



**Модульные стелажные камеры нагрева
воздуховодов**

Руководство по эксплуатации



ANSI Z83.8 (2009) - CSA 2.6M (2009) – Газовые камеры нагрева воздуховодов

Модульная стелажная камера нагрева воздуховода

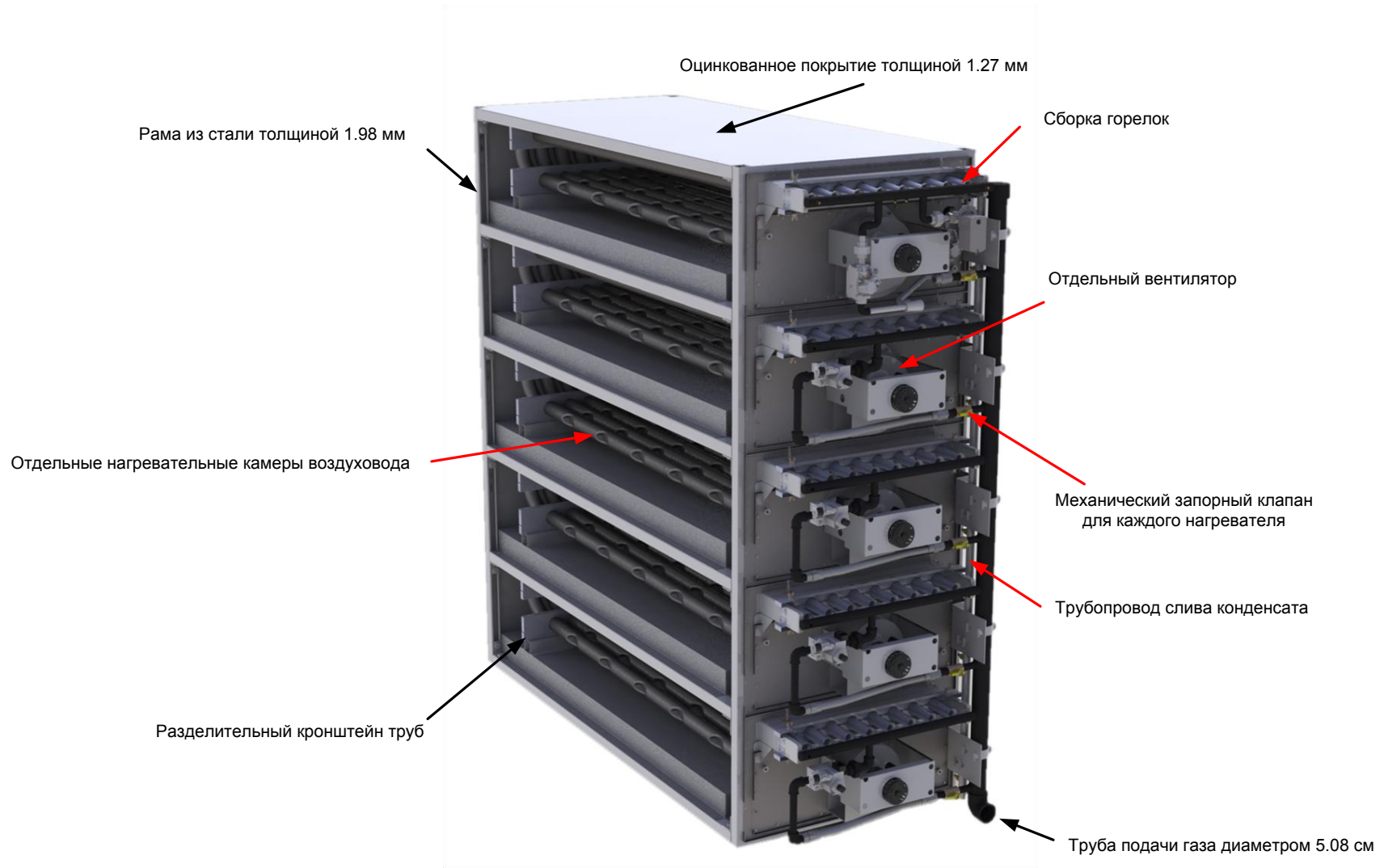
Модульная стелажная камера нагрева воздуховода производства компании Heatco спроектирована и полностью собрана из нескольких камер нагрева воздуховода для применения в случаях требующих обработки большого объема воздуха. Стелажная система предоставляет готовую к немедленной эксплуатации, эффективную с точки зрения затрат установку по нагреву, которая упрощает процесс выбора нескольких нагревателей, а также процесс пустановки цены и покупки.

