MRB

Water-wash control cabinet

20/MRB/xxxx/0306/EN

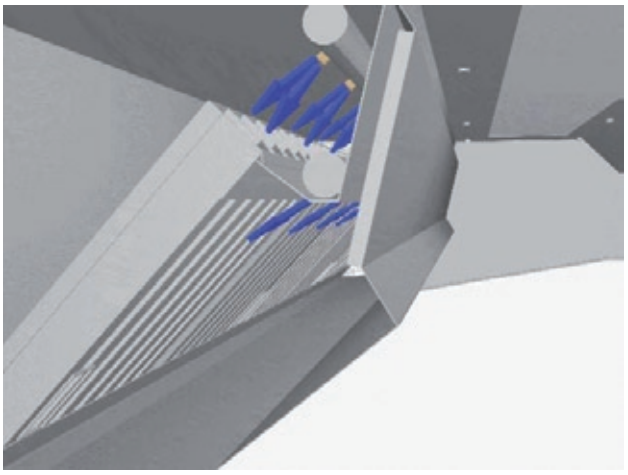
Introduction

Control Cabinet model MRB houses the necessary plumbing and electrical components to operate the washing cycles automatically or manually. It should be used in combination with all Halton Water Wash hoods (KWX, KWI and KWF), or with Halton water-wash ventilated ceiling KCW.

Hot water (55°C to 75°C) is mixed automatically with detergent and distributed to the hoods under pressure thanks to a stainless booster pump in order to clean the grease filters and exhaust chamber of the hood automatically.

When the wash sequence starts, the exhaust fan shuts off automatically and the wash cycle for the first group of hoods or ceiling exhaust modules begins. At the end of the first wash cycle, the wash for the second group begins. This sequence would continue for each additional wash group for up to six groups.

The MRB control cabinet offers the possibility to be interlocked with a fire protection system and automatically spray water in the hoods in case of fire.



Operation principles

The hood that is positioned above the cooking equipment will collect the rising airflow and impurities. The captured air will be directed towards the exhaust extractors for extraction and removal. The extractors have a honeycomb design to enable high grease filtration efficiency due to a centrifugal effect inside the honeycomb. Water and detergent mixture will remove the grease from the filter.
These operations can be conducted by automatically or manually.

Standard dimension

1050 (W) X 800 (H) X 300 (D) mm

Location

It is recommended to locate the Control Cabinet in the kitchen area for easy access.

Technical requirements

Technical Requirements for KWI/KWF/KWC can be divided into 3 main categories:-
a) Hot Water Requirement
b) Electrical Requirement
c) Plumbing Requirement

a) Hot Water Requirements
Temperature: 55° c min ~ 75° c max
Flow Pressure: 3 to 6 bars
Average Water Consumption:35 liters/m/day with average pressure of 4kg/f
Average Detergent Consumption: 0.3 liters/ wash
Typical cycle wash: 3 ~ 6 minutes.

b) Electrical Requirements
Voltage: 230-240 Volts
Phase: Single Phase
Current: 20A

c) Plumbing Requirements
Incoming water supply: Ø 22mm copper pipe
Outlet: Ø 22mm copper pipe

Type of MRB required

Lineal meter of hoods	Type
1 to 5	MRB-1
6 to 10	MRB-2
11 to 15	MRB-3
16 to 20	MRB-4
21 to 25	MRB-5
25 to 30	MRB-6

If there are two or more groups of hoods, working independently with their own exhaust fan at different working hours, it's recommended to use several control cabinets MRB instead of one.

Sequence of washing cycle

The washing process consists of 3 phases:
1. Washing Phase.
2. Waiting Phase.
3. Flushing Phase.

