



HEX-25

Energy recovery from the ventilation system of 75 m² home.

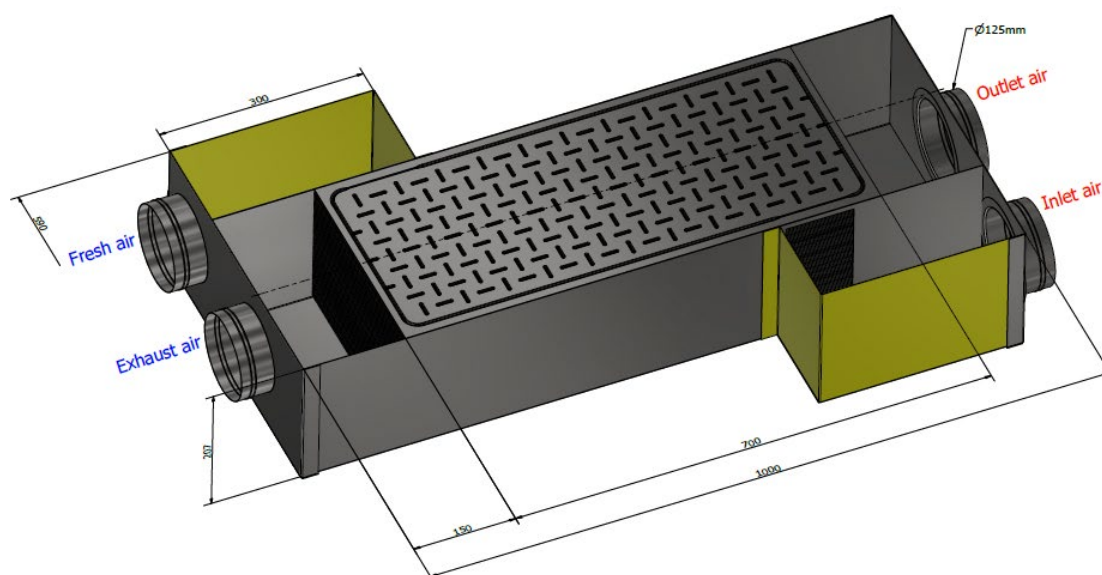
Performance:

HEX-25

Fan:

Dimensions: 1000 x 590 x 200 (l x w x h) mm. Material: AISI 316L Lamellae distance: 2mm Temperature efficiency: $\geq 95\%$ Airflow: 30 l/s Pressure drop over HEX-25: < 72 Pa (30l/s) Carbon filter included Min/max temperature: $-40^{\circ}\text{C} - +90^{\circ}\text{C}$	Duct: ϕ 125 mm Working point: Airflow: 30 l/s External static pressure drop: 200 Pa Sound pressure level: ≤ 29 dB(A) Effect: 25 W 1 x 230 V Current: 0,24 A RPM: 2370 SFP: 0,817 kW/m ³ /s Controll system: Potentiometer: 6.11 V (0-10 V) Fan diagram: See Appendix 1
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The pictures below shows the standard unit of Hex 25.





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The picture shows an insulated counterflow heat-exchanger with ϕ 125mm rubber sealed connections.