Каждый модульный стелаж включает в свой состав, включенные в список Intertek (ETL) камеры нагрева воздухопроводов (ANSI Z83.8 / CSA 2.6).

- * До 1055 кВт в одной стелажной сборке
- * От 1 до 50 изгибов в одной стелажной сборке
- * От 99.1 до 2548 м³/мин в одной стелажной сборке
- * Низкое падение давления воздуха
- * Подключение газа и электричества одинарными линиями

Обычные особенности конструкции стеллажа

- * Камера нагрева воздуховода полностью покрыта листами оцинкованной стали толщиной 2 мм
- * Каждая камера нагрева воздуховода включает в свой состав полный набор газовых клапанов, отдельные механические запорные клапаны, гибкие газовые шланги и элементы для соединения трубопровода с 5.08 см трубой подачи газа.
- * Одиночный порт подключения газа с диаметром 5.08 см
- * Заранее снабженные трубами сливы конденсата, подключаемые к центральному трубопроводу
- * Все электрические элементы управления монтируются на единую панель управления
- * Одиночное подключение электрической цепи
- * Легко снимаемая одиночная камера нагрева воздуховода



Modular Rack Assemblies are designed for installation in Duct or Cabinet mounted Applications

ETL CONDITIONS OF APPLICATION ACCEPTABILITY / LIMITATIONS

Rack Assemblies **MUST BE INSTALLED IN A NON-COMBUSTIBLE duct or cabinet and are not designed to have any portion of a furnace heat exchanger exposed outside the duct or cabinet in which this rack assembly is housed.**

Units must be applied in accordance with the ratings with regards to maximum input rating, duct and cabinet clearances to heat transfer surfaces, maximum and minimum temperature rise, maximum and minimum airflow.