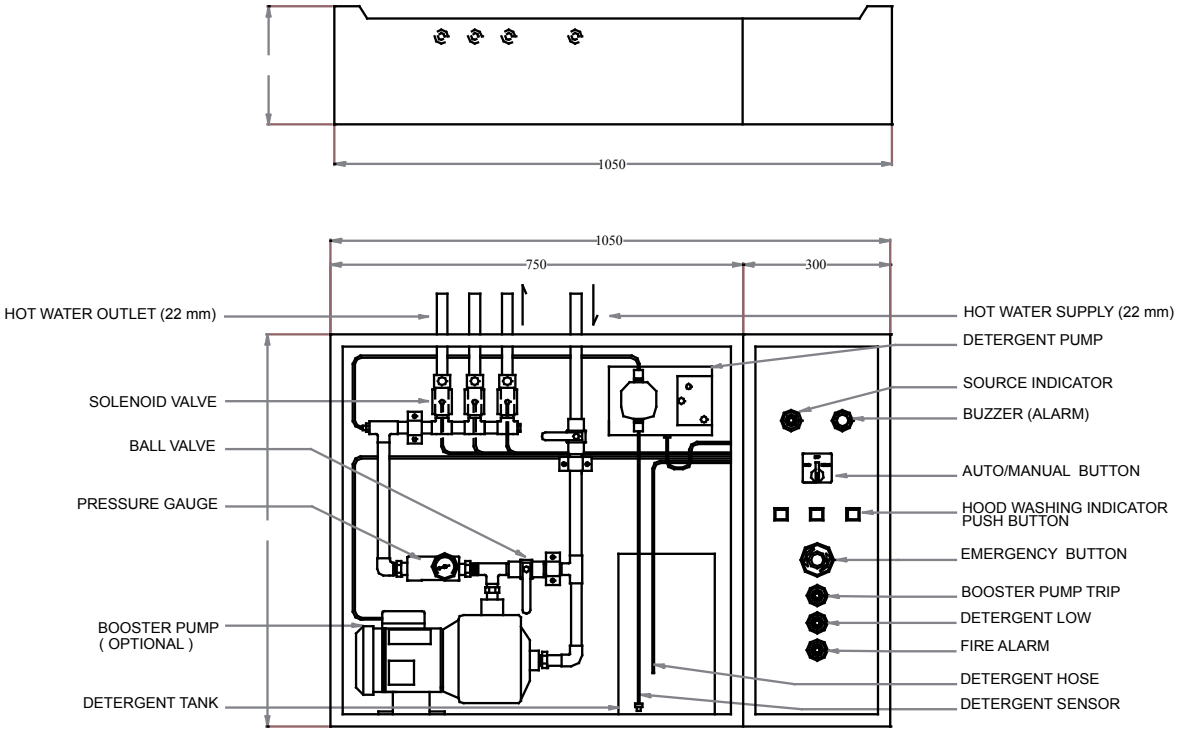
1. WASHING PHASE
- Washing process activated
- System waits for 60 sec
- Booster pump starts (start spraying with hot water).
- Detergent pump starts after 10 sec (detergent mix with hot water).
- Detergent pump stops
- Booster pump stops after 15 sec.

