



GLD
Laminar Flow Ceiling Systems
[Horizontal Filter Type]

Venues Breathe with DOGU HVAC Systems!

DOGU HVAC founded in 1999, and ever since has been manufacturing energy and cost efficient products as Air Handling Units, Air Distribution & Management & Movement Systems [HVAC Components] and constantly enhancing to provide an integrated solution for well-being. DOGU HVAC's core business products which are subsumed under 4 major groups as Air Handling Units, Heat/Energy Recovery Units, Air Distribution & Management Products and Kitchen Ventilation Equipment are all produced under the compliance with EU standarts. Particularly AHU and HRU-ER units are entitled under the "FOUR SEASONS" brand name for domestic and foreign markets. DOGU HVAC's, headquarter in Izmir/Turkey, operates in a large-sized plant spread over 2 factories, in total area of 45.000 sqm in which 25.000 sqm indoor space that enables DOGU HVAC manufactures 140 various type of products. Additionally, DOGU HVAC has a powerful sales network with 4 sales offices located in İstanbul, Ankara, Antalya and Adana in Turkey as well as authorized dealers in many other countries for sales and after sales operations. DOGU HVAC has been exporting to more than 50 countries.

Thanks to our "Customer Satisfaction", "Zero-Defect Policy" motto and reinforced by complete certified products, more than 250 employees. DOGU HVAC R&D center developed exclusive products, such as Double Skin Make-Up Kitchen Hood, Recirculated Laminar Airflow Unit, Single Piece Square Ceiling Diffuser and Ecology Units, for the first time have brought to the sector. DOGU HVAC R&D has the ability to make customized production which can meet the requirement of the customers by means of special software such as "ANSYS FLUENT". DOGU HVAC guaranteed its quality of management by having advantages of ISO 9001, ISO 14001, ISO 18001 certifications. Air Handling Units have EUROVENT, TUV Hygiene [in accordance with DIN1946-4, VDI 6022-1, DIN EN 13053 standarts], CE, TSEK, GOST-R certifications; Fire Dampers have EN 1366-2 and EN 13501-3 CE certifications; Smoke Control Dampers have EN 1366-10 and 12101-8 CE certifications; Kitchen Ventilation Products have TSEK, CE and GOST-R quality certifications.





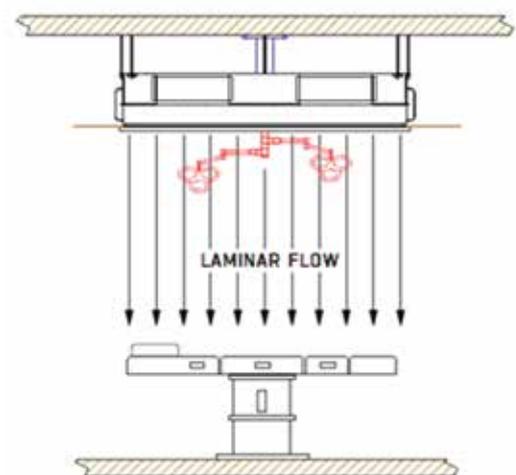
GLD – Laminar Flow Ceiling Systems

- GLD – Laminar Flow Ceiling Systems with Horizontal Filter, are used in operating theaters, intensive care units and industrial facilities which are producing clean room standards.
- Every manufactured Laminar Flow Ceiling System is tested according to DIN 1946/4 and DIN 25414, and ensured to customer with “100% Leak Proof Warranty”.
- H13/H14 class gel seal hepa filter is used in the system. Thanks to its gel seal structure, a high level of leak proofis provided between the filter and the main case. Thus, it provides protection against harmful particles that may spread into the environment.
- H13/H14 class aluminum frame and gel seal filter has at tested in EN 1822 standards and it has at least 99.995% efficiency according to the related standard.

