

AIR DISTRIBUTION
PRODUCTS

EDUCATIONAL FOCUS

THRC



ADVANCING THE SCIENCE OF AIR DISTRIBUTION

CRITICAL ENVIRONMENTS

Overview

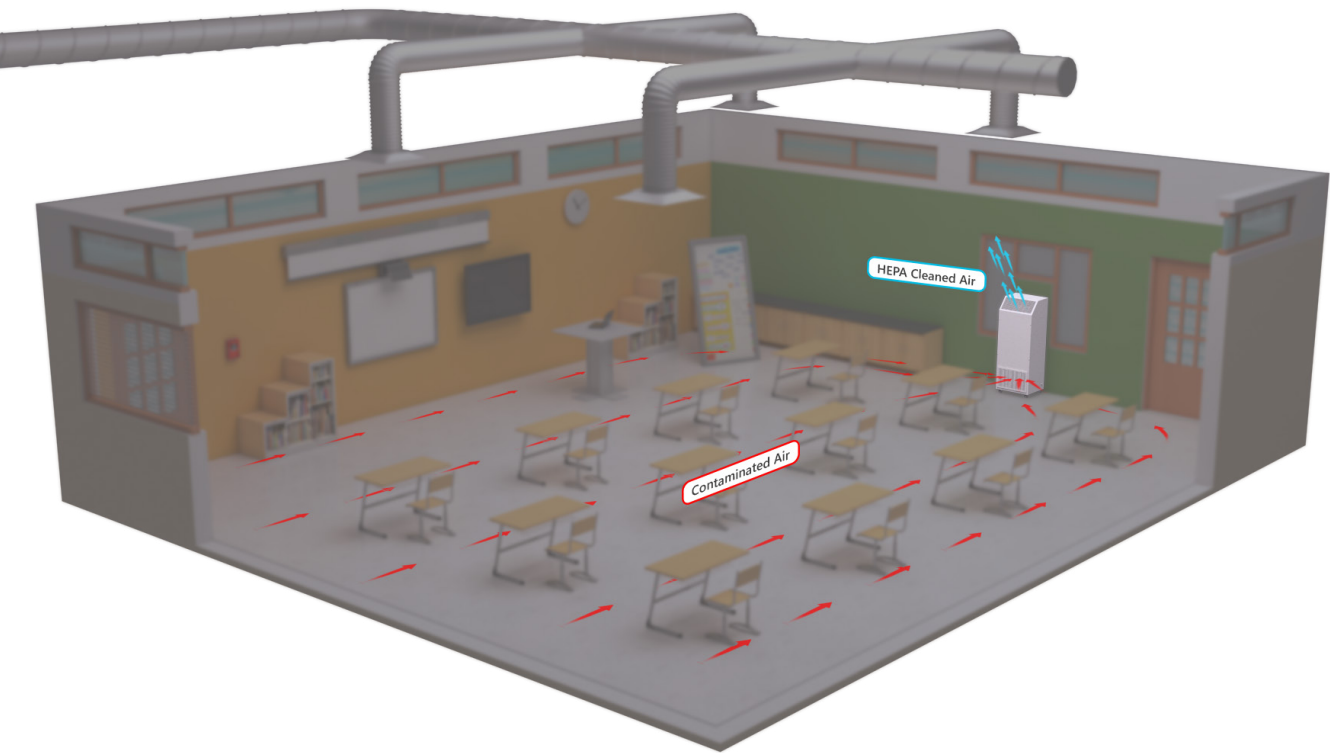
CDC and ASHRAE Guidance for the Reopening of Schools¹ recommend the use of portable HEPA air cleaners and germicidal ultraviolet air disinfection devices in addition to ensuring a good supply of outside air in accordance with ASHRAE standard 62.1-2019. These guidelines are designed to help protect the health and safety of students, faculty and administrators from the spread of SARS-Cov-2.

