back of the hood equipped with the electric plugs for the cooking appliances.
  - Quick and easy commissioning. Hoods delivered "ready to install", with all accessories included, such as light fitting, T.A.B.™ airflow measurement taps, and dampers for quick balancing on-site.
  - Sturdier and easier to clean (less parts and fewer joints). Stainless steel construction.
- (1) LEED - Leadership in Energy and Environmental Design (2) BREEAM - Building Research Establishment Environmental Assessment Method (3) DGNB - German Sustainable Building Council (4) RE2020 - French Environmental Regulation 2020 (5) NF EN 16282-2 Equipment for commercial kitchens - Components for ventilation in commercial kitchens - Part 2 : kitchen ventilation hoods - Design and safety requirements (6) HACCP - Hazard Analysis Critical Control Point



## Capture Jet™ technology

◦ High capture efficiency ◦ Energy savings



The *Capture Jet™* technology enables significant reductions in airflow rates leading to savings on construction costs, mainly due to the reduced size of ducts and HVAC equipment. It typically pays for itself upon the startup of the kitchen or within few months. The energy savings it generates then directly contribute to an increase in profitability, while the staff benefits from improved working conditions.

### Benefits

- The *Capture Jet™* technology allows for up to a 48% reduction in exhaust airflow rates.
- No specific duct required for the Capture Jets. In addition to the reduction of the ducts and HVAC systems size, it reduces installation cost and the CapEx.
- It generates important energy savings on cooling/heating the makeup air (less air out, less air in!).
- The reduction of the draft risk and noise levels improves the working conditions for the staff.

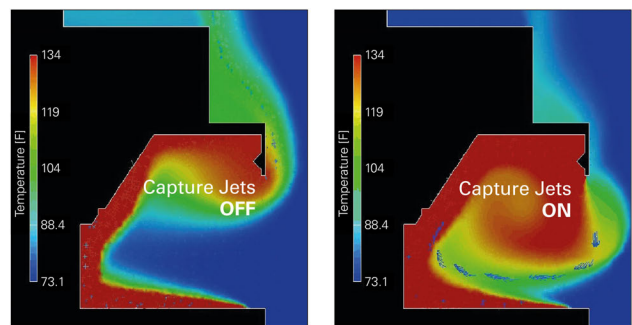
### How does it work?

The Capture Jet™ technology is based on the use of one or several sets of aerodynamic nozzles, supplied with an extremely low airflow.

These nozzles form one or several air curtains. Carefully located and oriented, they prevent the grease, steam, smoke and heat etc. released by the cooking appliances from escaping and orient them toward the filters. It is this capture efficiency improvement that enables the ventilation volumes.

USR-F hoods are equipped with single nozzles on the front, combined with single side jets.

USR hoods are installed closer to the cooking appliances; The smoke, steam, and heat released are then captured more efficiently. The *Capture Jets* combined with a capture "at closest from the source" reduce the exhaust airflow rates to the lowest possible level.



Digital simulation on Capture Jets' efficiency. With Jets ON, the heat, smoke and steam do not escape from the hood containment volume.



## KSA aerosol separator

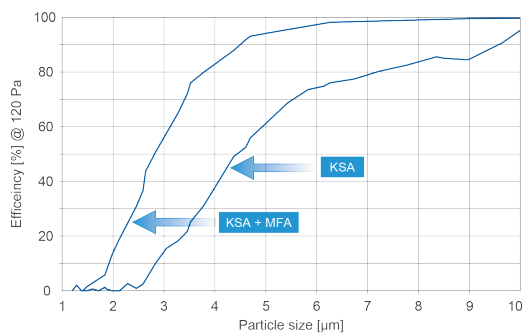
◦ Cyclonic effect ◦ Reduced cleaning costs ◦ Improved safety



KSA cyclonic aerosol separators efficiency limits grease and particles deposition inside the exhaust plenums of Halton's hood and ventilated ceilings and in the ductwork. They are a cost effective solution to reduce the duct cleaning costs while directly contributing to a better hygiene and fire safety.