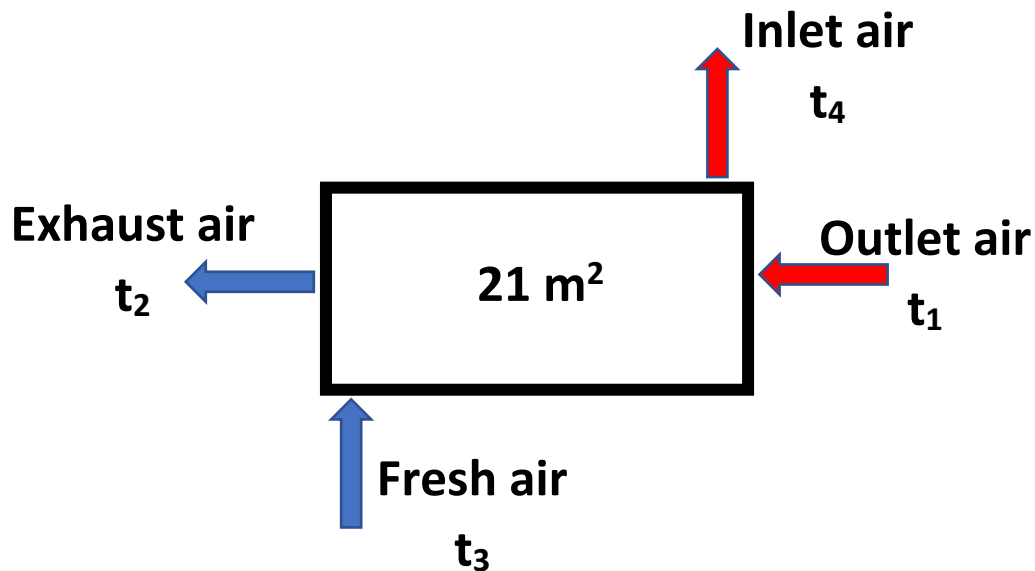




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CALCULATION

ASSUMPTIONS

**Outlet air:**

$q = 30 \text{ l/s}$, $t_1 = 22^\circ \text{C}$, $\gamma = 0.4$

Exhaust air:

Condensing (18°C)

Fresh air:

$t_3 = 7^\circ \text{C}$, $\gamma = 0.85$

Temperature efficiency: $\eta_t = 0.95 - 0.98$



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CALCULATIONS

Inlet air temperature (t_4)

$$\frac{t_4 - t_3}{t_1 - t_3} = 0.95 \rightarrow t_4 = 21^\circ \text{C}$$

Absorbed effect: [P_A]

$$(i_4 - i_3) \times \text{kg/s} = 1.2 - 0.7 = 0.5 \text{ kW}$$

Output effect: [P_O]

Condensate: 0.000239 kg/s

Condensate entapli: 2458 kJ/kg

Output effect: 0.6 kW

Conclusion:

$$P_{\text{out}} > P_{\text{abs.}}$$

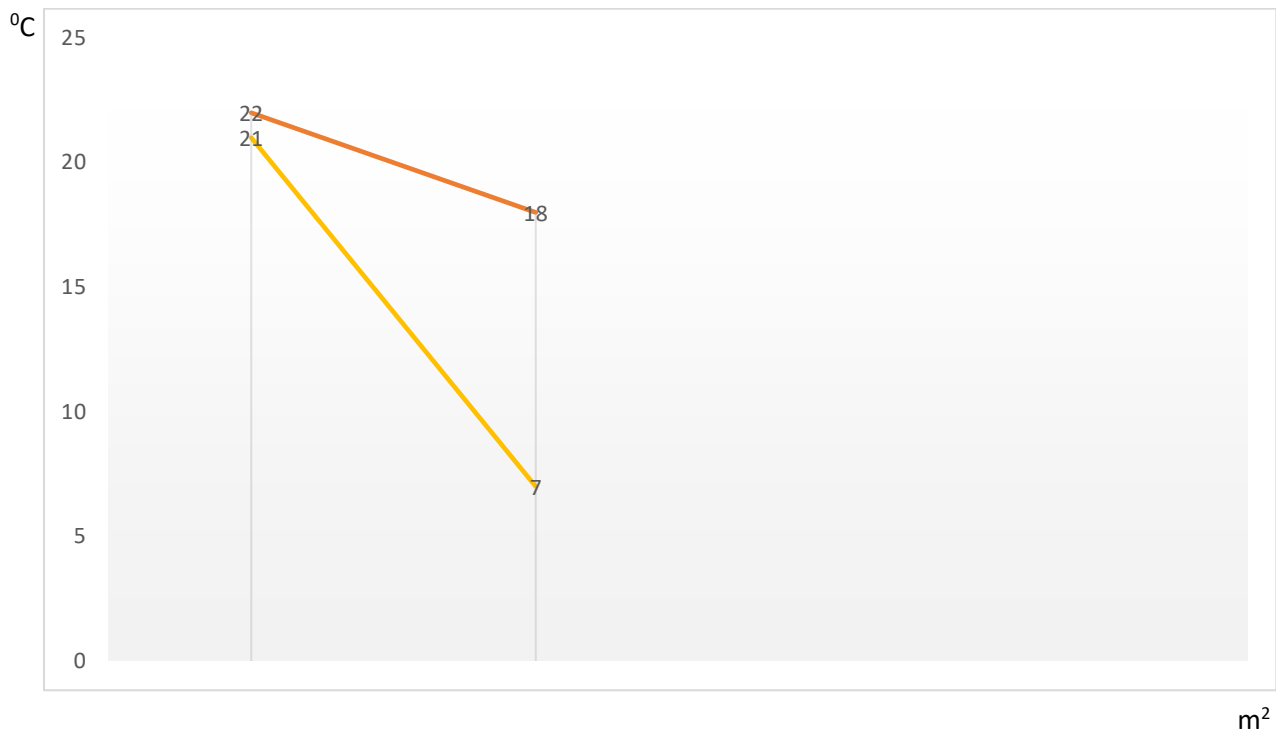
$$\text{and } \eta_t \geq 0.95$$



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CALCULATIONS

Average temperature difference Φ_m



$$\Phi_m = \frac{11 - 1}{\ln \frac{11}{1}} \cong 4^\circ \text{C}$$

Max absorbed effect:

With the assumptions

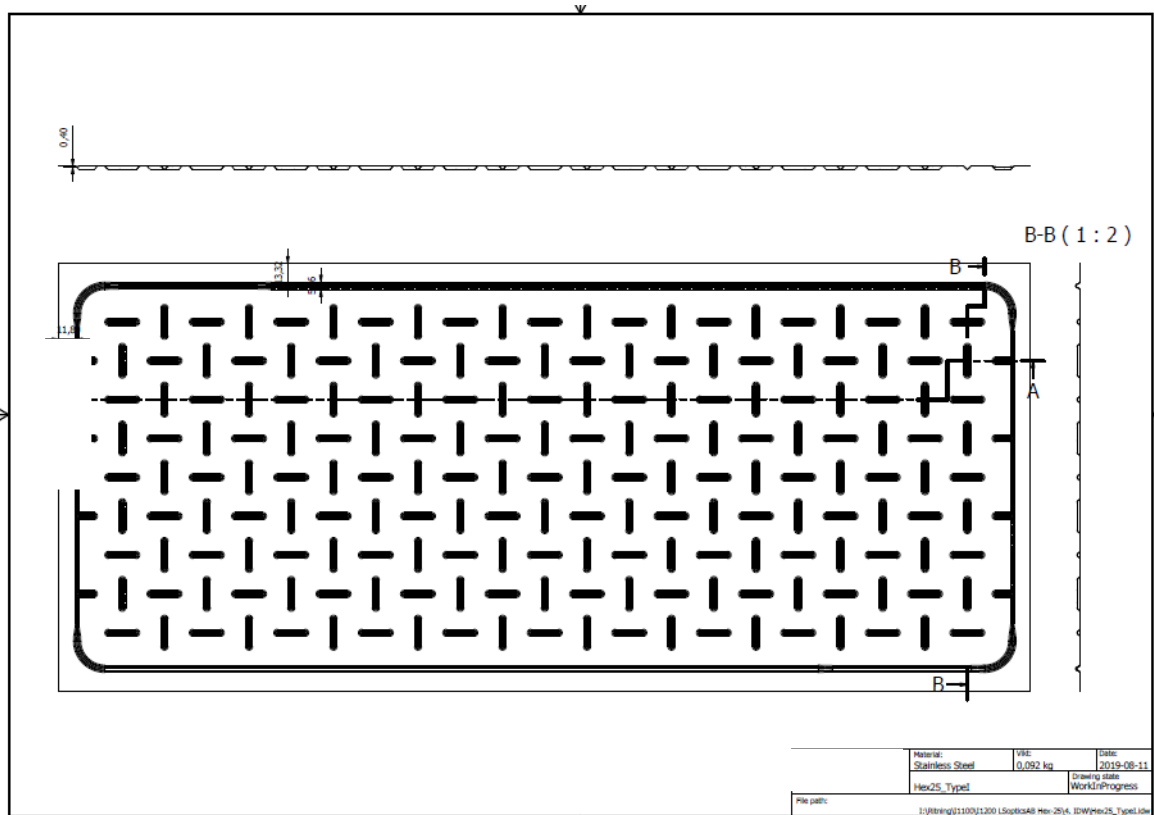
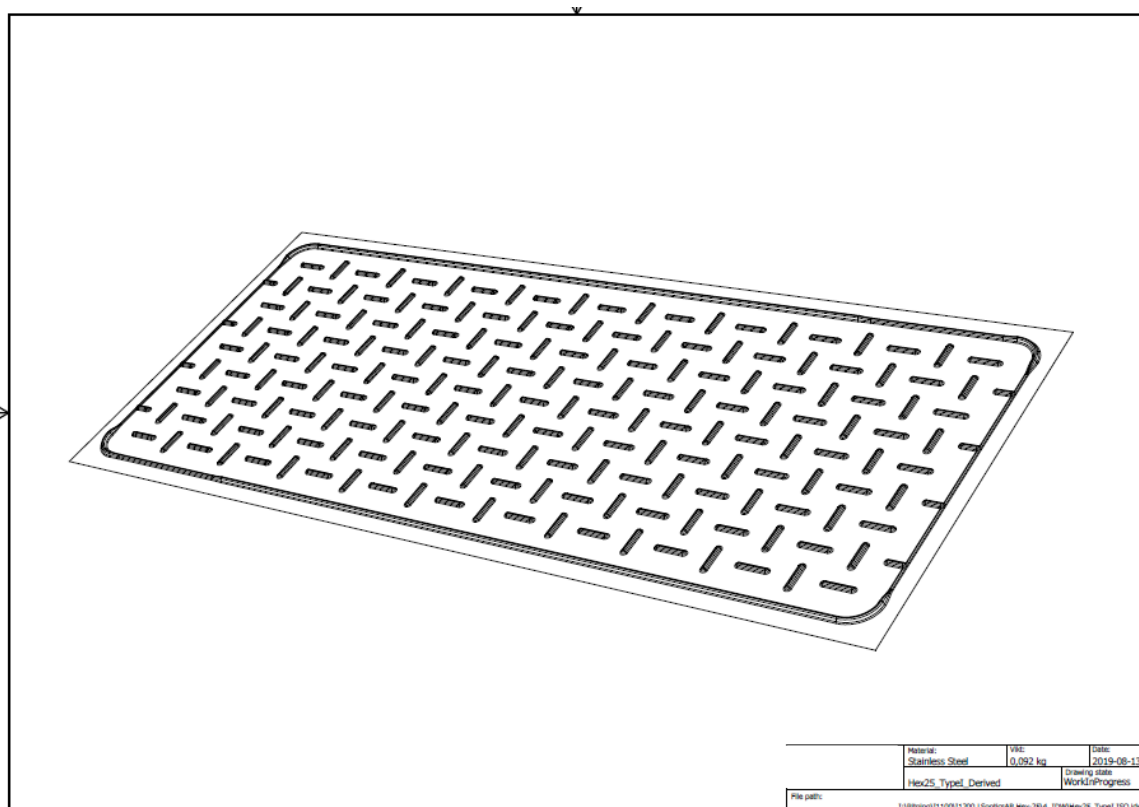
$$P = K \times A \times \Phi_m$$

