

# MUA-DG – Direct fired make-up air unit (ETL)



## Overview

Halton's range of Direct Fired supply-air units is designed to comply with the highest hygiene requirements inside professional kitchens. Whatever it's level, hygiene can rapidly be compromised if a correct balance between supply and exhaust is not maintained at all times and in each area of the kitchen. Halton units provide a high level of air quality inside the kitchen and work "hand-in-hand" with [PolluStop](#) units and Halton's airflow optimization system [M.A.R.V.E.L.](#)



## Features & Benefits

- Meets U.S. and Canadian Standards and Codes
- Listed to ANSI Standard Z83.4/CSA3.7
- Natural Gas
- Gas Supply Pressure: 8 in. w.c./14 in. w.c.
- Maximum External Static Pressure 1.5" w.c.
- Maximum Temperature rise: 100°F
- Maximum Discharge Temperature: 90°F
- Belt Drive, Forward Curve Blower
- Unit Mounted Controls
- Horizontal or down discharge

## Available Options

- Direct Drive, Plenum Fan
- TEFC Blower Motor (Rolled Steel or Cast Iron)
- Intake Hood w/ 2" Alum. Mesh Filters & Bird Screen
- MERV 8 Dust Filters
- Gravity Intake Damper
- Remote DAT (Discharge Air Temp.) or Space Temp. Controls
- Freeze Stat
- Variable Volume (Halton provides VFD)
- Seismic Blower Isolators
- Roof Curb (Optional Insulation & Nailer)
- Uninsulated
- Gas Pressure Gauges
- High and Low Gas Pressure Switches
- Gas Regulator

## Specification

Supply a Halton model MUA-DG- \_\_\_\_\_ non-recirculating direct-fired gas, heat only make-up air unit ETL listed to ANSI Z83.4/CSA 3.7 for indoor and outdoor installation and constant airflow (variable is an option) The unit shall be supplied complete with a Burner and Blower module factory assembled and tested along with components, options, and field installed accessories as follows:

The unit shall deliver \_\_\_\_\_ CFM at \_\_\_\_\_ in. w.c. external static pressure at a discharge air temperature of \_\_\_\_\_ °F. The unit shall have a natural gas input rate of \_\_\_\_\_ Btu/hr.

The unit shall be provided with the controls cabinet on the \_\_\_\_\_ hand side when facing the intake

opening of the unit.

## Burner Module

The Burner Module shall have a 20 ga. G90 galvanized steel exterior shell, 14 ga. G90 galvanized steel base frame, burner supports, and lifting lugs. The module construction shall be suitable for outdoor installation. The Burner Module shall have burner profile plates capable of being adjusted in the field during startup and commissioning to optimize burner performance across the designed airflow rate range. The module shall include an integral controls cabinet with a factory-installed main electrical power disconnect and optional factory-mounted exterior weatherproof junction box for the main power connection. The module shall include removable access doors with hinges and gasket seals to allow access to the controls cabinet and burner.

**Option:** The Burner Module shall have 1" insulation covered with an interior steel shell.

**Option:** The Burner Module shall have a motorized intake air damper with leakage rates complying with ASHRAE 90.1.

## Burner

The Burner shall be a direct-fired two-stage combustion burner constructed of cast aluminum burner sections with stainless steel burner plates and an efficiency of 92%. The Burner shall have a factory-installed direct spark for gas trains up to  $\frac{3}{4}$ " diameter and piloted ignition assembly with a flame rod and a spark rod for gas trains 1" and greater. The Burner shall be factory piped to a direct spark or piloted gas valve train as noted. The gas valve train shall have a modulating temperature control ball valve and test ports for optional factory or field-installed gas pressure gauges and/or gas pressure switches.

## Blower Module

The Blower Module shall have a 20 ga. G90 galvanized steel exterior shell, 14 ga. G90 galvanized steel base frame, blower supports, and lifting lugs. The module construction shall be suitable for outdoor installation. The module shall include at least one removable access door with hinges and gasket seals to allow access to the blower. The module shall have a discharge opening on either the end or bottom of the module.

**Option:** The module shall include a factory mounted junction box on the bottom exterior for the main power connection from the inside of a roof curb.

**Option:** The Blower Module shall have 1" insulation covered with an interior steel shell.

## Blower

The Blower shall be either a belt driven double inlet forward curved centrifugal fan or direct driven backward curved airfoil plenum fan. The Blower shall be AMCA certified, shall be installed on neoprene isolators and shall be powered by a listed or recognized electric ODP or TEFC motor with

rolled steel or cast iron construction.

The Blower for a variable airflow unit shall have a pressure port for measuring air flow rate. The blower motor for a variable airflow unit shall be controlled by either a factory-installed or externally supplied and installed VFD.

**Option:** Blower seismic isolators

## Electrical Power

The unit shall have a single point power connection rated for one of the following voltages: 115/1/60, 208/1/60, 230/1/60, 208/3/60, 230/3/60, 460/3/60, 575/3/60.

## Controls

The unit shall have either a unit mounted means of a call for heat and/or start/stop or connections for a remote mounted call for heat and/or start/stop. The unit shall have an RTC Solutions control system to provide automatic control of the Burner to maintain the desired discharge air temperature. The discharge air temperature shall be set by either unit mounted, remote, or space temperature controller means. Optionally, the unit shall have freeze stat controls.

### Clearance to Combustible Materials

The unit shall be listed for a minimum, without Burner and Blower module insulation, of 0 inches of clearance to combustible materials on the top and bottom of the Burner and Blower modules and a minimum of 1 inch of clearance to combustible materials on the inlet end of the Burner module and discharge end of the Blower module.

## Intake Hood (Optional)

A unit for outdoor installation shall be provided with a factory built intake hood constructed of 20 ga. G90 galvanized steel with birdscreen and removeable, washable 2" aluminum mesh filters.

## Filter Section (Optional)

The unit shall be provided with an inlet Filter section constructed of 20 ga. G90 galvanized steel with replaceable MERV 8 filters.

## Gravity Damper Section (Optional)

The unit shall be provided with a gravity intake damper section constructed of 20 ga. G90 galvanized steel.

## Roof Curb (Optional)

The unit shall be capable of being installed on a factory or field provided roof curb. The factory provided roof curb shall be constructed of 18 ga. aluminized steel with optional insulation and/or wood nailer.

## Paint (Optional)

The Burner module, Blower module, Intake Hood, Filter section, and Gravity Damper section exterior shall be pre-treated and fully powder coated with thermoset polyester paint

## Learn more about make-up air



### How not to ruin a good thing, Make-up Air 101

When replacement air is brought into a kitchen, it needs to be distributed through louvers, vents, diffusers, plenums, etc. It's not good practice and would be another article, to just "dump" the air in the space through a duct with nothing on the end.

[Read more](#)