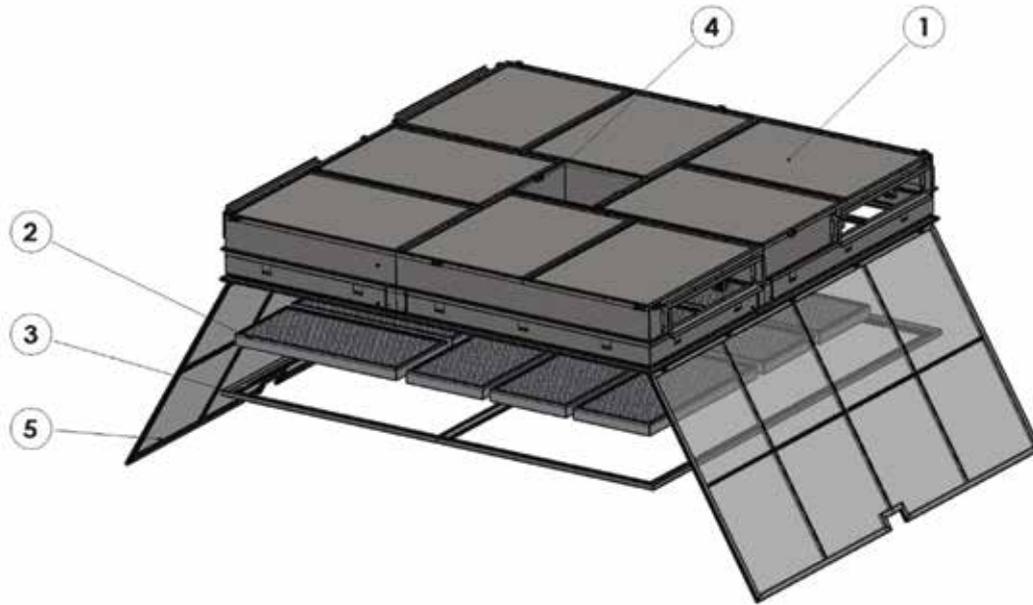
OPERATION

GLD – Laminar Flow Ceiling Systems with Horizontal Filter creates turbulent airflow over the patient and operating room personnel and protects against bacteria, viruses and microbes by pushing the air. This reduces the risk of infection for the occupied zone.

In terms of comfort, the human body is adversely affected by constant velocity air flows higher than 0.18-0.40 m/s. If the velocity of air exceeds 0.18-0.40 m/s, no doubt, the high speed will be disturb the patient. Nonetheless, the medical team which are performing surgery should also be able to work comfortably. For long hour surgery conditions, the occupied zone needs to be have low velocity airflow and this conditions can be achieved with Laminar Flow Ceiling System.



MATERIALS AND COATING



GLD – Laminar Flow Ceiling Systems with Horizontal Filter consists of main parts. These parts are Main Case, H14 Gel Seal Hepa Filter Set, Pendant Box, Laminarizer and Laminarizer Frame.

1- Main Case: Manufactured from AISI 304 stainless steel with V2A class, which convenient to DIN 1.4301 standard. Main case does not contain indentations, by this way it is easy to clean and becomes leak-proof. It is produced in a modular structure for ease of assembly and shipment. The casing has manometer terminals for the examination of pressure difference of HEPA filters.

2- HepaFilters: H14 class, and it has high flow rate and low initial pressure loss values. Filter case is made of anodic oxidation coated aluminum, for preventing the microorganism activity. To prevent damage to the filter during assembly, protection wire shall be provided on both sides of filter. Thanks to its gel seal structure, a high level of sealing is provided between the filter and the main case.

2-3- Laminarizer Frame: It closes the gap between the laminarizer and the main case, gives the GLD an aesthetic appearance.

3-4- Pendant Box: Located in the center of GLD, because of to hide the flange of the surgery lamp and for interfering if it needs.

5- Laminarizer: The frame is made of stainless steel profile. Covered with special silk cloth made of non-decay and fire resistant micro nets which develops the laminar flow and it can be disinfected by wiping. The laminarizer is attached to the case with torque hinges and clips. Torque hinges system provides easeness for changing the filters.

Soft Wall



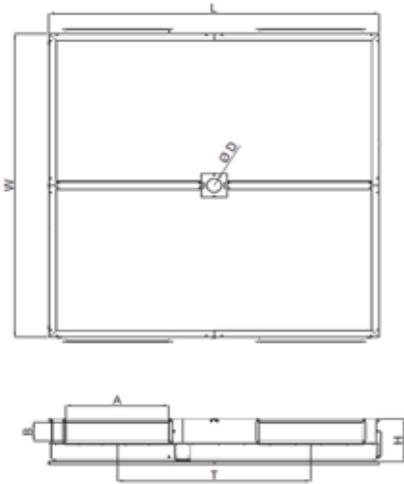
To decrease turbulence effect on the laminar flow zone edges, a soft wall that made of PET-G can be integrated on the entire circumference of the unit as an accessory.