2. WAITING PHASE
- System waits

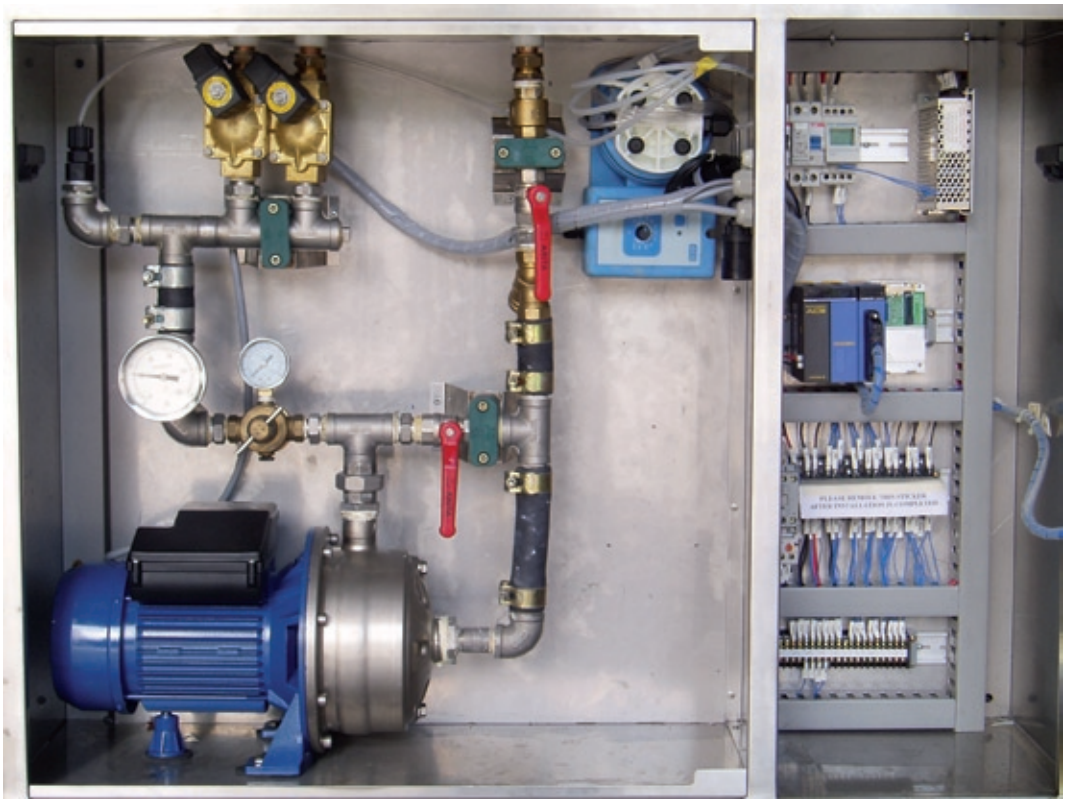
3. FLUSHING PHASE
- Booster pump starts again.
- Booster pump stops.

These 3 processes will run from one hood to another if more than one hood have been selected manually under MANUAL Mode and all the hoods which are controlled by the control panel under AUTO mode.