### Benefits

- KSA cyclonic aerosol separators constructed of stainless steel in compliance with EN 16282-6. Up to 95% efficient on 10 microns particles or larger with a reasonable pressure loss of 120 Pa.
- KSA separators' flame-behaviour also complies with UL 1046 and LPS 1263 standards. They also have NSF (National Sanitation Foundation) hygienic and safe approval.



Tests on KSA aerosol separators' efficiency carried out on a Halton hood exhaust plenum by VTT laboratory, according to VDI 2052 (part 1). Efficiency tests on the combination KSA+MFA made in a Halton R&D laboratory with similar conditions.

- Improved hygiene and fire safety thanks to fewer grease deposits in the ducts.
- Lower maintenance costs due to reduced cleaning frequency.
- Reduced noise levels and fans' energy consumption thanks to the low pressure loss compared to baffle filters.
- Improves the performance of UV-C Capture Ray™ technology due to its high extraction rate.

### How does it work?

KSA cyclonic filters are composed of vertical honeycomb profiles, opened only at top and bottom part. This design forces the air to swirl in a similar way as a cyclone when the air goes up and down inside to escape.

The centrifugal effect is impactful, and continuous – a mechanism that traditional baffle filters do not have. Particles are thus projected against the honeycomb walls, resulting in better separation performance.

KSA Aerosol Separators are essential for Capture Ray™ hoods and ventilated ceilings, so that UV-C lamps only have to deal with the small to medium sized particles.



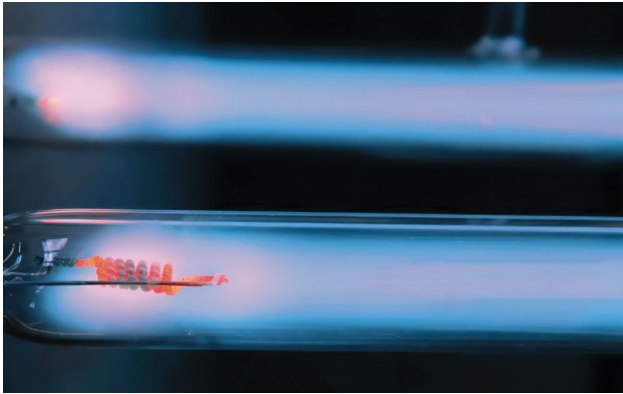
Visualization of the cyclonic effect inside the KSA aerosol separator's profiles (Schlieren test).





## Capture Ray™ technology

◦ UV-C grease and odors neutralization



The *Capture Ray™* technology neutralizes the small grease particles, the grease vapors and a portion of the VOCs that can't be removed by any primary mechanical filtration. It truly represents a unique ensemble of benefits, from savings on cleaning costs to optimal hygiene and fire safety levels, through to lower kitchens' environmental impact on the neighborhood.

### Benefits

- The *Capture Ray™* technology keeps the exhaust plenums and ductwork virtually free of grease deposits. The ductwork cleaning operations are cut down to the minimum legal frequency (if applicable) or to the strict minimum, leading to important savings.
- Hygiene and fire safety levels of the extract circuit are moreover kept at an optimum level.
- The *Capture Ray™* technology also significantly reduces the odors discharged outdoor and thus lowers the kitchens' environmental impact on the neighborhood and the risk of complaints or legal action.
- An asset to establish a restaurant in dense urban sites i.e. in previously unfeasible locations or where they represent the highest turnover potential.
- When combined with PolluStop, airborne cooking odours will be minimized to a point that the ductwork can then follow the most direct and cost-effective route to outside, even at street level.
- It allows for the elimination of unsightly external or bulky internal vertical duct risers. It reduces the installation costs and increases the leasable space and corresponding revenues.
- The Capture Ray™ technology also allows for efficient heat recovery, sustainable over time.