HEPA air filtration is highly effective at removing microscopic airborne pathogens and is widely used in centralized Hospital HVAC systems to provide sterile air to critical areas such as Operating Rooms. Centralized HEPA filtration is however difficult to implement and upgrade into existing commercial grade HVAC systems due to the high pressure loss (aerodynamic resistance) of the filter banks that often require additional fan horsepower to overcome the resistance to maintain acceptable air flow through the system.

HEPA Filtration and UVGI

The Titus THRC HIGH FLOW portable air cleaner has been designed to provide 99.99% HEPA filtration in a portable format avoiding costly upgrades to the buildings centralized HVAC systems. Ultraviolet germicidal irradiance (UVGI) is an effective technology for deactivating airborne viruses, bacteria, and fungal spores. UVGI is available as an option built into the THRC HIGH FLOW.

Higher room air change rates reduce the spread of infectious aerosols through dilution which reduces the volume of infectious particles within the classroom. Unlike typical commercial room air cleaners, the Titus THRC HIGH FLOW is fitted with an oversized centrifugal blower providing airflows up to 800 CFM which equates to over 4 air changes per hour in a typical sized classroom². When set at maximum airflow, the THRC HIGH FLOW is able to clean the entire air within the classroom in 12 minutes compared to 18 minutes for smaller blower HEPA units³.



- 1. <https://www.ashrae.org/file%20library/technical%20resources/covid-19/guidance-for-the-re-opening-of-schools.pdf>
- 2. Based on typical classroom size of 920ft² with 12' ft high ceiling.
- 3. 18 minutes based on the smaller sized 600 CFM Portable HEPA units on the market.

Low Noise Levels

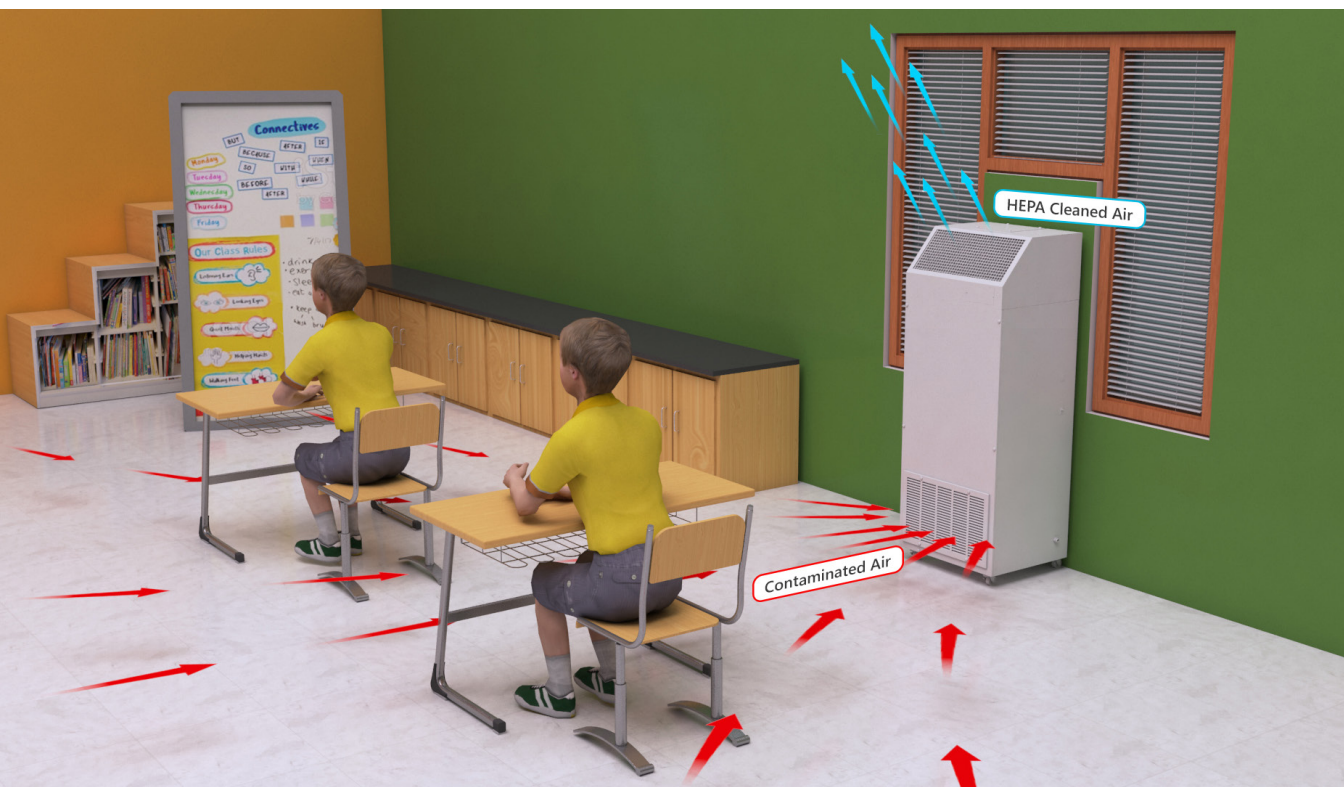
Background noise levels are a high priority consideration for any learning environment, it is pointless returning students to a safe clean air environment if the students are unable to hear the teaching staff due to noisy air filtration equipment. The THRC HIGH FLOW features significantly lower noise levels thanks to the oversized fan blower that can be turned down to a slower rotating speed for a given airflow compared to smaller portable commercial HEPA units. Titus has also produced a detailed suite of sound data including octave band sound power levels (SWL's), NC Curves and an easy to use selection tool that allows school facilities staff to establish the actual sound level in any sized classroom at any distance from the THRC HIGH FLOW unit.