QUICK SELECTION

Product Code	Dimensions			v=0,23 m/s Hepa Filter and with		
	Width (mm)	Length (mm)	Height (mm)	Air Volume (m ³ /h)	Average Sound Pressure Level (dB)	Initial Pressure Loss (Pa)
GLD - 1400x2400	1400	2400	450	2600	35	90
GLD - 1600x2400	1600	2400	450	3200	35	90
GLD - 1800x2400	1800	2400	450	3600	35	90
GLD - 2400x2400	2400	2400	450	4800	40	95
GLD - 2400x3000	2400	3000	450	6000	40	95
GLD - 3000x3000	3000	3000	450	7500	40	95
GLD - 3200x3200	3200	3200	450	8500	40	95
GLD - 3800x3800	3800	3600	450	12000	40	97

Note: Recommended final pressure loss level is maximum 250 Pa.

DIMENSIONS



1- If the dimensions are only 1400x2400 mm, it has 2 ducts placed by crossed on the long edge. Another dimensions of the module will have 4 ducts.

2- "ØD" Pendant diameter will be given by the customer at the time of order.

3- The number and size of the hepa filters are varying from different global dimensions. Changes can be seen from the table below.

Product Code	Dimensions [mm]						Filter Number Quantity and Size Dimensions of Filter
	W	L	H	A	B	T	
GLD - 1400x2400	1400	2400	450	600	200	-	850x465x80 / 2 - Pieces 720x350x80 / 6 - Pieces
GLD - 1600x2400	1600	2400	450	600	200	1192	850x465x80 / 2 - Pieces 720x450x80 / 6 - Pieces
GLD - 1800x2400	1800	2400	450	600	200	1192	850x465x80 / 2 - Pieces 720x550x80 / 6 - Pieces
GLD - 2400x2400	2400	2400	450	600	200	1192	804x530x80 / 10 Pieces
GLD - 2400x3000	2400	3000	450	900	200	1446	1104x530x80 / 2 - Pieces 804x530x80 / 10 - Pieces
GLD - 3000x3000	3000	3000	450	1000	200	1778	1092x532x80 / 12 Pieces
GLD - 3200x3200	3200	3200	450	1000	200	1878	1192x565x80 / 12 Pieces
GLD - 3800x3800	3800	3800	450	1200	200	2180	1470x670x80 / 12 Pieces