$$K = 15 \text{ W} / ^\circ\text{C m}^2$$

$$P = 15 \times 21 \times 4 = 1.2 \text{ kW}$$

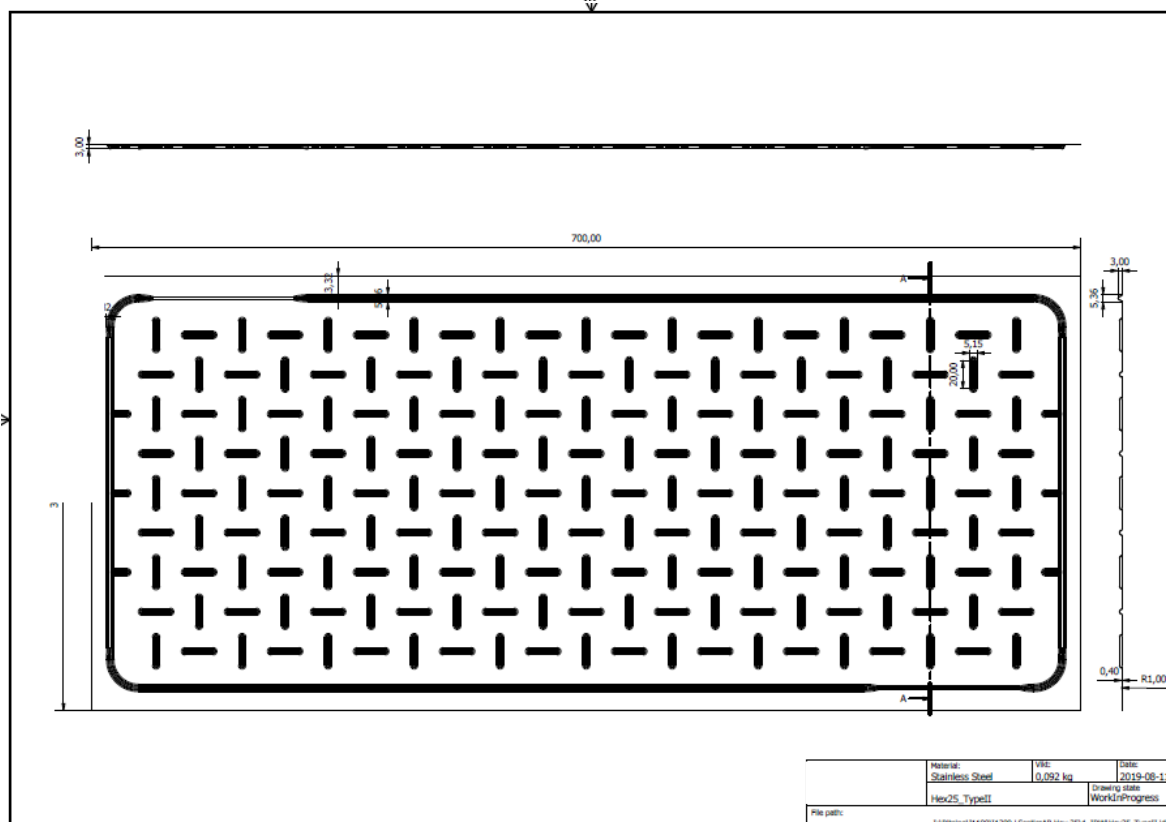
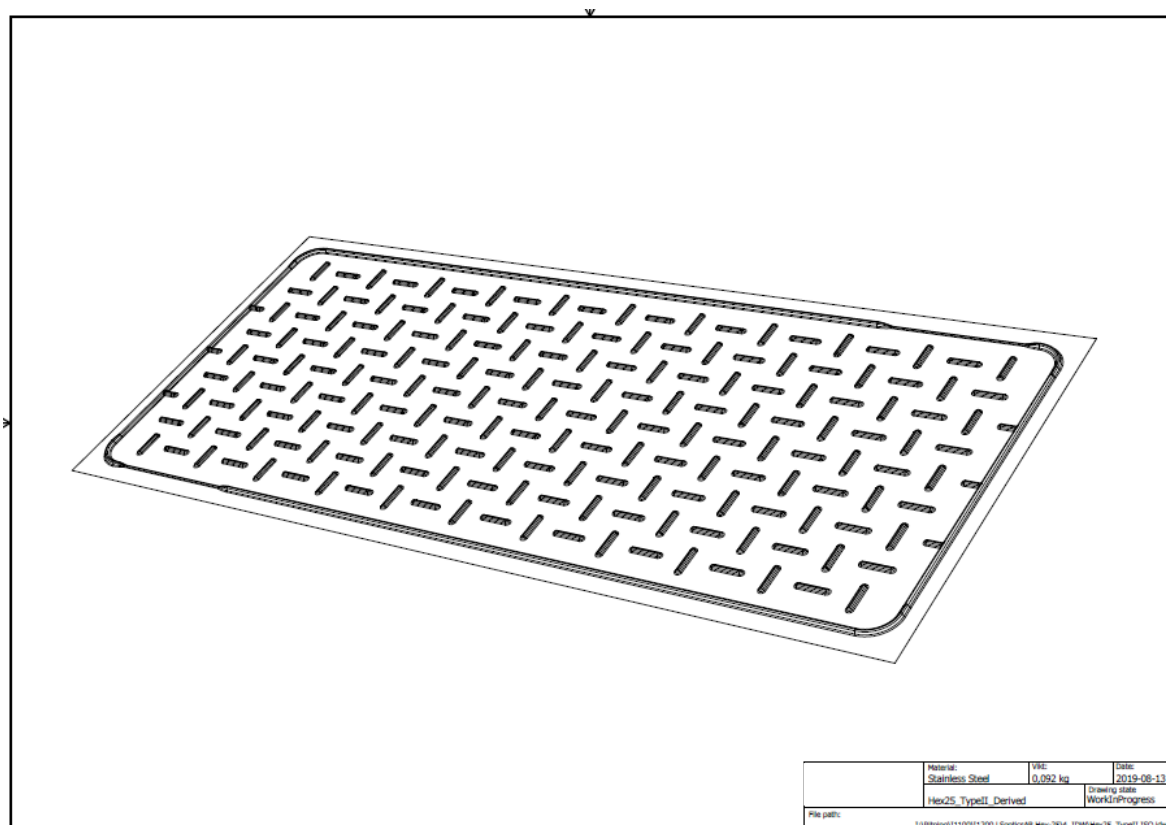