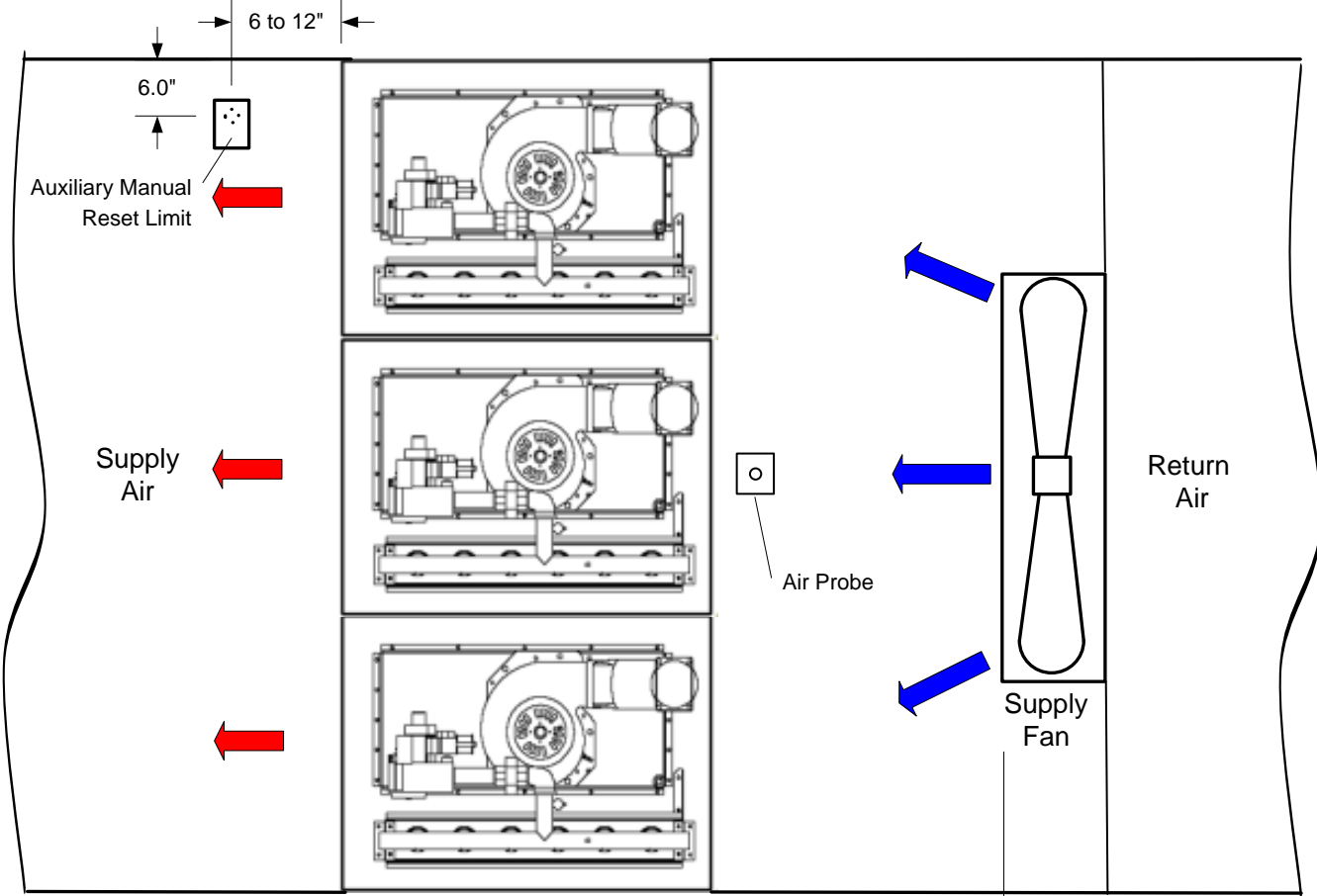
Units must be mounted on positive pressure side of the circulating air blower

In addition, the following must be provided as part on installation:

- * An **enclosed space or vestibule** to house the gas controls, burner assemblies, induced draft fans and electrical control panels.
- * **Air openings** sized to provide for required combustion air supply the burner compartment, but not less than the equivalent of one (1) square inch per 4,000 Btu per Hour of the specified maximum input rating.
- * A **properly designed venting system** must be provided to discharge the products of combustion (flue gases) to the outdoors.
- * Provide an **air flow proving switch** interlocked with the system heat enable, to insure circulating airflow over the heat exchangers, prior to initiating heater operation.
- * A **manual reset, auxiliary limit** mounted downstream of the rack assembly to sense elevated duct temperatures in the event of low airflow conditions due to filter blockage, coil blockage and or damper failure