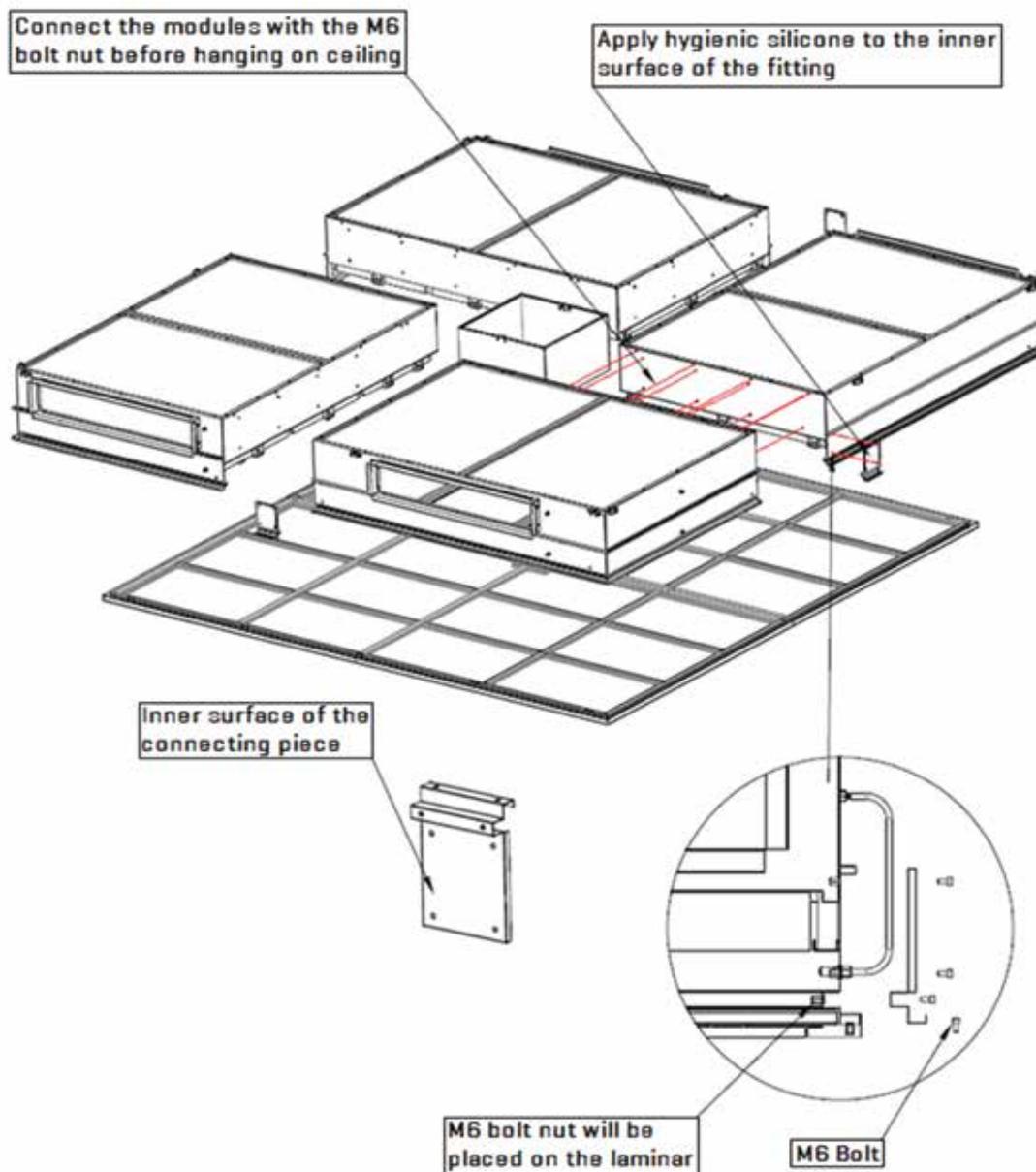
ASSEMBLY

Stage 1: Connect the modules with the M6 bolt nut before hanging on the ceiling. [There is gasket on the module joining surfaces.]

Stage 2: Apply hygienic silicone to the inner surface of the fitting.

Stage 3: Fix the modules connected with the M6 bolt nut to each other with the coupling piece. [2 and 4 laminar flow modules will combined in the same way.]

Stage 4: Before hanging on the ceiling, use the hygienic silicone between the assembled modules.

