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Introducing the Patented Ductless Laminar Air Flow System for Hospital OTs, ICU, NICU, Labs & Clean Rooms

→ Strictly in compliance with NABH Standards

→ Over 600 OTs done Pan India

Why to prefer Ductless Laminar OT instead of Ducted System

Click on the QR Code below for detailed Video



Convert Existing
OTs into Laminar OTs,
(Retrofitting)
Conversion of Old OT
into Laminar OT can
be done within 4 Days

Call or WhatsApp

8008895680, 6309995893, 7416644856, 7997192056, 9849466520, 9676065885

Why prefer a Ductless System ? over conventional Ducted System ?

A typical uncleaned Ducted System after a year or two



The horrifying reality

These images of Ducts that have Neglected maintenance are horrifying and to imagine Patient and Hospital staff breathing Air coming from these Duct feels like compromising their Health and Quality of Life



The Major Issue

After a Point in the life cycle of the Duct, the Ducts which were installed to control the Air born Infection themselves becomes the source of infection in the modular OT which is deadly.

Ductless Laminar Air Flow System

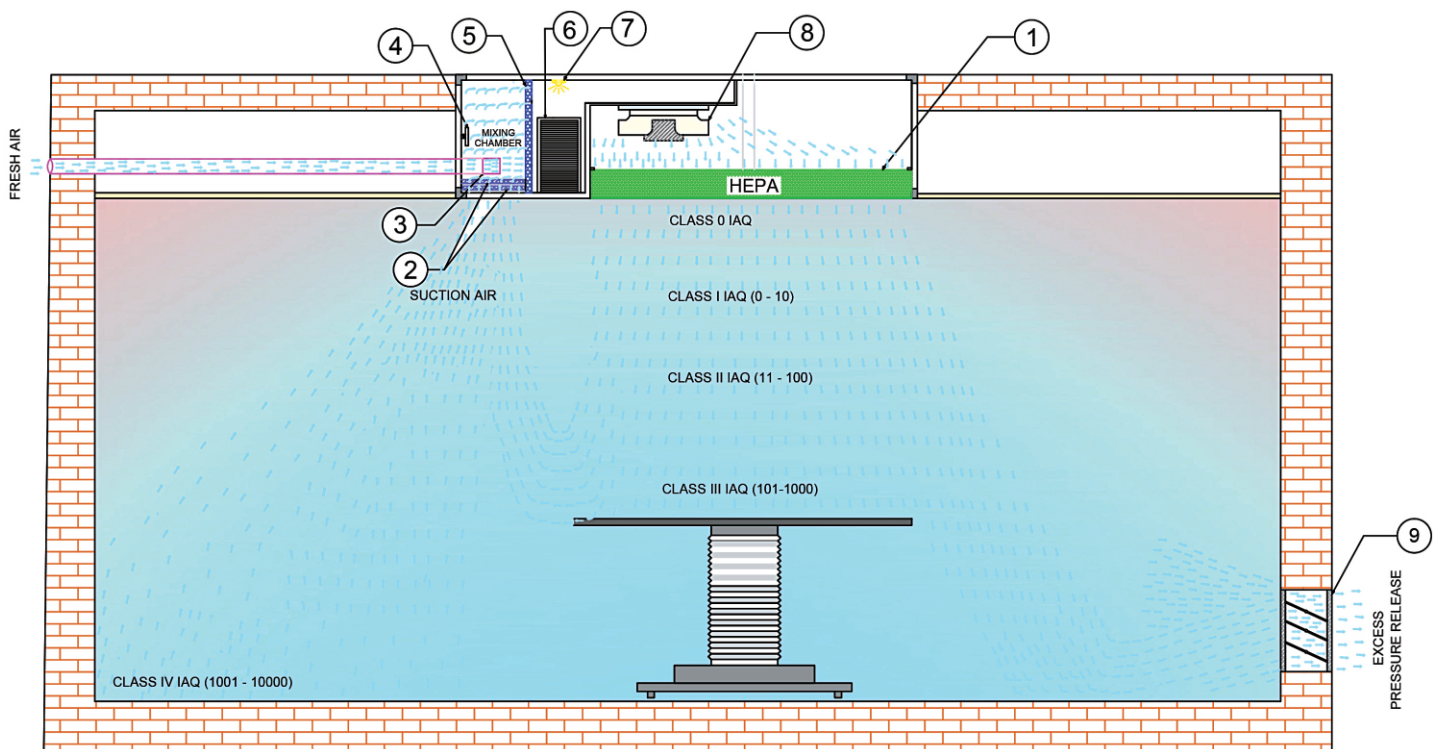
Ductless Laminar Air flow system offers superior levels of patient protection through making filtered and sterile air tent on operation table, this Air tent does not allow the infected air to enter the air tent

