GLF-LAMINAR FLOW UNITS IN OPERATING THEATRES

DESCRIPTION:

GLF Series Laminar Flow Unit is designed for supplying fresh air with a stable, parallel flow into all types of clean rooms in the medical field, for operating theatres and selected industries, e.g. pharmaceutical, chemistry, etc. The stable parallel flow and the low speed of the fresh air flow represent the main advantages of the GLF.

CONSTRUCTION:

Standard Material 304 Stainless Steel. Optional:.316 Stainless Steel

APPLICATION:

Usable for sterility-sensitive places such as operating rooms, chemical labs and clean rooms. Laminar flow provides removal of particles and microbes from requested area.

FINISHING:

Standart finishing 304 Stainless Steel

ACCESSORIES:

VAV

CAV

DUCT TYPE ELECTRO-HEATER

SOUND ATTENUATOR

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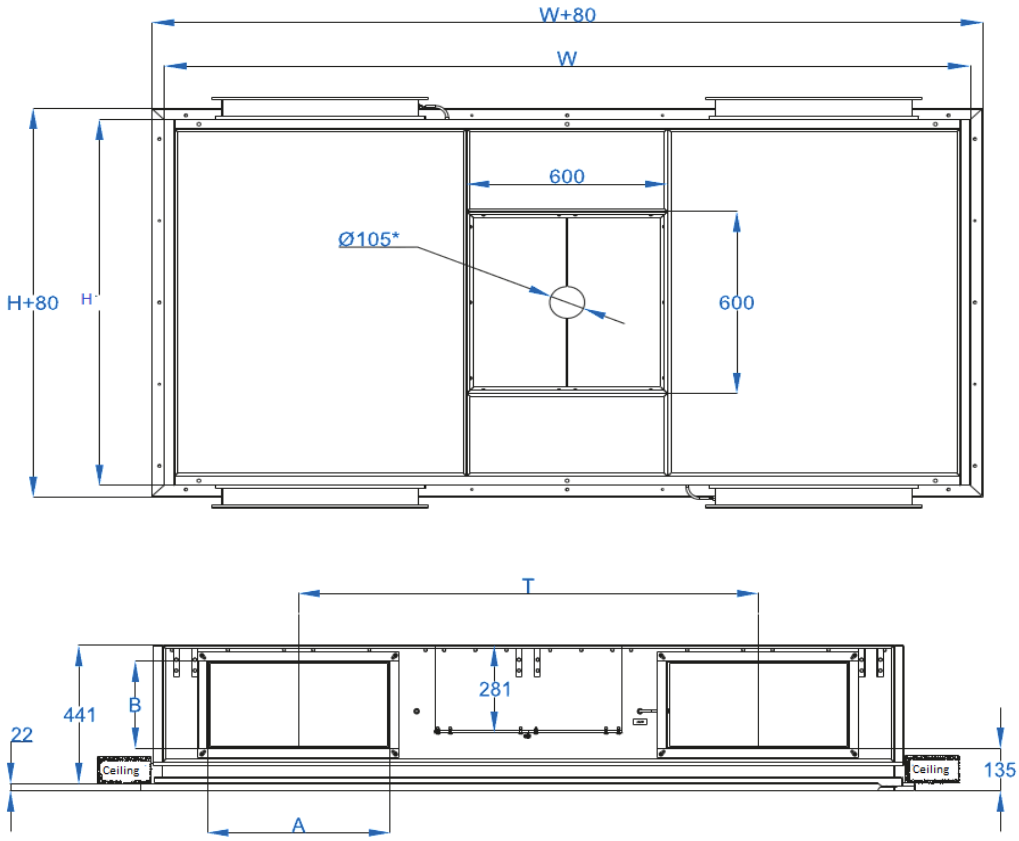
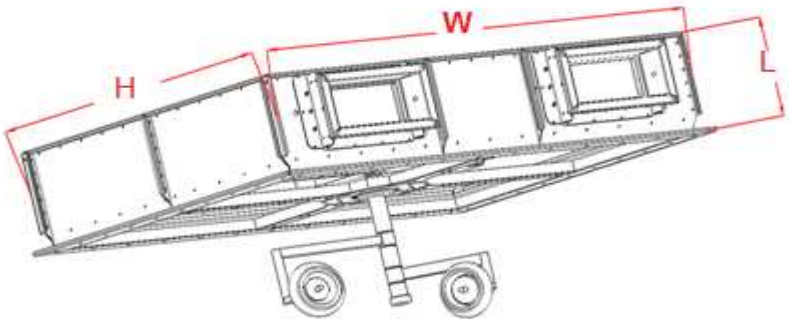
STANDARD SIZES:





Item	W(mm)	H(mm)	L(mm)	Filter Width (mm)	Filter Height (mm)	Axis Filter T (mm)	Filter Unit	Duct Width A (mm)	Duct Height B (mm)	Lighting 2x18W IP65
1	2400	1200	450	610	305	1474	2	586	281	2x3600 Lumen
2	2400	1400	450	610	305	1474	2	586	281	2x3600 Lumen
3	2400	1600	450	610	305	1474	4	586	281	4x7200 Lumen
4	2400	1800	450	610	305	1474	4	586	281	4x7200 Lumen
5	2400	2000	450	610	305	1474	4	586	281	4x7200 Lumen
6	2400	2200	450	610	305	1474	4	586	281	4x7200 Lumen
7	2400	2400	450	610	305	1474	4	586	281	6x10800 Lumen
8	3000	2400	450	610	305	2074	4	586	281	6x10800 Lumen
9	3000	2800	450	610	457	2074	4	586	281	6x10800 Lumen
10	3000	3000	450	610	457	2074	4	586	281	6x10800 Lumen

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FUNCTION

The parallel flow of fresh air expels from the laminar field all secondary air contamination and, thanks to the very convenient constructional design, no deviation of the fresh air flow occurs.

From the medical point of view the speed of the air flow, which is significantly lower than that of the conventional air supply, noticeably decreases hypothermia in patients in the operating area.

The laminar field ensures a very low number of particles in a clean room, a low concentration of harmful substances in the operational zone and high temperature stability. GLF is resistant to disinfectants

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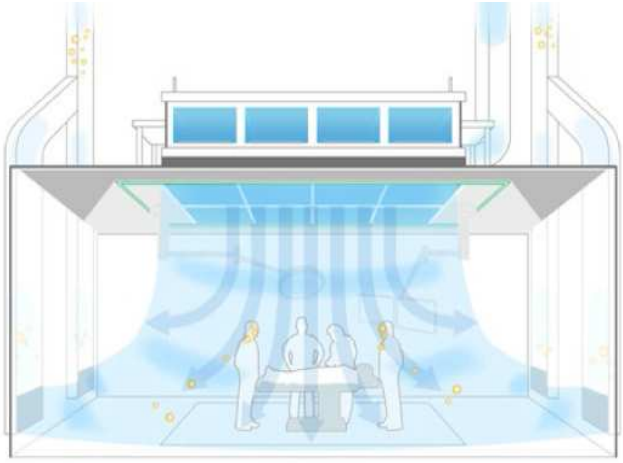
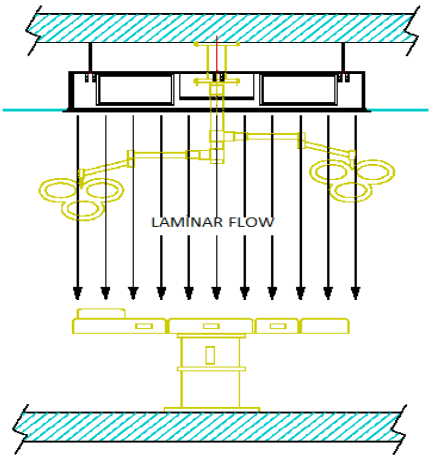
ADVANTAGES





- A defined low number of particles in the operating zone and in the incoming airflow Low air speed in the operating area with a parallel flow (Air Flow in clean rooms exhibits a linear behavior. Air velocity is stable on every section of parallel flow lines 0,22-0,28 m/sn.
- On the other hand, turbulent air flow shows an unstable behevior. Air flow lines are at random, air velocity is between 0,35 and 0,55 m/sn.)