Construction details



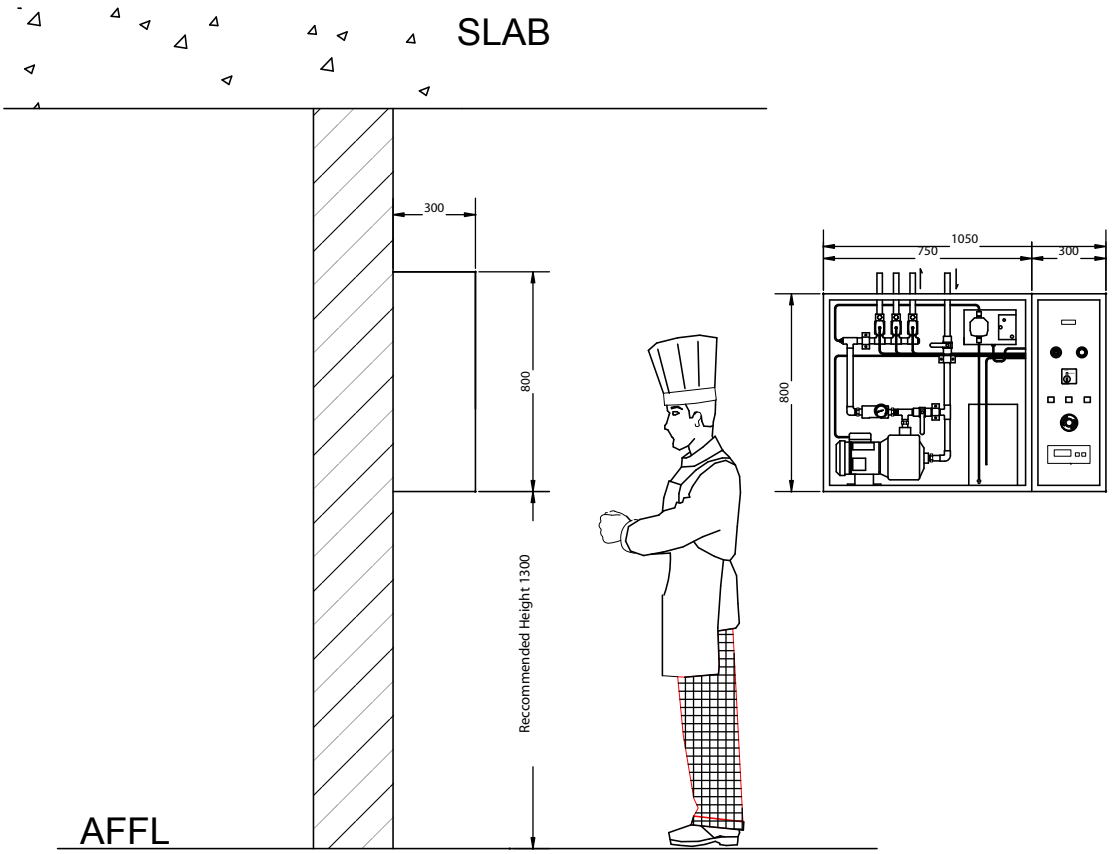
Two separate compartiments



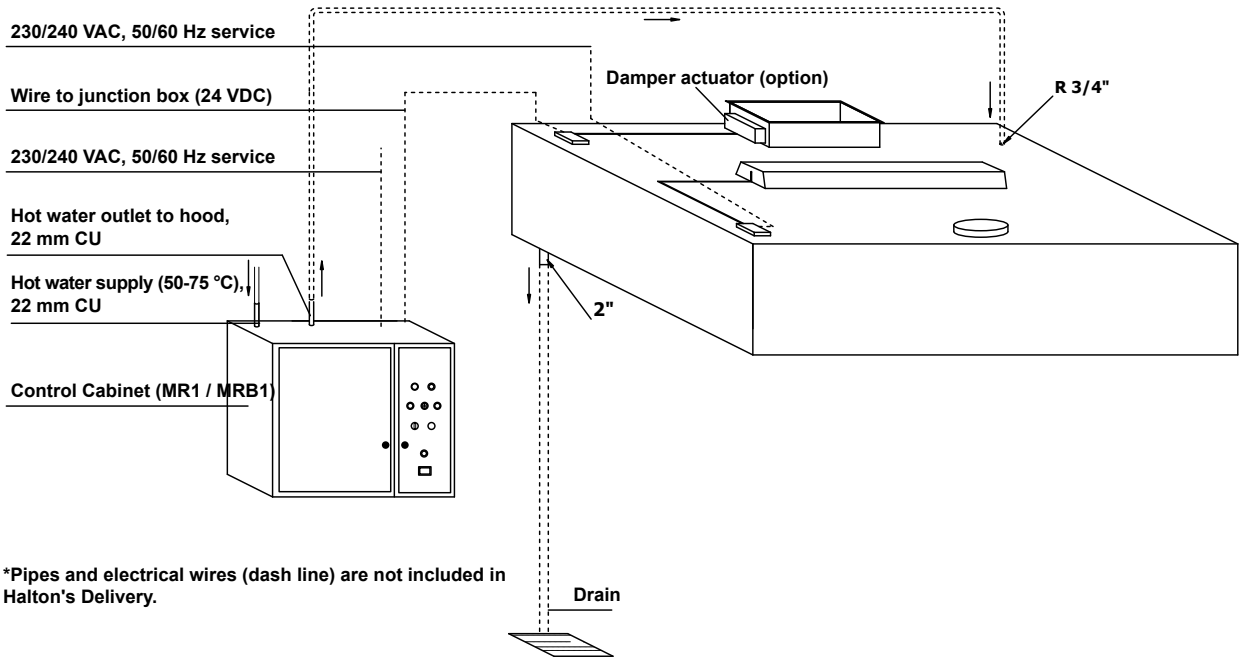
Plumbing compartment

Electrical compartment

Installation height



Piping and electrical connections



*Pipes and electrical wires (dash line) are not included in Halton's Delivery.

Electrical wiring

DAMPER: when optional actuator is used to close and open automatically the exhaust damper in case of fire or during the washing cycle . (Washing cycle ON or Fire detected, Damper close, contact energized).