The Ductless Laminar Air Flow System has

- Class I (1 - 10 Particles) air quality near the HEPA filter
- Class III (100 - 1000 Particles) air quality on the Operation Theatre table
- Class IV (1000 - 10000 Particles) air Quality throughout the Operation Theatre

WHAT'S INSIDE DUCTLESS Laminar Air Flow System

AIR Flow Pattern



POSITIVE PRESSURE INSIDE OT DOESN'T ALLOW ANY BLANK POCKETS IN ANY CORNER

No	Name	No	Name	No	Name
1	HEPA FILTER (0.3 Micron)	4	NEGATIVE IONIZER	7	UV LIGHT
2	PRE FILTERS (5 & 10 Micron)	5	ACTIVATED CARBON FILTER	8	AIR BLOWER
3	FRESH AIR DAMPER	6	EVAPORATOR COIL	9	PRESSURE RELEASE DAMPER

Benefits of Ductless Laminar Air Flow System:

- 0.180 kW blower to give air velocity 90-120 FPM flow at grill/diffuser level.
- Easy routine cleaning from inside the OT.
- Life of the HEPA filter used in the system is 2 to 2.5 years.
- UV light given near cooling coil to avoid the bacteria, fungus growth on HEPA filter.
- Digital differential pressure gauge gives display to HEPA filter condition.
- Temperature and Humidity display given on LAF show operational area's actual reading.



Ceiling suspended AHU cum LAF system

The combination of both Ductless AHU and LAF is innovated to provide both system Economical and achieve Class I air quality even in a compact space. This system has negative ionizer to deactivate Biological Burden and pollutants from air, With HEPA filter of 0.3 micron and rest filters we can achieve better Indoor air quality.

This System has following Features:

- The system Works on 1500 CFM which helps in Electricity Consumption. Unlike 4500 CFM in ducted system
- Condensing coil used in the system has larger surface area which creates lesser load on compressor ensuring smooth functioning and this lowers Power consumption.
- Activated Carbon Filter used in our system to help to remove anesthetic gas mixtures from operating theatres and any other areas fitted with nitrous oxide terminal units.

Difference Between Ducted & Ductless system

Ductless Air Handling Unit

- 8 TR Outdoor Unit sufficient to give cooling in OT.
- 0.180 kW blower to give air velocity 90-120 FPM flow at grill/ diffuser level
- Easy routine cleaning of pre filters given in lowers of AHU, hence it is easy for maintenance.
- UV light given near cooling coil to avoid fungus, bacterial growth on condensing coil.
- Digital Differential Pressure Gauge for checking HEPA filter status and positive pressure in room.
- LAF has to start before 1 hour to get desire particle count (class 100) on table and temperature & humidity & OT class is class-10000.
- Annual Maintenance Cost of Ductless Air Handling Unit is 3% which is nearly 25,000 Because there is no Duct, which reduces maintenance cost
- Robotic Duct Cleaning is not required in Ductless Air Handling Unit

Ducted Air Handling Unit

- 11 TR Compressor required in Outdoor Unit.
- 3-5 kW electrical consumption for AHU blower depending on length of the duct.
- Routine Cleaning of the duct is not possible
- Not Available
- Ducted System does not provide HEPA filter status through digital differential pressure gauge, they provide digital differential pressure gauge only to check positive pressure in Operation Theatre.
- During the non functioning hour AHU blower will be operational round the clock and particle count get on table class-10000 and OT room class get 1 Lac.
- Annual Maintenance Cost of Ducted Air Handling Unit is Approximately 7% which goes upto Rs. 75,000/- to 1,00,000/- Because of maintenance of leakages and Insulation of Duct
- Robotic Duct cleaning has to be done Every 6 months before changing HEPA Filters it costs upto 50,000 Rupees i.e. 1,00,000 annually