Fig.1: Turbulent Flow

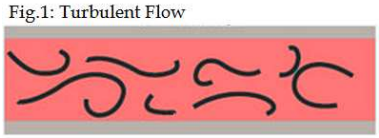
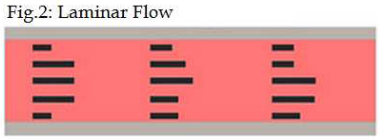
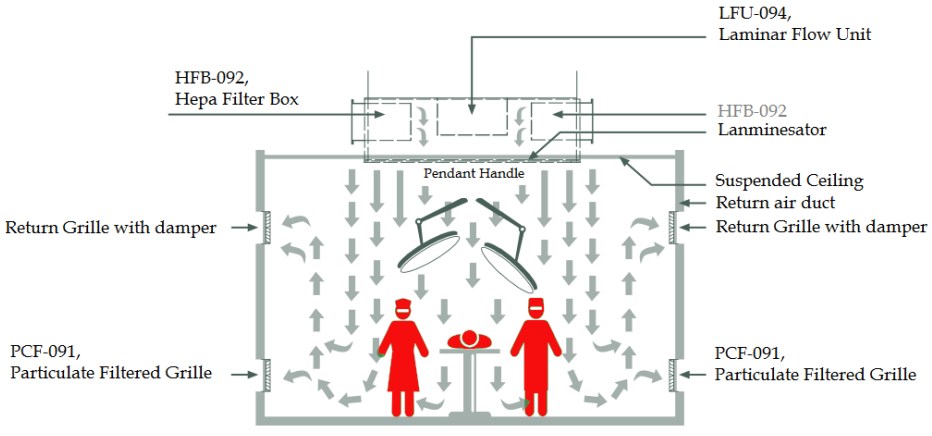


Fig.2: Laminar Flow



- A low concentration of harmful gas substances also in the anesthesiology area
- Good shielding of the operating area from disturbances caused by opening the door
- Sealed operating light that makes air contamination impossible
- Easy maintenance and disinfection
- Easy installation



Hygienich Products Cooperate working principle

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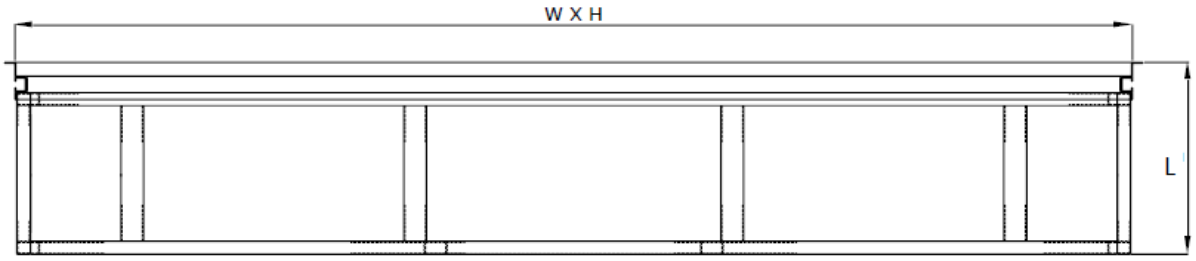
QUICK SELECT



Item	W(mm)	H(mm)	L(mm)	Air Flow (m3/h)	Velocity m/sn	Avarage Sound Power Level [dB]	Pressure Loss at Start (Pa)	Pressure Loss at Final(Pa)
1	2400	1200	450	2400	0,23	35	120	600
2	2400	1400	450	2800	0,23	35	150	600
3	2400	1600	450	3200	0,23	30	110	600
4	2400	1800	450	3600	0,23	30	130	600
5	2400	2000	450	4000	0,23	35	120	600
6	2400	2200	450	4400	0,23	35	130	600
7	2400	2400	450	4800	0,23	35	150	600
8	3000	2400	450	6000	0,23	35	120	600
9	3000	2800	450	7000	0,23	40	160	600
10	3000	3000	450	7500	0,23	40	170	600

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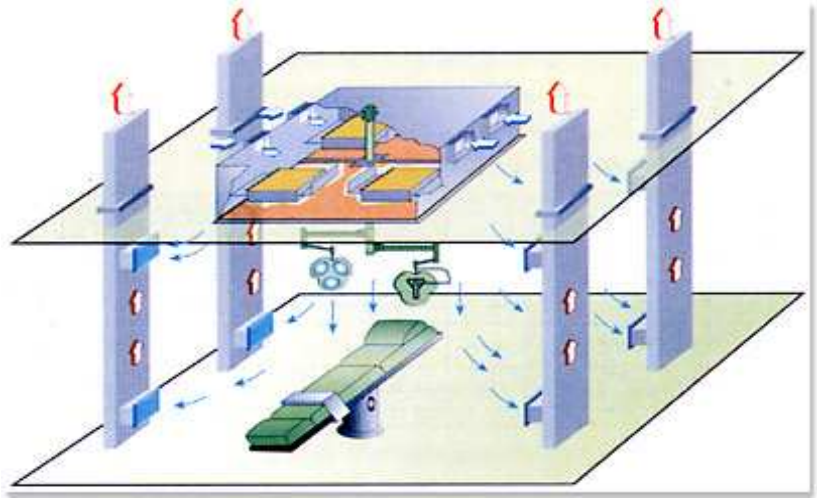
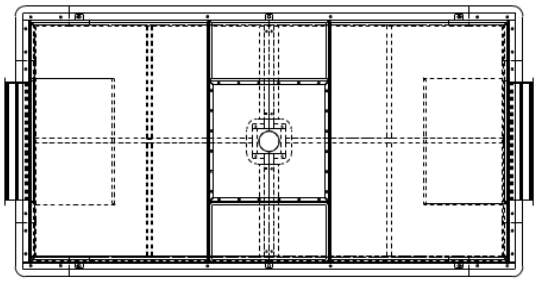
LAMINAR FLOW UNIT APPLICATION