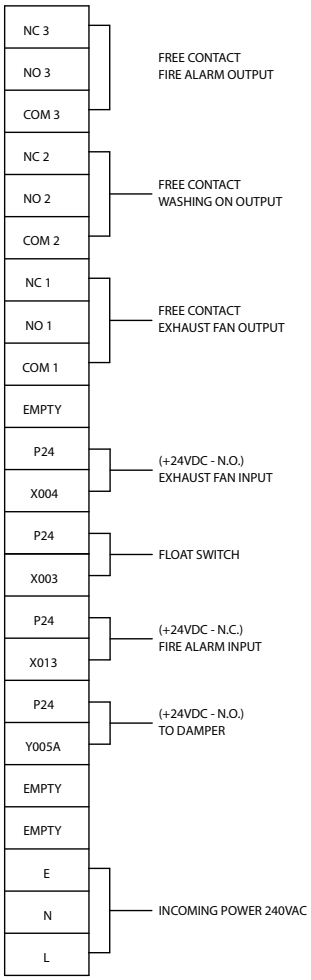
FIRE ALARM INPUT: from optional external fire Suppression/detection system (optional temperature sensor installed in the hood exhaust collar, Ansul, Main Fire Protection System, …).

EXHAUST FAN INPUT (NO): from Fan Control Panel to inform exhaust fan ON/OFF status. To be sure exhaust fan is OFF before washing cycle starts.

EXHAUST FAN OUTPUT (NO/NC): remote overriding for exhaust ON/OFF. Exhaust fan must be OFF when washing cycle is ON.

WASHING ON OUTPUT (NO/NC): for optional external washing monitoring.

FIRE ALARM OUTPUT: for external Fire Protection Central panel.



Washing modes

Halton MRB water-wash hood control panel is a user-friendly tool, which is very simple and easy to handle. It has two modes of operation sequence: Automatic Mode and Manual Mode.