Airflow Configurations

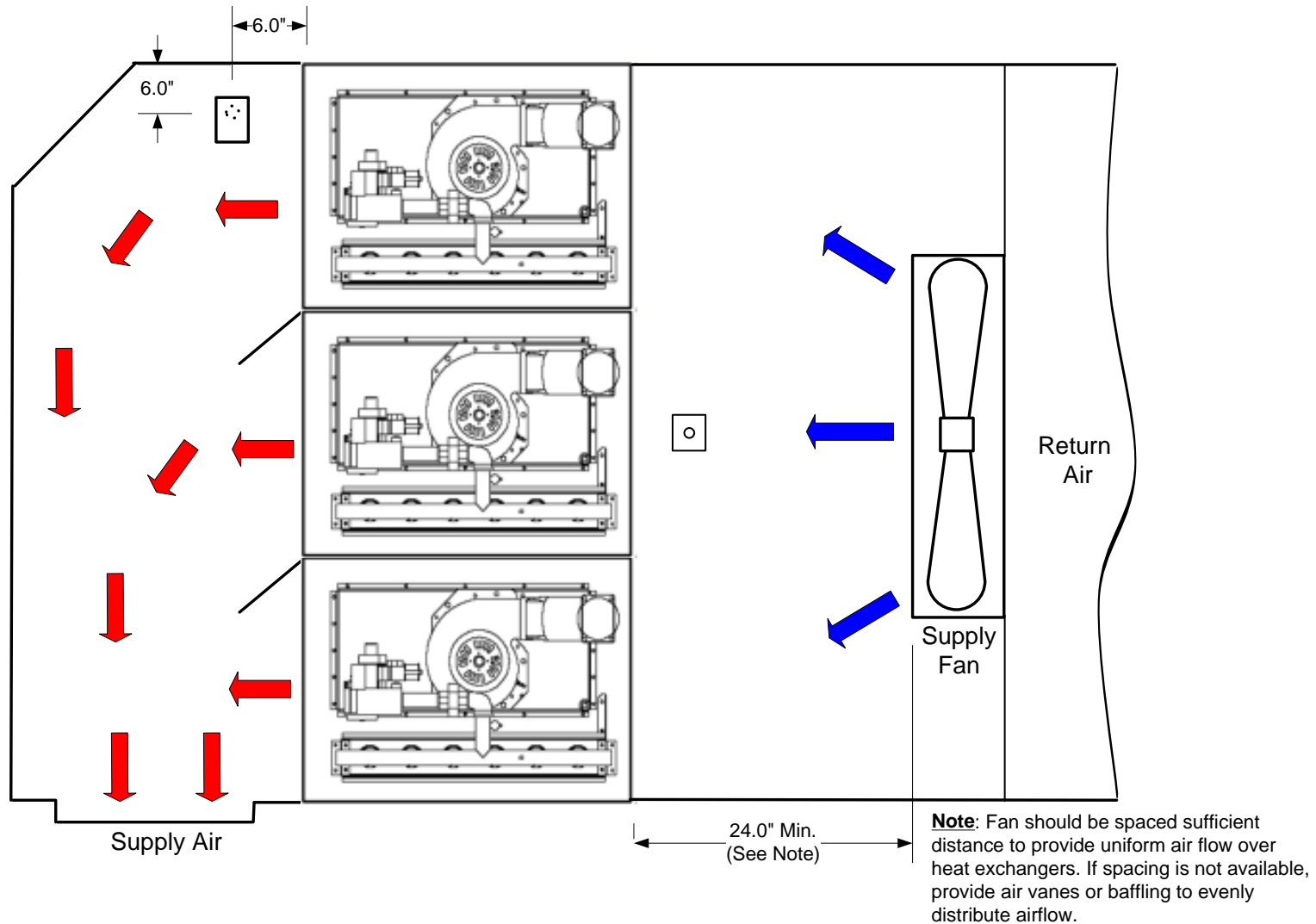
Horizontal Airflow



24.0" Min.
(See Note)

Note: Fan should be spaced sufficient distance to provide uniform air flow over heat exchangers. If spacing is not available, provide air vanes or baffling to evenly distribute airflow.

