Air Conduction and Filtration Solutions

Dental Pure

Filtration Systems for Dental Practices

PATENT PENDING #63019281

DENTAL PURE

General Background

Staff and patients at dental practices and laboratories are at high risk of infection; the COVID-19 virus is easily spread from mucous membranes of the respiratory system and oral cavities to the air during treatment, especially with the use of ultrasonic scalers and turbines.

Aerosol particles that are not suctioned constitute an immediate infection potential for clinic staff and patients. Particles that suctioned are dispersed into the air and land on many surfaces in the clinic.

Challenges of suction and air filtration in dental practices:

1. An extra strong suction power is required to allow aerosol suction.
2. Very high levels of filtration for minimized biological particles such as bacteria and viruses are required.
3. Ability to absorb and handle liquid-saturated air.
4. Preventing filters from becoming saturated with liquid, which cause a decrease in the quality of filtration, shortens filter life and encourages the development of contaminants within the filtration system.
5. Protect staff while handling and replacing filters that may be infected.
6. Strong suction required while ensuring quiet operation suitable for long-term work in clinics.
7. Must be as small as possible to allow work with minimum disruption to staff and patients.

AMS have conducted several experimentations and trial runs in dental practices and developed a system for suctioning, filtering and purifying aerosols for dental practices.
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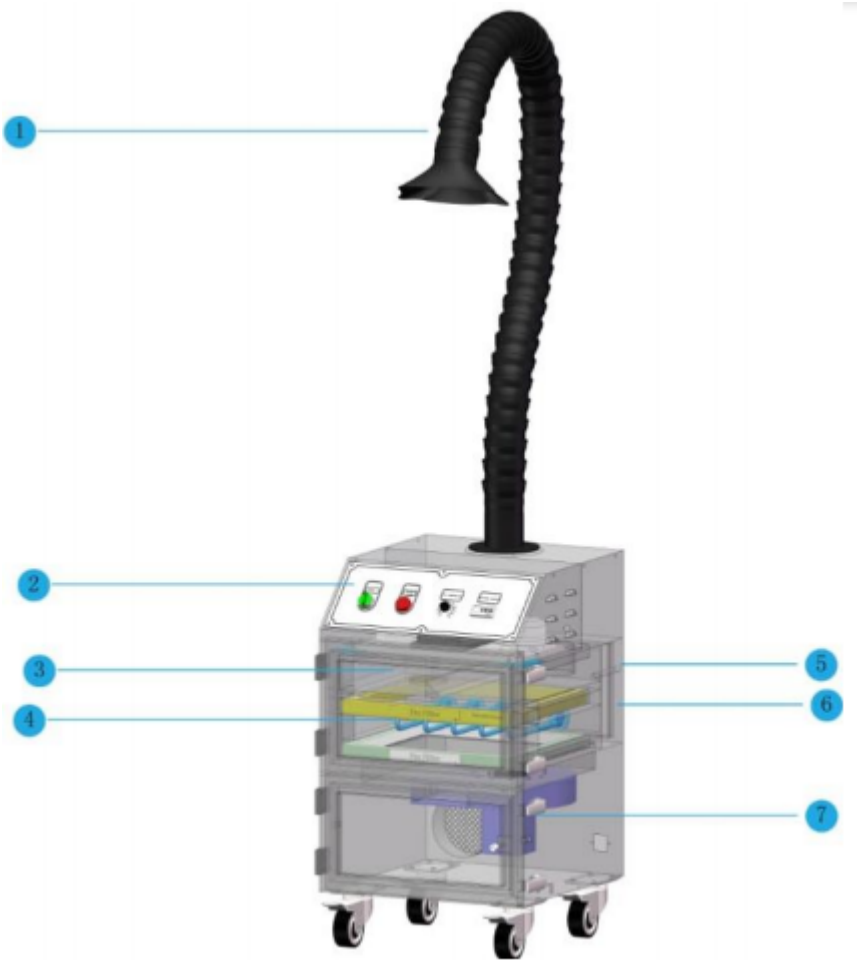
DENTAL PURE suction and purifying system provides solutions to all the unique challenges of working in a dental practice.