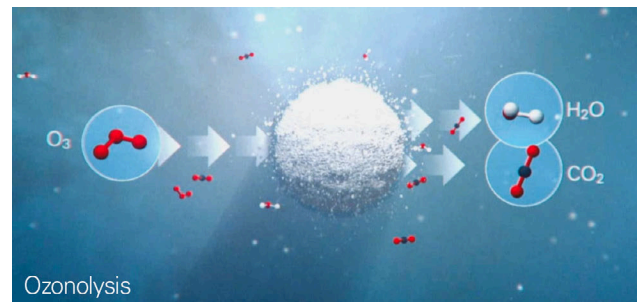
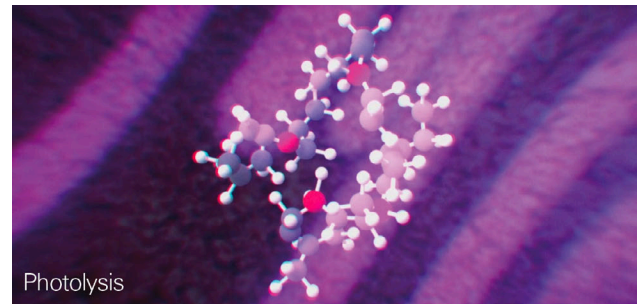
### How does it work?

Capture Ray™ technology is based on the use of UV-C lamps. The Neutralisation of grease particles and vapors depend on two simultaneous reactions.

Photolysis is the direct effect of UV-C radiation. It works by photodecomposition whereby grease molecules are broken down by photons.

Ozonolysis is the oxidation of the molecule fragments by the ozone generated by the lamps. The final products of this reaction are water, carbon dioxide, and an inert residue from a polymerization-like reaction. Since ozone is a gas, it is carried with the airflow, allowing oxidation to continue in the extract ductwork.

The UV-C lamps also neutralizes a portion of the VOCs, the second odor propagation vehicle with grease.



View inside an exhaust plenum fitted with UV-C lamps after several weeks of use



## UV on demand technology (option)

- UV Lamps life time increase



Halton developed a technology that monitors, in real time, the cooking appliances activity, thus activating the UV lamps only when it is strictly required.

### Benefits

- Up to one in two sets of UV-C lamps saved.
- Saves on both the maintenance costs and the energy consumption.

### How does it work?

Halton has developed an advanced Thermal Imaging sensor (HTI) to scan the surface of the cooking appliances, to determine whether the appliances are off, on but idling or in cooking mode.

In the heart of *M.A.R.V.E.L.* airflow and energy optimization technology, HTI sensor is also in the heart of Halton's "On Demand" technology whose objective is to place sustainability to the forefront. They are then generally used to save energy, water and also on maintenance costs.

The "UV On Demand" technology enables activating the UV lamps only in cooking mode and not continuously, as soon as the fan is switched on. This is a safe and responsible approach that enables delaying the UV-C lamps replacement. It significantly reduces the maintenance costs while also saving energy.

When UV hoods or ventilated ceilings are also equipped with *M.A.R.V.E.L.*, the "On Demand" option becomes standard.

One in two sets of UV-C lamps saved and 635€ electricity savings a year on only two hoods installed in a restaurant, central London.



- The restaurant is equipped with two UV Capture Ray™ hoods (6 UV lamps each) and a PolluStop exhaust air handling unit. It opens 88 hours a week.

- The cooking block comprises two griddles, 2 fryers and a fry scuttle for a total electric power of 50 kW. The cooking appliances operate 92 hours a week. The UV lamps of a traditional system are on while the main fan is running – 92 hours per week too.
- Over 4 weeks monitoring, the UV on Demand technology reduced the number of operational hours of the lamps by an average of 44% (up to 50% depending on cooking appliances use). In other words, and compared to the maintenance cost of the traditional systems, it saves up to one UV lamps replacement out of two.
- The electricity consumption of the lamps was reduced by 47 kWh per week which represents 635 € a year (0,26€/kWh).

# Halton Skyline

◦ Culinary and Human Centric light



Halton Skyline is the first LED lighting technology specifically developed for the needs of commercial kitchens, starting with staff's comfort. The light it provides is the closest possible to natural light thus offering many tangible benefits.

## How does it work?

Halton Skyline is based on the use of two types of light sources, both equipped with the latest generation of highly efficient LEDs.

A broad beam spot (4000K - CRI of 83) - It is designed to provide a uniform and bright general lighting. For the most advanced Human Centric version, it is equipped with two sets of LEDs to make the color temperature varying from 2200 to 6500K. This enables creating daylight-similar sequences to offer lighting conditions that are Circadian rhythm-friendly, with

recognized biological and psychological benefits for the staff.