Electrical Consumption

Ductless Air Handling Unit

- Generally, Power consumption of 1 ton-0.8kW/hr
- Tonnage required in Ductless System is 8 tons
- Power consumption of 8 tons ducted system = $8 \times 0.8 \text{ kW} = 6.4 \text{ kW/hour}$
- Considering Minimum hours usage= 6 plus 1-hour prior system has to be switched ON for 20 air cycles Power Consumption in 7 hours=44.8kW
- Considering the price of 1 unit to be 11Rs
- Power Consumption rate per day = Rs. 492.8
- Power Consumption rate per month = Rs. 14784
- Power Consumption rate per year = Rs. 1,77,408
- Rest Hours= 17
- No need to keep Air handling Unit ON

Total Annual Maintenance Cost = 25,000

Robotic Duct Cleaning Cost = 00
(Not Required)

HEPA Filter Changing Cost = 48,000

Total Cost Per Year :- 2,50,408

Ducted Air Handling Unit

- Generally, Power consumption of 1 ton 0.8 kW/hr
- Tonnage required in Ducted System is 11 tons
- Power consumption of 11 tons ducted system = $11 \times 0.8 \text{ kW} = 8.8 \text{ kW/hour}$
Considering Minimum hours usage= 6
- Power Consumption in 6 hours= 52.8kW
Considering the price of 1 unit to be 11Rs
Power Consumption rate per day = Rs. 580.8
- Power Consumption rate per month = Rs. 17424
- Power Consumption rate per year= Rs. 2,09,088
- Rest Hours= 18
- To maintain Ambient Temperature even is Variable Fan Device is reduced to 50%
Power consumption in remaining hours = $2 \text{ kW} \times 18 = 36 \text{ kW}$
- Power Consumption rate per day = Rs. 396
- Power Consumption rate per year= Rs. 1,42,560
- Total Power Consumption Rate
- Power Consumption rate per day = Rs. 976
- Power Consumption rate per year= Rs. 3,51,648

Total Annual Maintenance Cost = 1,00,000/-

Robotic Duct Cleaning Cost = 1,00,000

AHU room consumable cost = 5,00,000

HEPA Filter Changing Cost = 1,92,000

Total cost per year 14,38,998/-

PATENTED AHU cum Ductless Laminar Flow System

Advantages of Ductless System against conventional Ducted System

Basic Ductless Laminar OT with
Ceiling mounted Air Handling Unit



OPERATIONAL COMPARISON FOR OT SIZE 20x20x10

DUCTED AHU	DUCTLESS AHU
<ul style="list-style-type: none"> Generally requirement of Tonnage is upto 11 to 16TR Blower required for Ducted system is of 3HP to 5 HP During non functional hours AHU blower needs to run for 24 Hrs. Else Duct becomes wet due to condensation and bacterial proliferation occurs. 	<ul style="list-style-type: none"> Generally requirement of Tonnage is upto 5.5 to 8TR Blower required for Ducted System is of 0.180 KW System needs to operate 1 Hour prior to surgery.

COST COMPARISON FOR OT SIZE 20x20x10

DUCTED AHU	DUCTLESS AHU
<p>Generally Power consumption of 1 TR - 0.8 KW/HR, TR required in the ducted system is 11 TR, Power consumption of 11 TR = $11 \times 0.8 \text{ KW} = 8.8 \text{ KW/HR}$. Considering minimum hours usages = 6 HR, the Rate of 1 Unit of energy is Rs.12/-</p>	<p>Generally Power consumption of 1 TR - 0.8 KW/HR, TR required in the ductless system is upto 8 TR, Power consumption of 8 TR = $8 \times 0.8 \text{ KW} = 6.4 \text{ KW/HR}$. Considering minimum hours usages = 6+1 HR, the Rate of 1 Unit of energy is Rs.12/-</p>

TOTAL COST COMPARISON

	Ducted Air Handling Unit	Ductless Air Handling Unit
Electrical Consumption	10,32,804/-	1,28,772/-
Annual Maintenance	1,00,000/-	50,000/-
HEPA Filter	1,92,000/-	48,000/-
Robotic DUCT Cleaning	1,00,000/-	-
AHU Room	5,00,000/-	-
Total	19,24,804/-	2,26,772/-

As we can see from the calculation the ducted system consume 7 times more cost i.e. Rs. 16,98,032/- as compared to Ductless Air Handling Unit



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4,00,000 Lux



3,80,000 Lux



3,60,000 Lux



2,40,000 Lux

[Click on images for details of OT Light](#)

Avoid nosocomial infections

📞 Call / 📞 WhatsApp us now for a Ductless Laminar System

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SCAN QR CODE

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