Operating theatre ceiling – perforated version DPS-N

Application

The DPS-N laminar supply ceiling with high-efficiency filters is used in clean rooms which require clean air as well as laminar airflow in the working area. They are designed to be built into suspended ceilings of OP rooms and intensive care units to ensure a laminar flow of clean air into the target zone. DPS-N is suitable for OP rooms class Ib as defined in DIN 1946-4.

Description

The coarse and fine filtration of the air for the operation theatre takes place in an air handling unit according to DIN 24185. The filtered supply air is distributed to the high-efficiency filter on the DPS-N plenum box. The air is discharged from the pressure chamber into the OP theatre via the perforated cei-ling plates. The temperature of the discharged air must be 1° to 3 °C lower than the average room temperature. Two thirds of the air current should be extracted from the room via the floor and one third via the ceiling. The air current which is being discharged from the DPS-N flows over the entire area under the ceiling thus preventing the surrounding air from penetrating within the operating area (fig. 1).

DPS-N Material, surface protection and assembly

- The housing of DPS-N operating ceilings is made of disinfectant-resistant cold rolled steel, powder coated in RAL 9010, or stainless steel AISI 304 (INOX).
- On request, the ceiling contains a transition for the ope-rating light. In this case, a blind plate and a plate with a round opening of ø150 mm.
- The perforated plates are attached with hinges on one side and locks on the other side.
- The DPS-N laminar ceiling is fitted with HEPA filters inserted above the perforated mask over the entire surface. The dimensions of the connection spigot and weights are given in Table 2.
- The inside of the ceiling is fitted with filter pressure drop measurement connections (the difference between the pressure upstream and downstream of the filter, which indicates the dirtiness of the filter) and with a SCAN test connection.
- DPS-N is mounted to the concrete ceiling with threaded bars and inners for the concrete.
- The pressure chambers are made of two or three parts, which are screwed together at the installation site. In the assembly operations the connections are additionally packed with acrylic putty, which is attached to the ceiling.