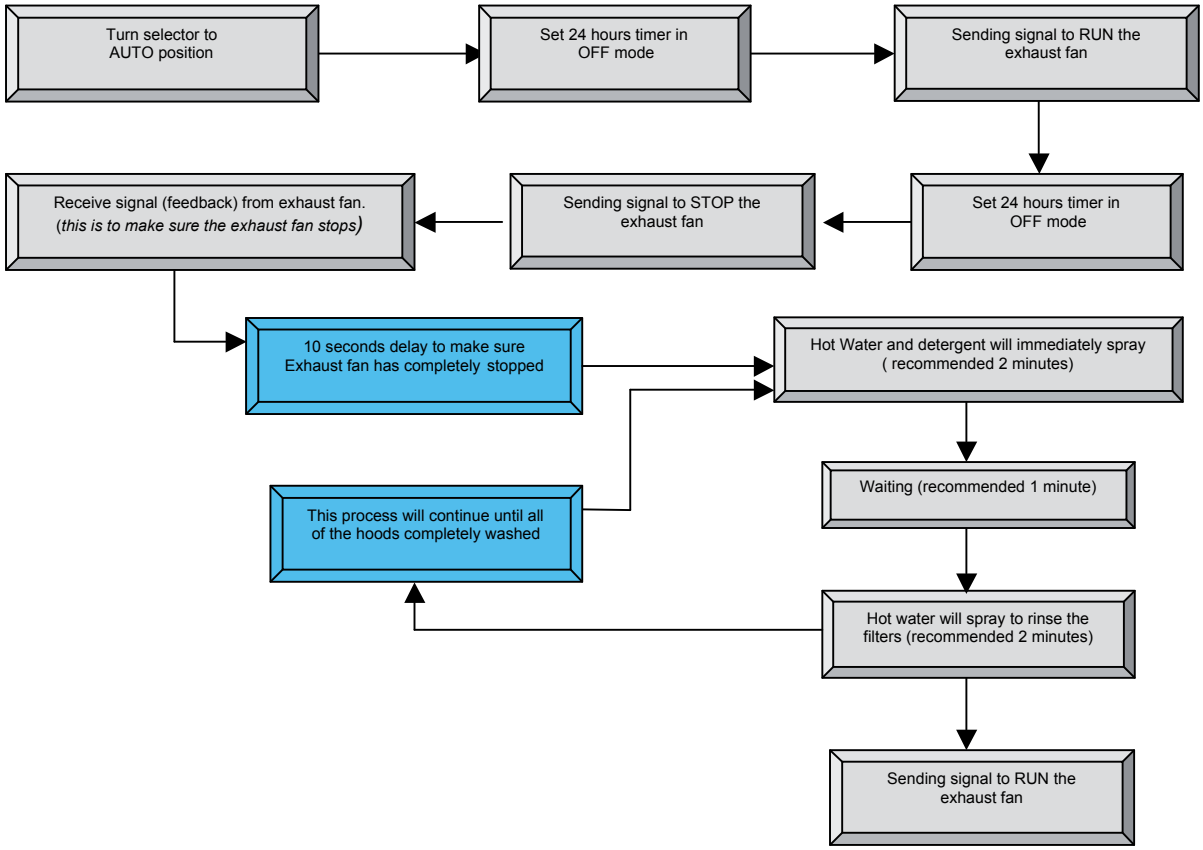
AUTOMATIC MODE

In Automatic Mode, the entire system will run automatically and it is controlled by 24 hours Digital Timer. This timer has a setting of 7 days and each day has a 3 different settings respectively. Please refer to the DIGITAL TIMER INSTRUCTION OPERATION AND PROGRAMMING. This timer is equipped with 100 hours of backup battery supply. It can operate for approximately 100 hours without power voltage.

STEP BY STEP OPERATION GUIDE FOR AUTO MODE

1. Open the main panel door.
2. Fill the tank with detergent and make sure the detergent sensor and hole are secured into their position. If there is enough detergent, skip this step.
3. Power ON the system.
4. Set the desired wash time (must be during non-operating hours) at the 24 Hrs Timer (refer to timer user manual settings).
5. Close the main door and turn the Control Switch to Auto position.
6. Once the timer is activated in accordance to the time setting, the washing process will start automatically.
7. The system stops after the washing process is finished.
8. The system will wash again on the next activation by the timer.
9. To interrupt the washing process, press the emergency stop button. When the emergency button is reset, washing will be restarted.