A focussed beam spot (2800K - CRI of 95) - It is used to further improve the lighting level and the color render of the food in strategic locations, above cutting machines or griddles for instance, or even the plating presentation area.

Halton Capture Jet™ hoods' light fittings are equipped with Halton Skyline broad beam spots (4000K colour temperature).

## Benefits

- Very good illuminance levels and uniform light, with a good balance between the direct and diffuse components.
- Remarkably respects the natural food color and texture.
- Improved safety and best visual comfort, without alteration over time.
- Consumes up to 2,8 times less than fluorescent tubes while having a luminous efficacy of 120 lm/W.
- 50,000 hours lifetime for both the LEDs and the drivers.
- Saves the replacement of up to 125% of the fluorescent tubes, adding significant maintenance savings to the energy savings.

Integrated in Halton's suspended metal ceilings or thanks to standalone modules, Halton Skyline can be extended to the whole kitchen and beyond. It then opens the way to the most advanced and Human Centric lighting global solution.







## Halton FireWatch

◦ Enhanced fire prevention ◦ Part of Halton SafeGuard



Halton FireWatch adds a prevention level to Fire Suppression Systems by detecting conditions favorable to a cooking fire before extinguishing is triggered. Get peace of mind on your fire safety.

### How does it work?

Halton Fire Watch is based on **Halton's Thermal Imaging Sensor** that continually monitors the surface temperature of the cooking appliances for abnormalities that are a precursor to a fire event.

When a risk is detected, Halton's touchscreen (combined with optional visual or audible alarm) alerts the kitchen staff to conditions that increase the likelihood of a fire. It recommends the actions before it breaks out and the fire suppression system

triggers. The system can go till switching off the cooking appliances' power supply.

### Benefits

- Mitigates false fire system trips.
- Allows for intervention to reduce risk of fire starting.
- Avoid costly shut down and revenue loss from fire system discharge.
- Potential for insurance premium reduction.
- Cloud based data for insurance companies.
- Monitoring and data back-up services, free for the 1<sup>st</sup> year of use.
- Fully remotely customizable system to fit your needs when paired with Halton Connect.

Halton FireWatch is part of M.A.R.V.E.L., UV On Demand and Cold Mist On Demand technologies. It is also available as a standalone solution and can be installed in existing kitchens.

Halton FireWatch is part of **Halton SafeGuard**, the only holistic system that combines Energy Optimization, Indoor Environmental Quality (IEQ), and Safety, all together under one control platform.



**Stage 1 alarm** - A warning is displayed on Halton Touch Screen. It is relayed with light signal and buzzer fitted on the front of the hoods.

**Stage 2 alarm** - If the warning is not acted upon, an alarm is displayed

on the Touch Screen and its buzzer activates in addition to the one fitted on the hood. The fuel source can be automatically shut off.



## Halton Connect®

◦ Advanced IoT platform for commercial kitchens



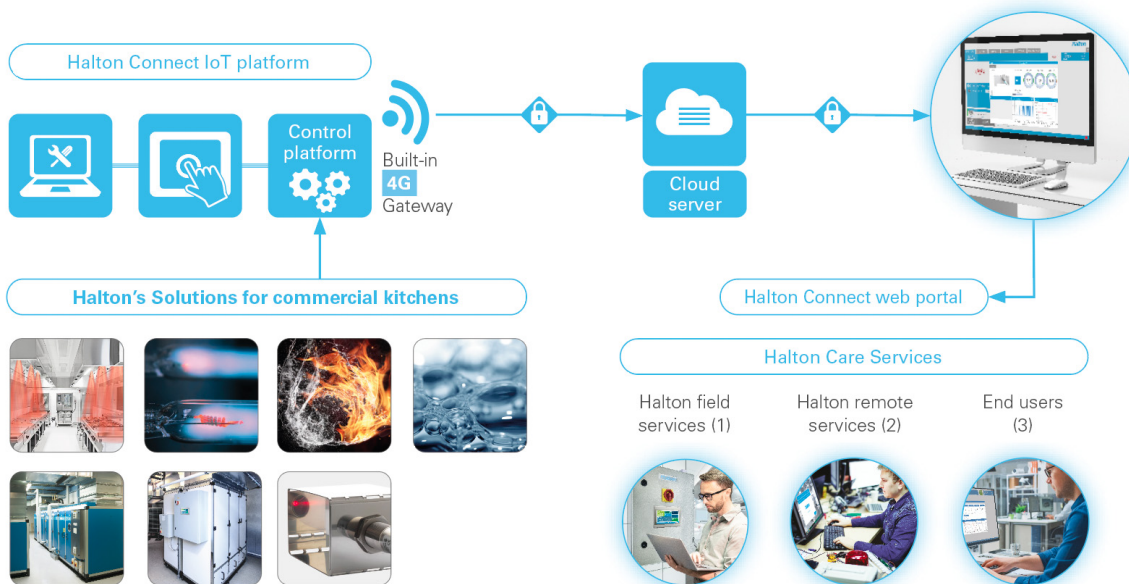
Halton Connect is a state-of-the-art IoT (Internet of Things) platform whose core is an advanced cloud-based portal. It enables 24/7 remote monitoring of the solutions designed by Halton, allowing access to useful information along with powerful data analytics.

