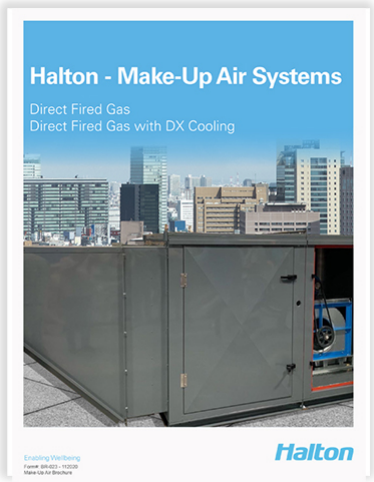
# MUA-DGX – Direct fired make-up air unit with DX cooling (ETL)

## Overview

Halton's range of Direct Fired make-up air units are 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 outdoor air 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.




**View Halton's Make-Up Air Units Brochure**

View Brochure

# Features & Benefits

- Packaged units up to 12.5 tons
- Split systems up to 25 tons
- Commercial-grade Trane condenser unit w/dual compressors (R-410A refrigerant)
- Meets U.S. and Canadian Standards and Codes
- Listed to ANSI Standard Z83.4/CSA 3.7
- 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
- Intake Hood w/ 2” Alum. Mesh Filters, MERV 8 Filters & Bird Screen
- MERV 8 V-bank Dust Filter Module (Indoor Units Only)
- Anti-Corrosion Coating on Coil
- 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)
- Cooling Coil Moisture Eliminator
- Gas Pressure Gauges
- High and Low Gas Pressure Switches
- Gas Regulator (Field Installed)
- Paint

# Specification

Supply a Halton model MUA-DGX- non-recirculating direct fired gas heat with direct expansion cooling 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). DX cooling shall be performed by a Trane commercial-grade condensing unit with dual compressors designed for R-410A refrigerant in either a remote split system configuration with the condensing shipped separatel from the MUA unit for field installation and refrigerant charging or in a packaged unit configuration with the condensing unit factory-installed, charged with R-410A and mounted with the MUA unit shipped as one assembly. Units specified as packaged shall be for outdoor installation only. The MUA unit shall be supplied complete with a Burner, DX Cooling, 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 and a nominal cooling capacity of _____tons.

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 shall have 1" insulation covered with an interior steel shell. 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 an optional factory-mounted exterior weatherproof junction box for the main power connection. The module shall include insulated, removable access doors with hinges and gasket seals to allow access to the controls cabinet and burner.

**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 ¾" 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.

## DX Cooling Module

The DX Cooling Module shall have a 20 ga. G90 galvanized steel exterior shell, 14 ga. G90 galvanized steel base and stainless steel DX cooling coil supports. The module shall have 1" insulation covered with an interior steel shell. The module construction shall be suitable for outdoor installation. The module shall have an integral stainless steel drain pan constructed to meet ASHRAE 62.1 and an external stainless steel condensate drain connection. For units specified as a remote split system, the DX Cooling Module shall have grommeted openings for field installed refrigerant piping. The module shall include insulated, removable access doors with hinges and gasket seals to allow access for field installation of refrigerant piping and service and maintenance of the DX cooling coil and refrigeration system components.

## DX Cooling Components

The DX Cooling Module shall include a DX cooling coil of finned tube construction with copper tubes, aluminum fins, galvanized steel frame and brazed type connections. The DX cooling coil shall have counter flow circuiting and coils with multiple distributors and headers shall also have interlaced circuiting.
For units specified as remote split systems, the DX cooling coil shall be shipped charged with dry nitrogen. Expansion valves, sight glasses and filter-driers shall be factory provided. When necessary, a moisture eliminator shall be provided on the DX cooling coil face to prevent condensate carry-over past the drain pan. For units specified as packaged, all factory installed refrigerant piping shall be structurally supported and all suctions lines insulated.

## 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 shall have 1" insulation covered with an interior steel shell. The module construction shall be suitable for outdoor installation. The module shall include at least one removable, insulated 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 main power connection from the inside of a roof curb.

## 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 airflow 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 call for heat and cooling and/or start/stop or connections for a remote mounted call for heat and cooling and/or start/stop. For heating, the unit shall have an RTC Solutions control system to provide automatic control of the Burner to maintain

the desired discharge air temperature set by either unit mounted, remote, or space temperature controller means. For cooling, the unit shall have a Halton control system to provide automatic control of the condensing unit compressors to maintain the desired discharge air temperature. Also, the cooling control system shall provide automatic evaporator freeze protection and compressor protection.

Optionally, the unit shall have gas heat 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.

## 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 and optional replaceable MERV 8 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 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