Air Distribution

The THRC HIGH FLOW features a near vertical air projection pattern in contrast to other portable HEPA air cleaners on the market that are designed to throw horizontally across the room. While horizontal throw air patterns are ideal for single occupancy hospital airborne infectious isolation (A.I.I.) rooms, moving air in a horizontal direction across a multi occupant space such as a classroom may increase the risk of respiratory disease transmission between adjacent occupants as infectious droplets can be carried further by the airstream instead of falling out of the breathing zone. The THRC HIGH FLOW near vertical projection pattern throws the air upwards where it is mixed with the outside air supplied by the central HVAC system through the ceiling diffusers.

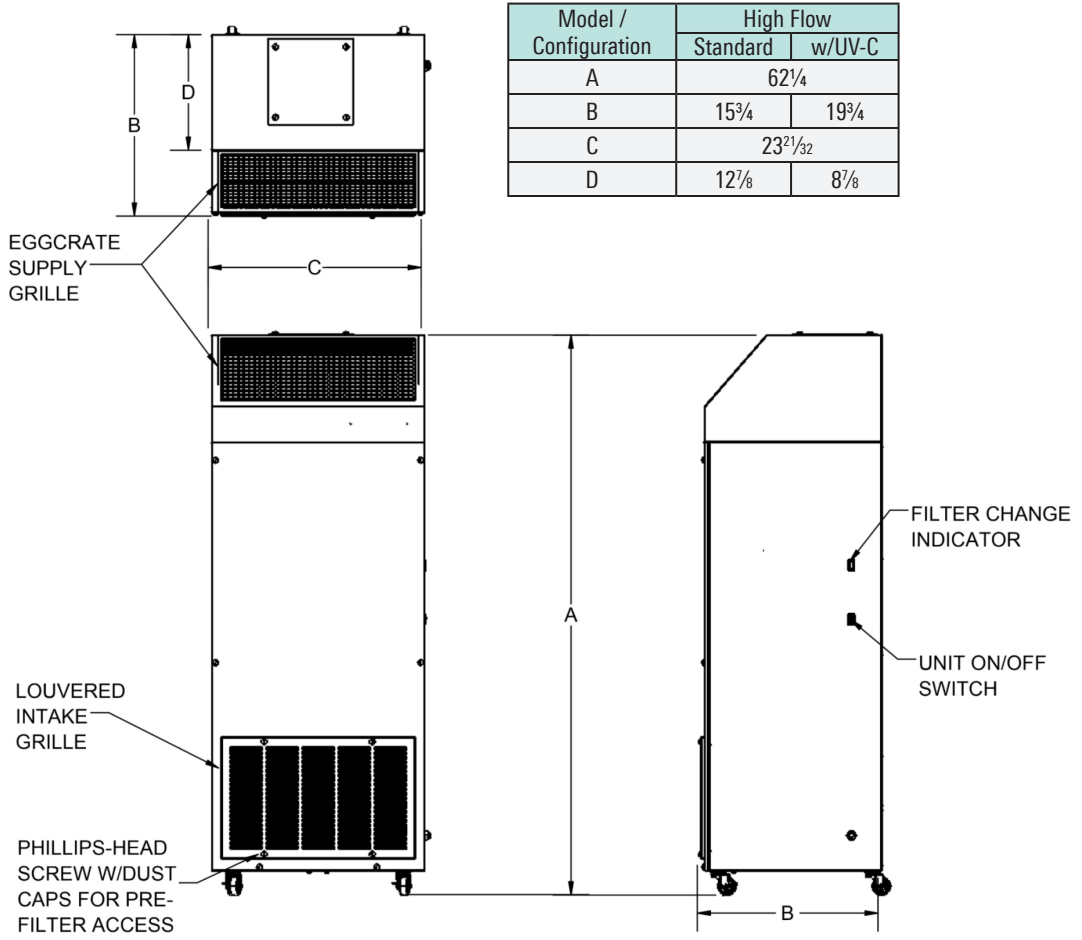
High Flow Configuration	Octave Band Sound Power Level (SWL)						Sound Pressure Level (SPL)*	
	125	250	500	1000	2000	4000	NC	dB(A)
Low speed - 560 CFM	66.2	58.4	51.0	47.2	42.0	33.8	40	45
Medium speed - 690 CFM	68.6	62.4	55.1	51.9	46.8	39.4	43	49
High speed - 800 CFM	79.3	71.8	62.3	61.5	58.4	52.2	57	59

**Sound pressure levels based on 10dB of room absorption*



THRC HIGH FLOW FEATURES

- Airflow operating range of 560 to 800 CFM (951-1359 m³/hr) provides up to 4 air changes for a typical sized classroom.
- 99.99% efficient, long life HEPA filter, with life expectancy of 18-24 months.
- MERV 8 pre-filter.
- LED indicators showing normal operation and when filters need to be changed.
- Oversized fan reduces noise levels supported with the most detailed sound data including sound power levels, NC Curves and dB(A), sound power level testing based on AHRI-220 Standard.
- Fan powered by an efficient variable speed electrically commutated motor with sealed for life bearings.
- Near vertical air projection directs the air upwards instead of the horizontally avoiding the risk of carrying respiratory contaminants into the airstream and spreading them across the classroom.
- Optional high output UV-C (254 nm wavelength) lamp further enhances the cleanliness of the air without introducing ozone. Lamp rated for 9000 hours of continuous operation.
- 120V power cord plugs in to standard wall receptacle.
- Heavy duty sheet steel construction with corrosion resistant polyurethane enamel finish.
- Unit fitted with 2" diameter lockable castors to ease maneuverability.



Model / Configuration	High Flow	
	Standard	w/UV-C
A	62 ¹ / ₄	
B	15 ³ / ₄	19 ³ / ₄
C	23 ² / ₃₂	
D	12 ⁷ / ₈	8 ⁷ / ₈



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