Halton Connect enables Halton Care smart services. They directly contribute to the Highest value of ownership and peace of mind for the business owners.

### Benefits

- 24/7 monitoring of Halton's technologies and solutions.

- Access to Halton Connect cloud-based and intuitive web portal included during the warranty period. It provides detailed information about all Halton's connected technologies and solutions.
- Automatic systems' faults notification and editing of simplified automated analytics reports.
- Option for advanced automated data analytics reports (energy savings, water savings, cooking appliances usage depending on the connected technologies etc.).
- Allows deeper analysis by our engineers in order to optimize set points or adjust the equipment utilization. The systems' efficiency can then be kept at design level or even improved during the entire kitchen(s) life cycle.
- Secure as designed to operate as a fully independent system in your building.
- Enables a predictive maintenance based on the data analytics of the systems. Visits are planned depending on the real needs and replacement parts use is optimized.
- Lowest risk of ventilation down time due to a wrong manipulation or equipment fault.
- Option for Software maintenance and update of Halton Connect.



(1) Commissioning, maintenance, call centres, audits etc (2) Troubleshooting, systems optimisation, diagnostic etc (3) Business owners, supervisory, facility management staff etc



## Halton Care (option)

◦ Smart services for commercial kitchens



Halton Care is a Premium Services offer, supported by our qualified field service teams and partners, and whose core is Halton Connect®. They directly contribute to the lowest total cost of ownership and peace of mind.

### Halton Care Smart services for which benefits?

Services are often viewed as an expense. And yet, when ventilation and Indoor Environment Quality (IEQ) technologies are neglected, operating issues are sure to increase, costing even more, especially for commercial kitchens.

With Halton Care smart services, Halton solutions are maintained properly with savings on many aspects of kitchens operating, thus reducing the cost overall!

- Reduced energy and spare parts use.
- Reduced cleaning costs.
- Prevent hidden and irreversible damage of equipment.
- Reduce sick leaves of the staff.
- Eliminate complaints from the neighbourhood.
- No lost revenue due to down time.
- Increase hygiene and reduce fire risks etc.

Halton Connect web portal provides our service teams and engineers vital information enabling smart predictive maintenance. They can even optimize the operation of your systems by adjusting setting points or providing

recommendations to the kitchen staff such as equipment utilisation for even more benefits:

- Additional reduction of the energy and spare parts use.
- Visits are planned depending on the real needs and replacement parts use is optimized.
- Better view on the competitiveness through predictive costing.

### Who better than Halton for Halton products?

Our service teams have close relationships with the end users, our R&D engineers as well as our manufacturing and installation teams. This intimacy enables Halton to continually improve our solutions and technologies to make them more efficient but also user and maintenance-friendly.