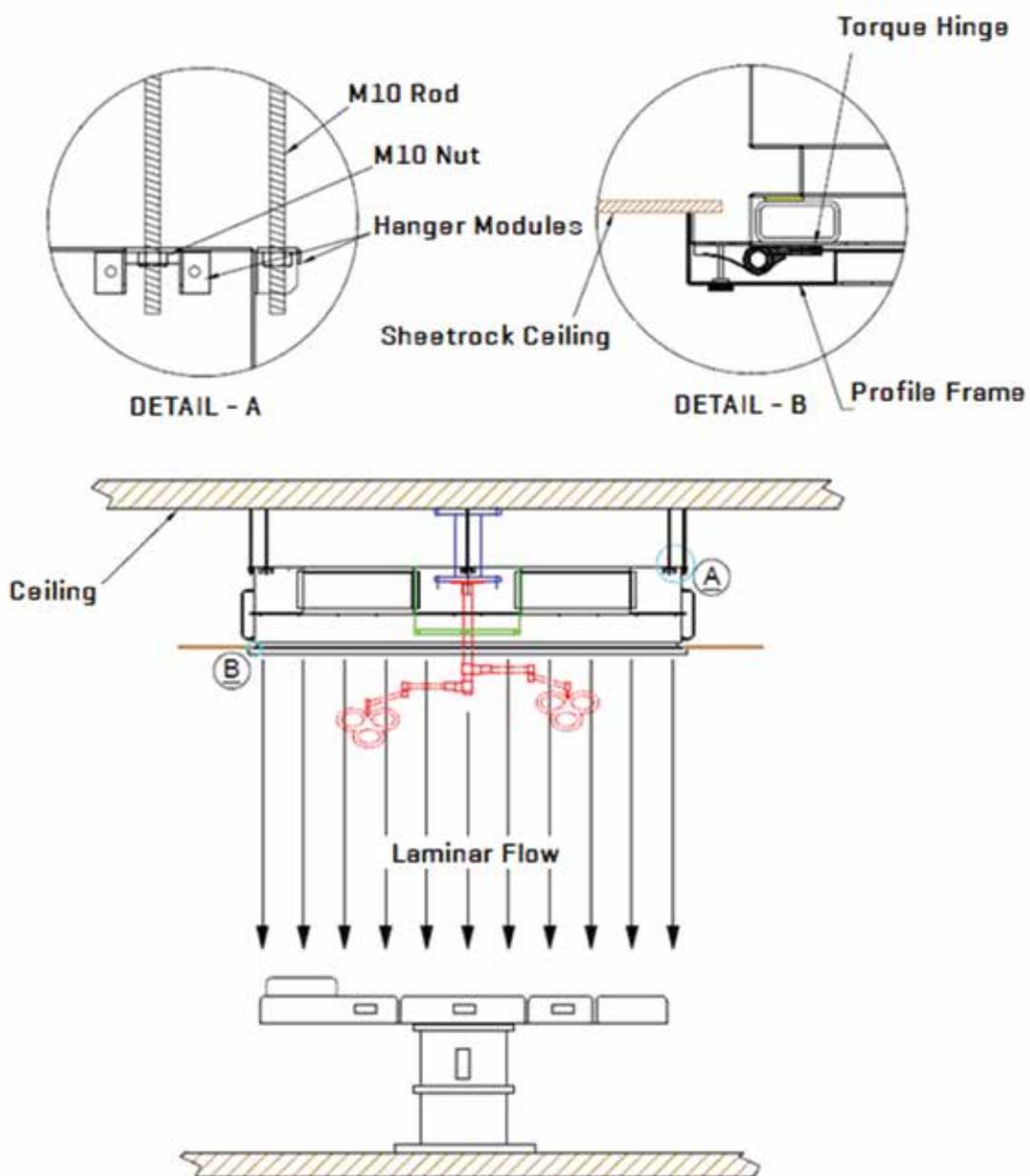


Stage 5: M10 rods that fixed on the ceiling, will be connected to the hanger module, which placed on the case, by M10 nuts with balancing operation.

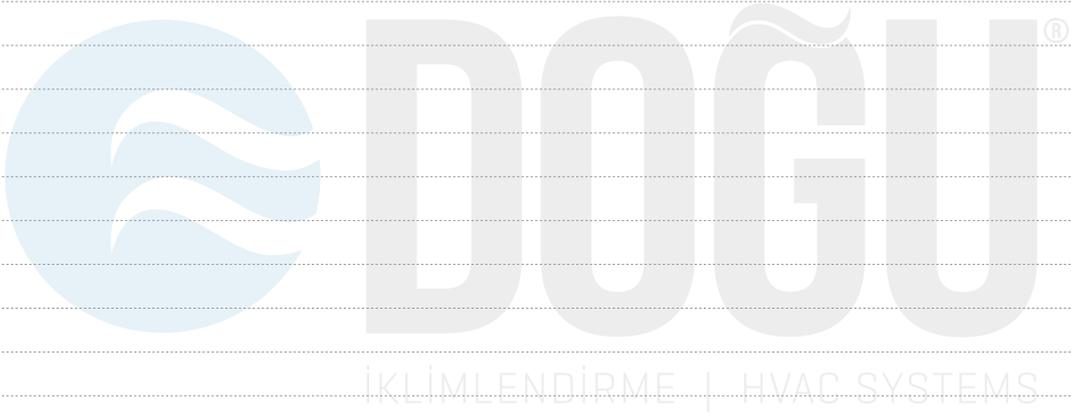
Stage 6: Attach the laminarizer to the case with torque hinges and clips.

Stage 7: Connect the case with the profile frame which seated on the ceiling, by the fixing bolts.

Stage 8: Before testing, make sure that the ceiling zone is at negative pressure.



NOTES





**We make the difference with
130 different types of products.**



İKLİMLENDİRME | HVAC SYSTEMS

Headquarter

ITOB Organize Sanayi Bölgesi 10010 Sk.
No: 4 35477 Tekeli, Menderes, İzmir/TURKEY
Tel.: +90 232 799 02 40 | Fax: +90 232 799 02 44

Istanbul Sales Office

Barbaros Mah. Ciğdem Sk. No: 1 Ağaoğlu My Office
Kat: 4/18 Ataşehir, İstanbul/TURKEY
Tel.: +90 216 250 55 45 | Fax: +90 216 250 55 56

info@doguhvac.com | www.doguhvac.com

FOUR
SEASONS®

 **DOĞU**
İKLİMLENDİRME | HVAC SYSTEMS