Fig. 1 DPS-N operating ceiling

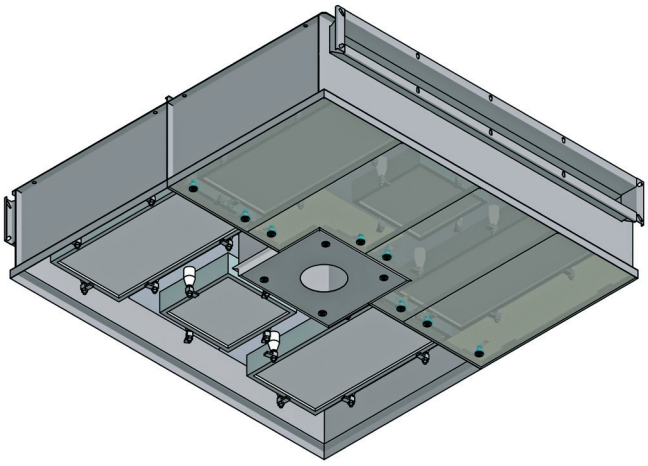


Fig. 2: DPS-N air flow pattern

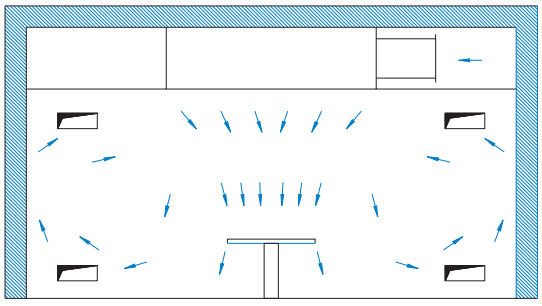
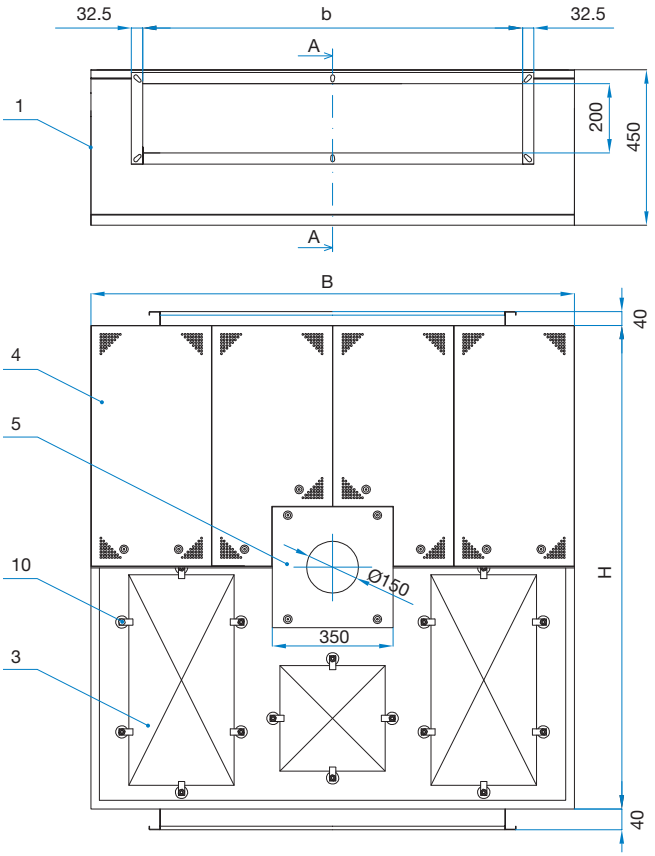
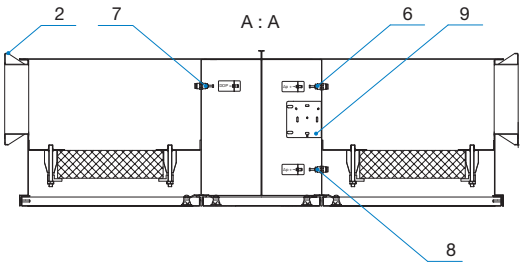


Table 1: DPS-N ceiling dimensions

B	H	H_{DPS}	Q [m3/h]	Weight [kg]	Connection flange
2000	**1000**	**450**	1200	110	200 x 800
2400	**1200**	**450**	2400	150	200 x 1200
2400	**1400**	**450**	2700	165	two connections 200 x 650
2400	**1500**	**450**	3080	180	two connections 200 x 750
2400	**1800**	**450**	3300	230	two connections 200 x 800
3000	**1800**	**450**	4500	275	two connections 200 x 1100
3000	**2400**	**450**	6000	325	two connections 200 x 1500
3000	**3000**	**450**	9000	405	four connections 200 x 1100
3200	**3200**	**450**	10800	490	four connections 200 x 1300