Horizontal to Vertical Airflow

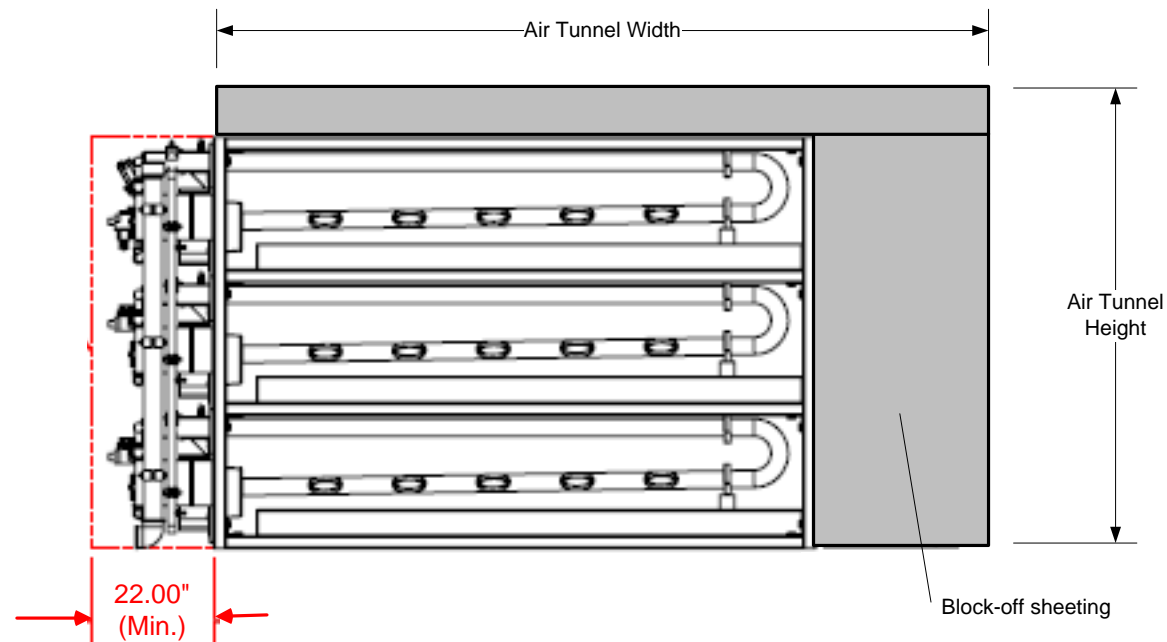


- * Circulating air blower must be located to provide uniform airflow across each duct furnace.
- * Proper spacing of the fan from the heater rack provides a fairly uniform velocity profile to develop. Typically, occurs at a minimum of 2 ½ to 4 equivalent duct diameters downstream of the fan outlet.
- * Baffles and/or turning vanes may be required to provide uniform air flow through heating unit

Modular Rack Air Tunnel Application

CABINET / AIR TUNNEL CONFIGURATION

- * All airflow must be directed over the furnace heat exchangers. Provide proper sheeting to direct airflow over heat exchanger tubes and eliminate by-pass air.
- * If air tunnel opening is larger than heater profile, provide panels to block by-pass air and direct all airflow over heat exchanger.



- * Selection of modular rack assemblies to provide desired conditions requires careful consideration of necessary discharge air temperature, airflow, pressure drop, air tunnel dimensions and furnace configurations.
- * To insure proper fan sizing, determine pressure drop through gas heat section, based on design temperature rise and required airflow.
- * Design static pressures in ducts should be between .30 inches w.c. and 3.0 inches w.c.

Airflow /Temperature Rise Considerations

- * Temperature rise of the air over the modulating furnace must be high enough to avoid condensation from forming in the heat exchanger tubes. Condensation can occur by super cooling of the products of combustion. Consider circulating airflow at all operating conditions including expected minimum firing rates.
- * The chart below provides an approximation of conditions where condensate formation is likely, based on inlet air temperature and temperature rise through the individual furnace.
- * **Flue gas condensate is corrosive and will result in shortened heat exchanger life.**
- * For modulating applications provide variable air flow or a dampered air bypass to reduce airflow over furnaces to provide necessary airflow across modulating furnace to maintain required minimum rise (assume even airflow over furnaces ei. Total air flow / No. of furnaces)

Flue Gas Dew Point Temperature Chart