Auto mode process flow chart



Auto mode sytem sequence detail

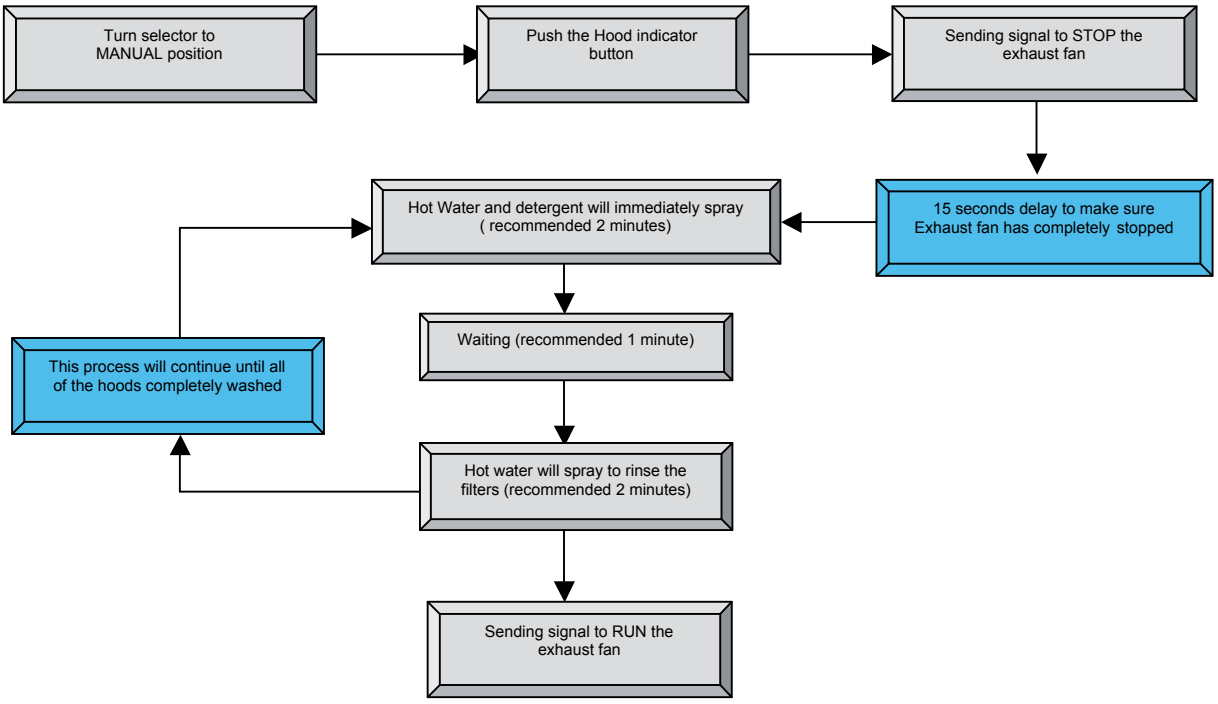
1. System will run in AUTO mode when a pulse is send from the 24 hours timer (If AUTO mode selected).
2. System will turn off the exhaust fan (through the interlock with exhaust fan control panel).
3. System will wait for the exhaust fan OFF feedback signal
4. System will wait for 10 seconds before the sequence starts to make sure the exhaust fan has completely stopped.
5. System starts the sequence, step 1 is washing (hot water + detergent) for 2 minutes.
Booster pump, detergent pump, first hood valve & washing indicators will be ON.
6. Step 2: waiting time (1 minute) for detergent to act on grease.
Only washing ON signal will be ON.
7. Step 3: spraying (2 minutes).
Booster pump, detergent pump, hood valve & washing indicators will be ON
8. Step 1 to 3 will repeat for all hoods (valves) connected to the control panel. Each complete sequence is for one valve.
9. During washing process, when emergency stop button is activated or any alarm (booster trip, detergent low or fire alarm) occur, washing process will be stopped and respective alarm indication will be shown. When the system normalized automatically, washing cycle will be restarted automatically.
10. When the system is in Stand By/idle mode, when emergency stop but is activated or any alarm (booster trip, detergent low or fire alarm) occur, respective alarm indication will be shown. The system will be normalized, when the alarm is gone.
11. Washing will not start when any of the hoods ON/OFF push button is pressed during AUTO mode. The hood ON/OFF push button will not be functioning in AUTO mode.
12. During washing process, if there is no alarm occurring, the respective hood ON/OFF button will be blinking slowly. When alarm occurs the hood ON/OFF will be blinking respectively to the type of alarm.

Manual mode

Besides using the Automatic Mode, this panel also can be operated manually. By this way, washing process will be executed manually by the operator at anytime

Step by step operation guide for manual mode

1. Open the main panel door
2. Fill the tank with detergent make sure the detergent sensor and hole are secured into their position. If there is enough detergent in the tank skip step 2.
3. Power the system ON
4. Close the main panel and turn the Control Switch to Manual position.
5. To execute to washing process at anytime, select the hood to be washed by pressing the respective Hood Indicator Button. When two or more hood indicator buttons are pressed, the washing process will restart for another hood after the first hood is finished.
6. The respective indicator button will blink slowly and follow with washing process.
7. To interrupt the washing process, press the emergency stop button. When the emergency button is reset, washing process will restart.
8. The system stops automatically after the washing process is finished.
9. Always turn the control switch back to Auto position. Then, the system will operate in Auto Mode again.