DPS–N – B x H / L / S

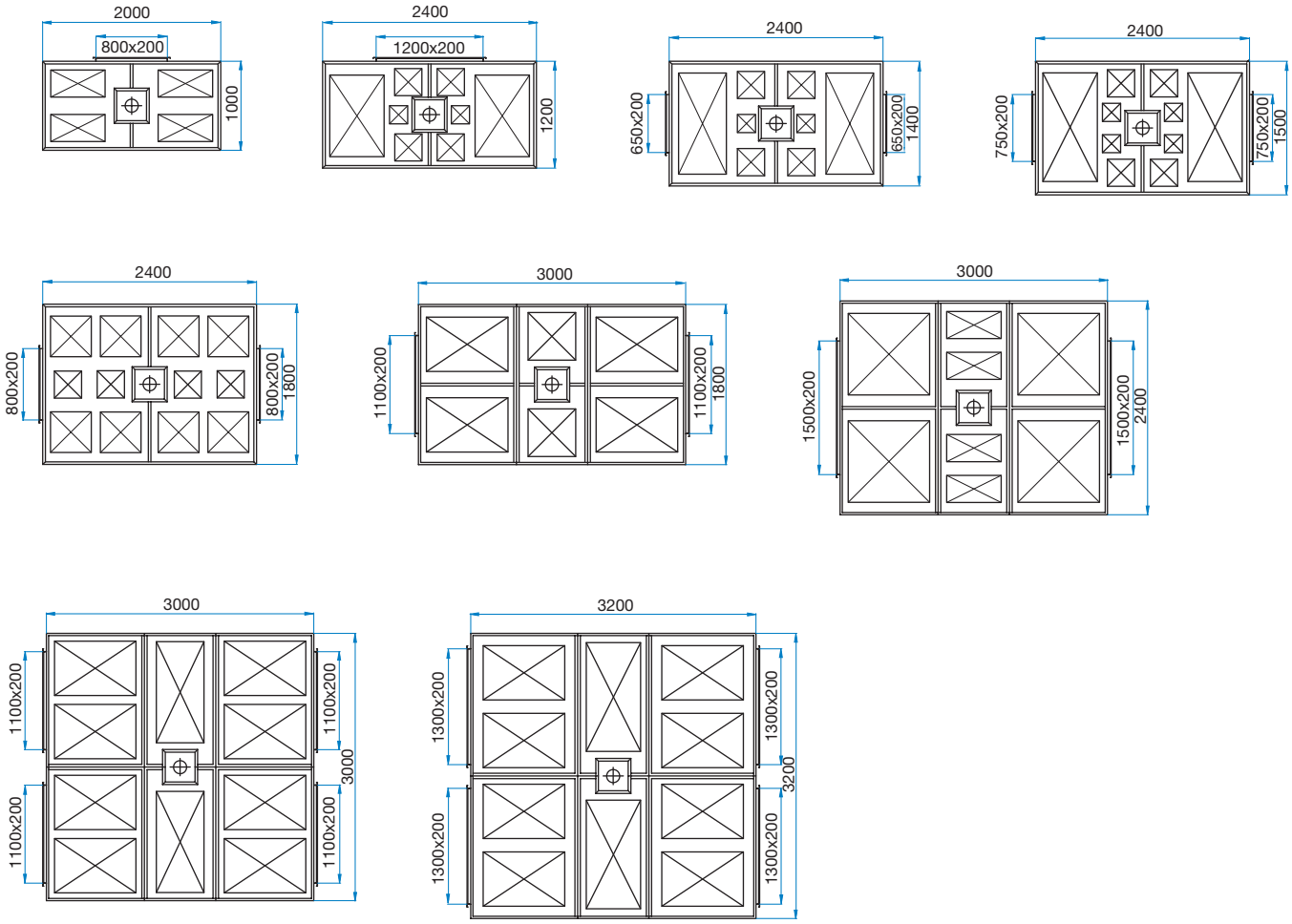




Legend

1. Pressure chamber
2. Filter housing
3. HEPA filter
4. Perforated mask
5. Blend plate with or without opening
6. Static pressure connection before filter + Δp
7. Connection (UPSTREAM) for scan test
8. Static pressure connection after filter - Δp
9. Holder for pressure gauge
10. Filter holder

DPS-N - positions of spigots and HEPA filters



Ordering key

DPS-N – B x H / L / S / H13 / RAL

1 2 3 4 5 6

1 Type	
DPS-N	Laminar flow ceiling with steel perforated diffuser

2 Dimensions	
B x H	Dimension B x H in mm (see table 1)

3 Lighting	
L	Light transition
-	Without light transition

3 Spigot	
S	Side entry spigot
V	Vertical entry spigot (on request)

4 Filter type	
H13	≥ 99,95% efficiency - filter classification EN 1822:2010
H14	≥ 99,995% efficiency - filter classification EN 1822:2010

5 Finish	
RAL	Steel epoxy coated in RAL 9010.
INOX	Stainless steel (AISI 304).

Note:
Filters are included in price.
Other dimensions are available on request.