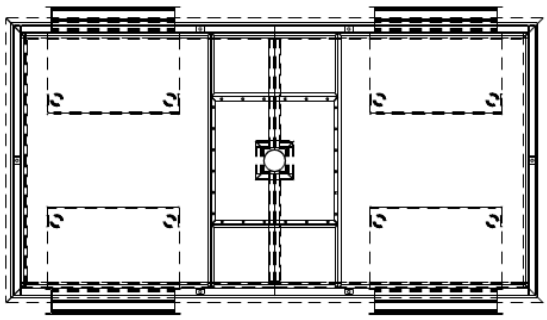


Standard Laminar Flow System Application

- A laminar air flow, as defined by the 'Federal Standards, is a unidirectional air flow moving at a velocity of 0.45 m/s which does not allow the deposit of suspended particles which are instead held suspended in the air even if suitably filtered by HEPA filters.
- In fact to prevent the human body from being negatively affected by direct exposure to constant air flows, the air velocity should be not more than 0.15 - 0.2 m/s: higher velocities can be dangerous to a patient spending several hours in the operating theater.
- Another important aspect to be considered is the presence of the surgical staff, since while the patient is lying at about two meters from the inlet air the surgical team are standing up with their heads bowed at only 70 - 100 cm from the inlet air. The type of air flow must thus be unidirectional, with a very low velocity, improperly called laminar because it does not have specific velocity.



Two Filter Inlet



Four Filter Inlet

- **GLF Laminar Flow Ceiling** is formed by a coffer structure from stainless sheet without surface treatment.
- The laminiser, equipped with a single layer of PES fleece, ensures a parallel flow of outgoing air.
- The laminar field is suspended into a coffer or light ceiling via M6 suspension rods anchored into holes along the circumference of the cabinet.
- It is possible to fit part of the top lid of the laminar field chamber with hardened glass that enables the space under the laminiser to be lit with free lights independent on
- GLF. Their application, also for small-dimensional GLF bases, is enabled by clamping the filters with auxiliary frames to side entries.
- The free distribution of light is enabled by sliding the clamping frames out of the coffer chamber side wall.

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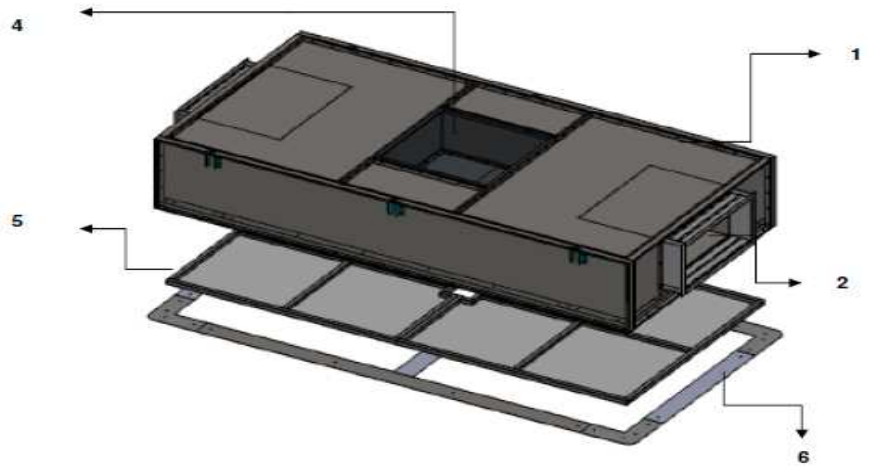
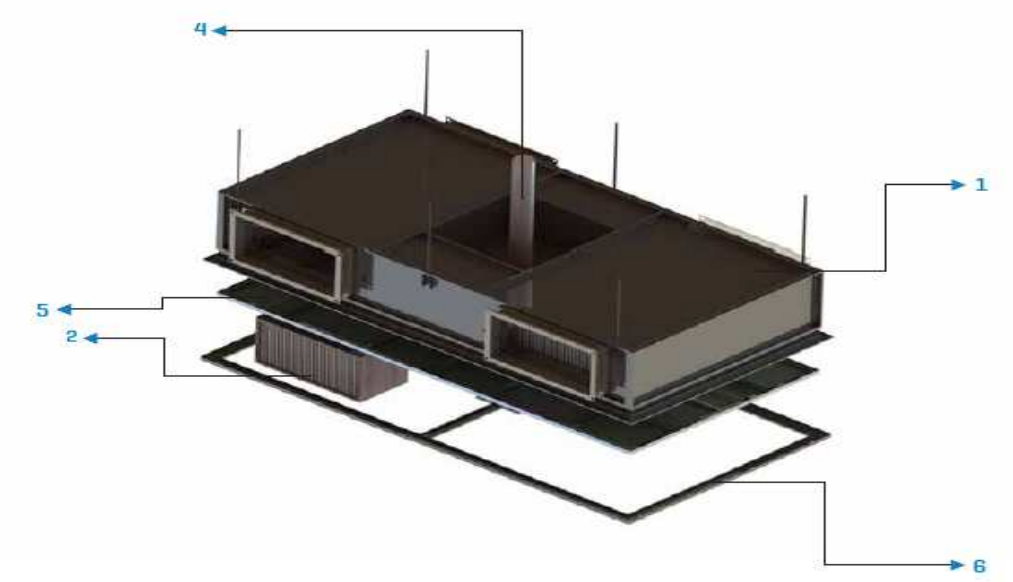
Two Filters Inlet