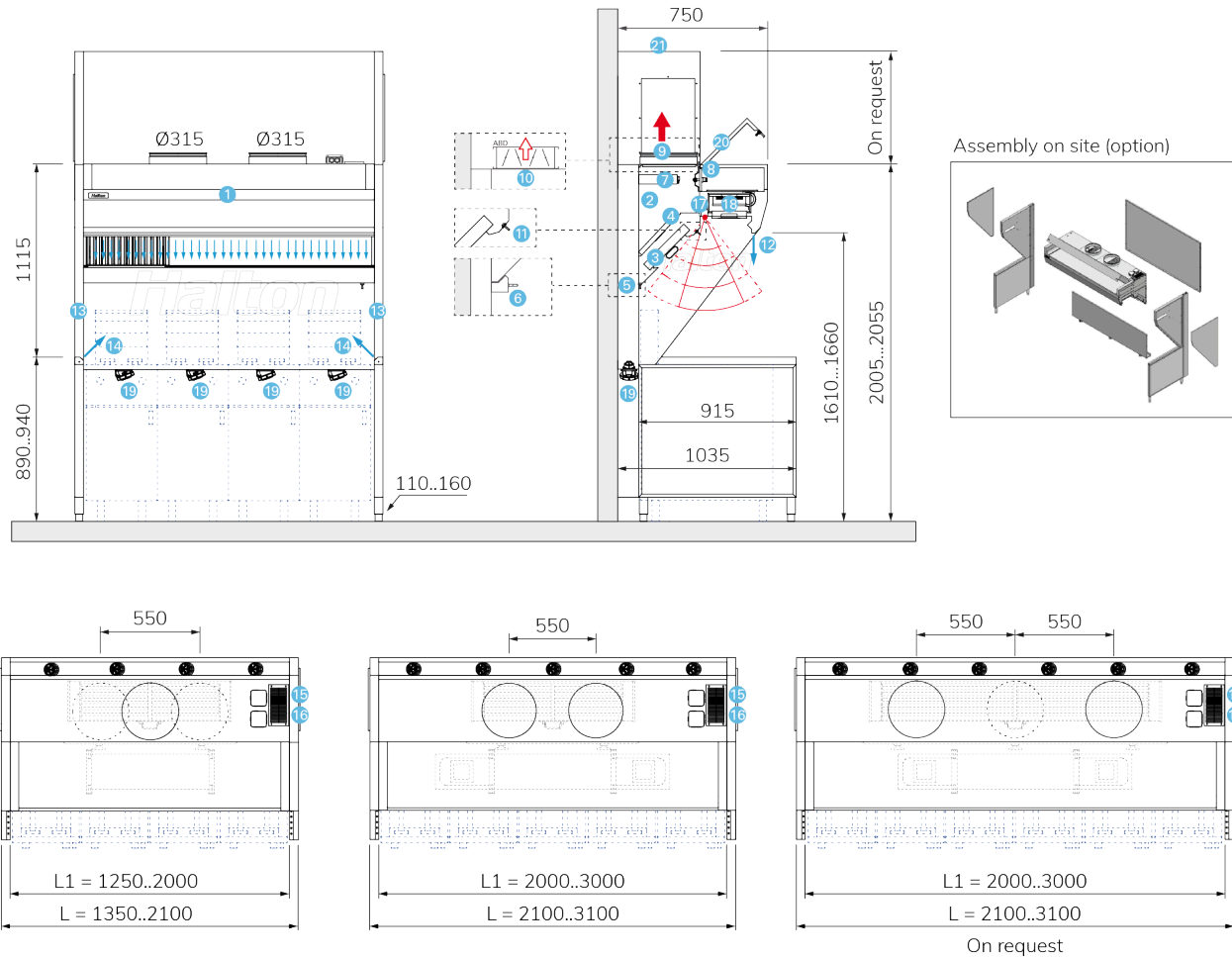
### Less onsite interventions also means less human contact on site



Halton Care smart services enables fixing most of the system faults reported remotely, by a simple call to advise the kitchen team what actions to take or by upgrading the controllers' settings or software.

All that remains are interventions for consumables and other spares replacement and general maintenance. Peace of mind at all respects.