Air Conduction and Filtration Systems

DENTAL PURE-PRO

Means of suction	Multi-joint suction arm length 1400 mm diameter 70-55 mm
Initial separation	Stainless steel aerosol separator including connector to the suction system for liquid drainage
Disinfection	Aerosol disinfectant discharged into separation system
Treating viruses and organisms	Heat based disinfectant system
Absolute filter	High-efficiency particulate air (HEPA) 99.97% suction capabilities for 0.3 micron-sized particles
Air flow	Up to 300 m^3/s flow rate; 18-30 m/s
Noise level	50dB
Control and command	Digital control panel



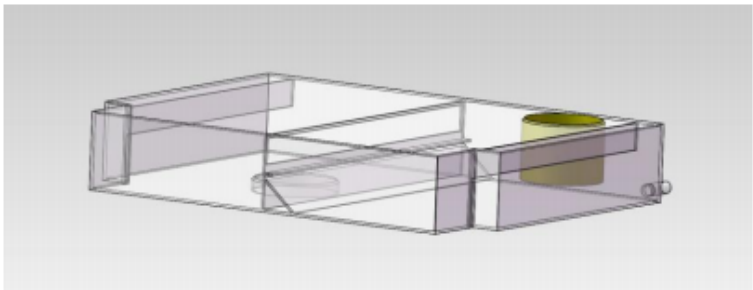
1	Unique suction head developed with dentists. Wide head for suction from a larger area and at a low capture speed, and a narrow head for concentrated suction at a high capture speed.
3	System for separating aerosols from the air
5	System for draining aerosol liquids
2	Control panel including digital monitor
4	Disinfecting system for viruses and bacteria
7	Suction blower installed in acoustic chamber
6	H13-H14 High-efficiency particulate air (HEPA) 99.97% suction capabilities for 0.3 micron-sized particles

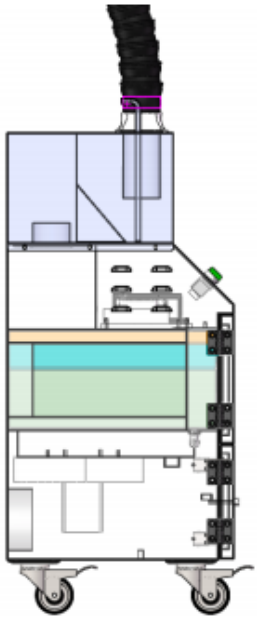
Separation and disinfection of aerosol and viruses

The main contaminant in dental practices is carried over aerosol spray; the amounts of spray are significant and require reference.

Without a pre-filter designed to effectively separate the spray from the air, system filters will collapse in a short time, filtering capacity will decrease and aerosol saturated with pollutants will settle on the filters and return to the clinic space. The system can “help” disperse pollutants in the clinic space.

The DENTAL PURE system is the only system that provides a solution to this important issue, in a system integrating an effective aerosol separator.





At the end of the work day, all the system assemblies are disinfected by internal heating to a temperature of 75 degrees Celsius so that pasteurization takes place and all the bacteria and viruses left in the system are destroyed.

The heating element is placed under the separation system so that heat is also projected on the separation system and causes the liquid to remain in the container in addition to the disinfecting action, heating the system also dries the filters and maintains their longevity.

Air Conduction and Filtration Systems

Stage 4 Absolute Filter

certificate

HEPA FILTER TEST REPORT

Filter:	HEPA Filter
Type:	Mini Pleat HEPA filter in glass fiber media
Integral efficiency:	99.95% at MPPS
Local efficiency:	99.75% at MPPS
Class to EN 1822:	H 13
Size:	400x400x70mm
Air flow:	430m3/h
Resistance to Air flow:	160Pa
Serial number:	20200415HP40040070-01
Test number:	1

Test Condition:

Temperature:	Rel humidity:	Airflow:	Test standard
20°C	60%	430 m3/h	EN1822-4

Probe size(WxH):	30x30mm	Probe Overlap:	0%
Probe flow rate:	24.2l/min	Scan Velocity:	100mm/s
Upstream Conc.:	3100001/cm3	Signal value:	1842
Test aerosol:	DEHS at 0.16micron	Probe distance:	10mm

Test Result:

Number of leaks:	0		
Resistance to airflow:	160Pa		
Integral penetration:	0.038231 %	P-95:	0.038231 %
Integral efficiency:	99.961769 %	E-95:	99.961769%

The HEPA Filter has exceeded the requirement of EN1822

Date:

2020-04-15

FLEX articulated suction arms

The DENTAL PURE system incorporates a multi-joint suction arm

The arm is used for localized suction of the contaminant before it is dispersed in the clinic air.

The ability to place the suction head near the source of contamination combined with an extremely high flow rate of about 18-21 meters per second ensures efficient capture of the contaminant and complete protection of the staff and patient.

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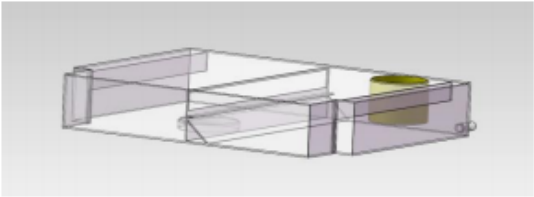
AMS patent pending #63019281

Separation, filtration & disinfecting system



Aerosol Separation System

HEPA Absolute Filter

Disinfecting at 75°C

Wide variety of multi-joint suction arms for localized suction of the contaminant before its dispersal in the air

We are available for any question or request

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