Manual mode sytem sequence detail

1. System will run in MANUAL mode when a hood indicator button is pressed (if MANUAL mode is selected).
2. System will turn off the exhaust fan (through the interlock with exhaust fan control panel).
3. System will wait for the exhaust fan OFF feedback signal
4. System will wait for 10 seconds before the sequence starts to make sure the exhaust fan has completely stopped.
5. System starts the sequence, step 1 is washing (hot water + detergent) for 2 minutes.
Booster pump, detergent pump, first hood valve & washing indicators will be ON.
6. Step 2: waiting time (1 minute) for detergent to act on grease.
Only washing ON signal will be ON.
7. Step 3: spraying (2 minutes).
Booster pump, detergent pump, hood valve & washing indicators will be ON
8. Step 1 to 3 will repeat for all hoods (valves) which Hood indicator button has been pressed. Each complete sequence is for one valve. To wash all hoods connected to this control panel, all hood indicator buttons must be pressed.
9. Upon sequence completed, the exhaust fan starts again.
10. During washing process, when emergency stop button is activated or any alarm (booster trip, detergent low or fire alarm) occur, washing process will be stopped and respective alarm indication will be shown. After the system is normalized automatically, washing cycle will restart automatically.
11. When the system is in Stand By mode, when emergency stop but is activated or any alarm (booster trip, detergent low or fire alarm) occur, respective alarm indication will be shown. The system will be normalized, when the alarm is gone.
12. Washing will not start when any of the hoods ON/OFF push button is pressed during washing mode. Only one hood can be washed at a time.
13. During washing process, if there is no alarm occurring, the respective hood ON/OFF button will be blinking slowly. When alarm occurs the hood ON/OFF will be blinking respectively to the type of alarm.

Specification

For all Halton water-wash hood specified, provide a Halton MRB type water-wash control panel capable of controlling the auto wash down cycle with adjustable timer and low detergent alarm. The panel shall have provisions to be electrically interlocked with the fire alarm system and, in case of fire, to initiate the wash cycle. The panel shall have provisions to be interlocked with the exhaust fan control panel in order to switch OFF automatically the exhaust fan before the washing cycle starts, and put it back ON automatically once the washing cycle is completed.
By default the panel should be equipped with a stainless steel booster pump to guarantee enough water pressure and proper cleaning unless a minimum of 3 t bars of hot water pressure is provided.
The panel shall be of stainless steel AISI 304 (1.0 mm), factory wired and tested, ready for electrical and mechanical circuit connections and separate plumbing and electrical compartments.
Each control panel shall provide a selector switch AUTO/OFF/MANUAL to offer the operator the flexibility to run the washing cycles automatically or manually.
Each control panel shall contain main water supply shut off valve, one to six solenoid valves depending on the model, detergent pump, 24 hours weekly electronic timer, wash time delay, low level detergent alarm, pressure reducing valve, water temperature gauge,

Trouble shooting guide

Problem – Alarm indication	Possible cause(s)	Corrective Action(s)
Detergent low indicator blinking and buzzer beeping slowly	1. Detergent level is low. 2. Float switch is not located on its correct location	1. Open the main panel door and refill the detergent. 1. Properly fix the float switch and the suction tube into the stainless steel holder located at the bottom of the detergent tank.
Booster pump trip indicator is blinking and buzzer is beeping vigorously.	1. Booster pump trip	1. Open the side panel door and reset pump contactor by pressing blue button on the contactor.
Fire alarm indicator is ON and buzzer is beeping continuously.	1. Fire occurs at site	1. Check the site if fire is occurring
System does not run in AUTO mode	1. Time is not set properly 2. Emergency stop button is in action 3. Selector switch not in AUTO position.	1. Set the timer to specific time to run washing process automatically (refer to time user manual for settings). Turn the selector switch to OFF and AUTO again. 2. Reset the emergency stop button. 3. Turn the selector switch to AUTO position. 4. If problem persists, consult the closest Halton agency.
System does not run in MANUAL mode	1. Emergency stop button in action	1. Reset the emergency stop button. 2. If problem persists, consult the closest Halton agency.
System does not power ON	1. No incoming supply (240 VAC). 2. MCB is tripped/not ON	1. Supply 240 VAC for the system incoming supply. 2. Open the side panel door and locate the MCB at the top. 3. Reset ON the MCB. 4. If problem persists, consult Halton closest facility.