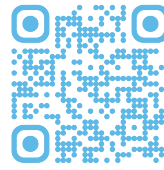
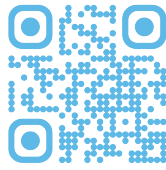
## Construction and dimensions




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| <ol style="list-style-type: none"> <li>1. Visible outer envelope in stainless steel AISI 304 (1,0 mm).</li> <li>2. Exhaust plenum.</li> <li>3. KSA aerosol separators.</li> <li>4. MFA filters as second filtration stage.</li> <li>5. Condensates drain.</li> <li>6. Collection tray as an option.</li> <li>7. UV-C lamps rack mounted on runners for an easy removal.</li> <li>8. UV access hatch for a quick access to the UV lamps for cleaning.</li> <li>9. Exhaust connection(s) and sliding damper(s).</li> <li>10. When the kitchen is equipped with M.A.R.V.E.L. airflow and energy optimization technology (MRV), the sliding damper is replaced by ABD automated balancing slim damper.</li> <li>11. T.A.B.™ (Testing And Balancing) pressure port(s) for quick airflow calculation during ductwork balancing operations.</li> </ol> | <ol style="list-style-type: none"> <li>12. Front Capture Jet™ nozzles.</li> <li>13. Double skin sides.</li> <li>14. Side Capture Jet™ nozzles.</li> <li>15. Integrated Capture Jet™ fan.</li> <li>16. Capture Jet™ fan air inlet.</li> <li>17. Halton Thermal Imaging sensor (used for the optional M.A.R.V.E.L., UV on Demand or FireWatch technologies).</li> <li>18. Halton Skyline LED culinary LED light fitting integrated on a flush-mounted access hatch.</li> <li>19. Services distribution module equipped with electric plugs.</li> <li>20. Maintenance access hatch.</li> <li>21. [Option] stainless steel cover board with access hatches.</li> </ol> |
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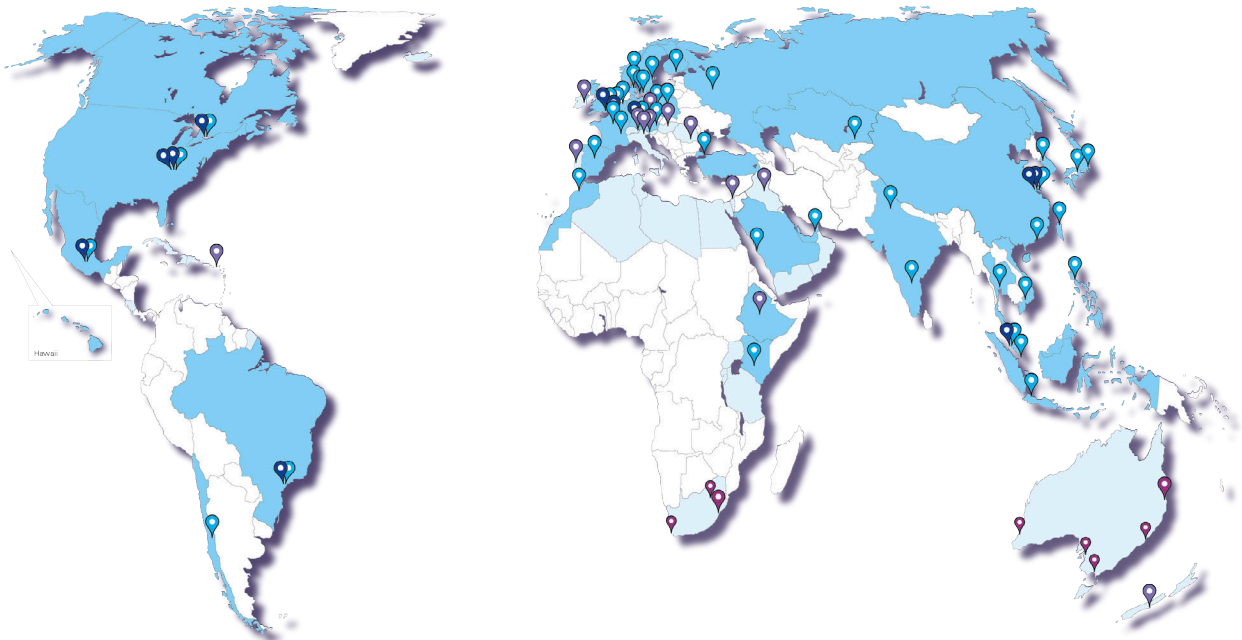
## Halton Manufacturing and Sales Facilities in the world

 Sales and service centers

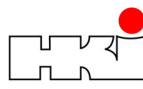
 Representatives

 Factories

 Manufacturing licences



## Halton Foodservice partnerships



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