Four Filters Inlet



1 – Main Case
2 – H13/H14 Hepa Filter
3 – Inner Enlightning
4 – Pendant Box
5 – Laminiser
6 – Frame Parts

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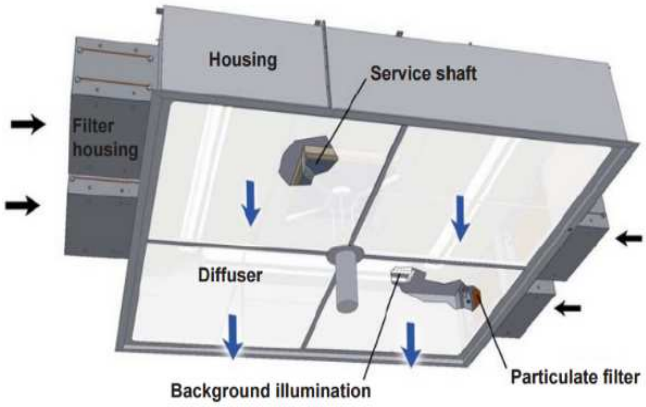
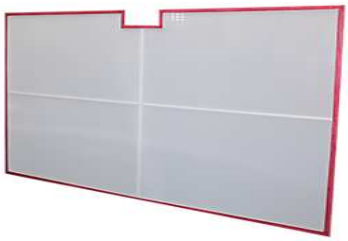
LAMINAR FLOW EQUIPMENT



1- Laminiser - Diffuser



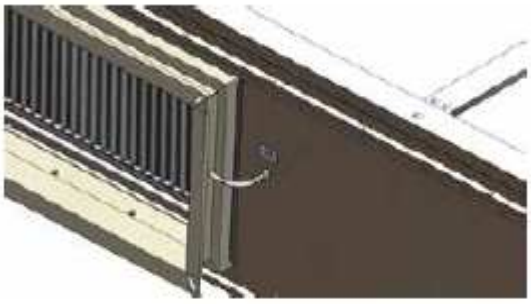
Specially designed synthetic laminator for laminar air flow after HEPA filters

- Uniform speed distribution
- Low pressure loss
- To the desired extent
- In operating room and pharmaceutical factory applications

2- Main Housing

Standard Material 304 Stainless Steel. Optional:.316 Stainless Steel

3-Test Probe



Test Probe

Pollution Filter Differential Pressure Probe

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ORDER PARAMETERS

GLF - 2400x1200	H14	304SS
GLF- 1: 2400x1200 GLF- 2: 2400x1400 GLF- 3: 2400x1600 GLF- 4: 2400x1800 GLF- 5: 2400x2000 GLF- 6: 2400x2200 GLF- 7: 2400x2400 GLF- 8: 3000x2400 GLF- 9: 3000x2800 GLF-10: 3000x3000	*H13 Hepa Filter *H14 Hepa Filter	304SS: Stainless Steel 316SS: Stainless Steel GA: Galvanised
- Standard Application		