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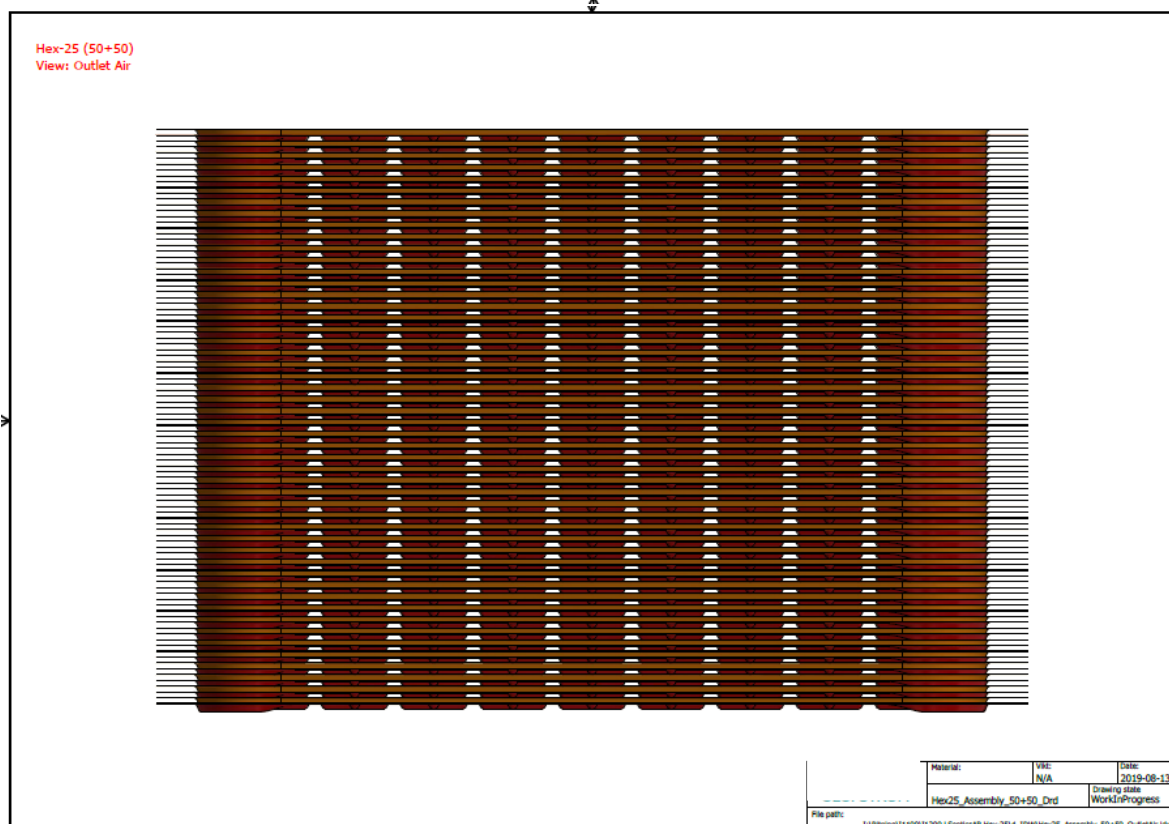
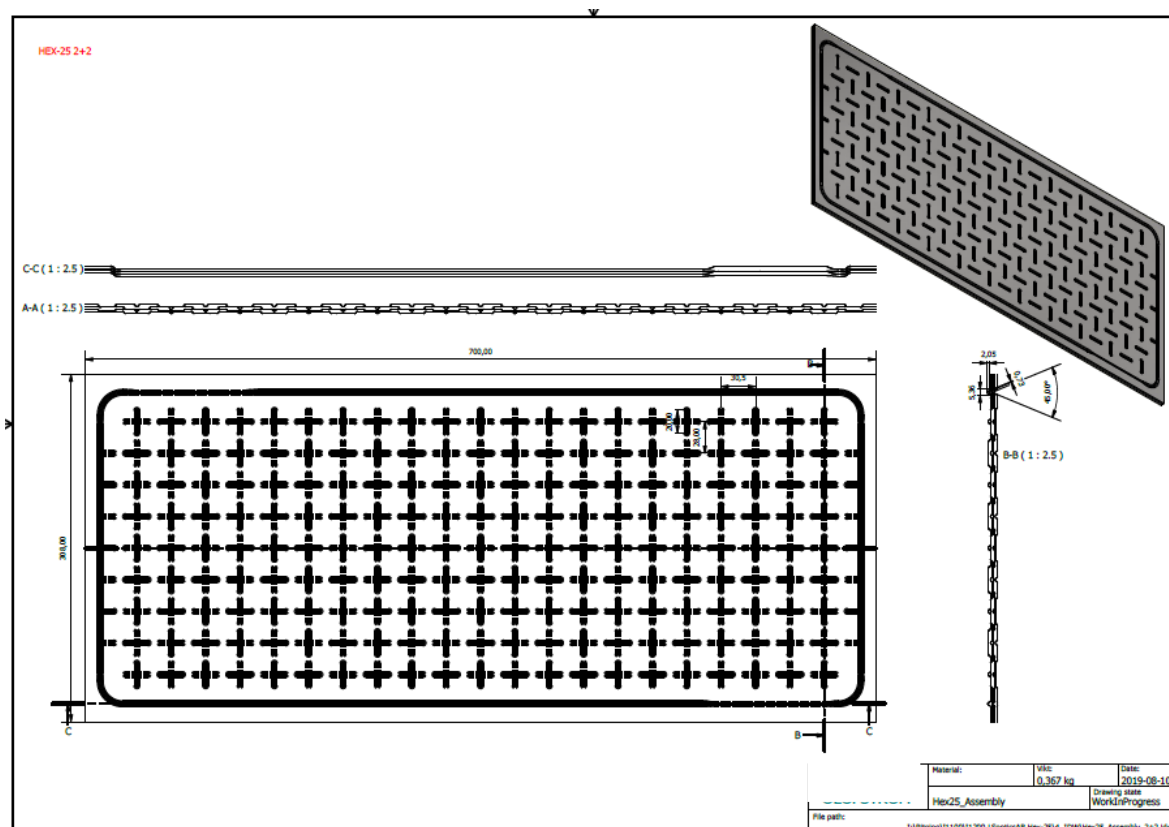


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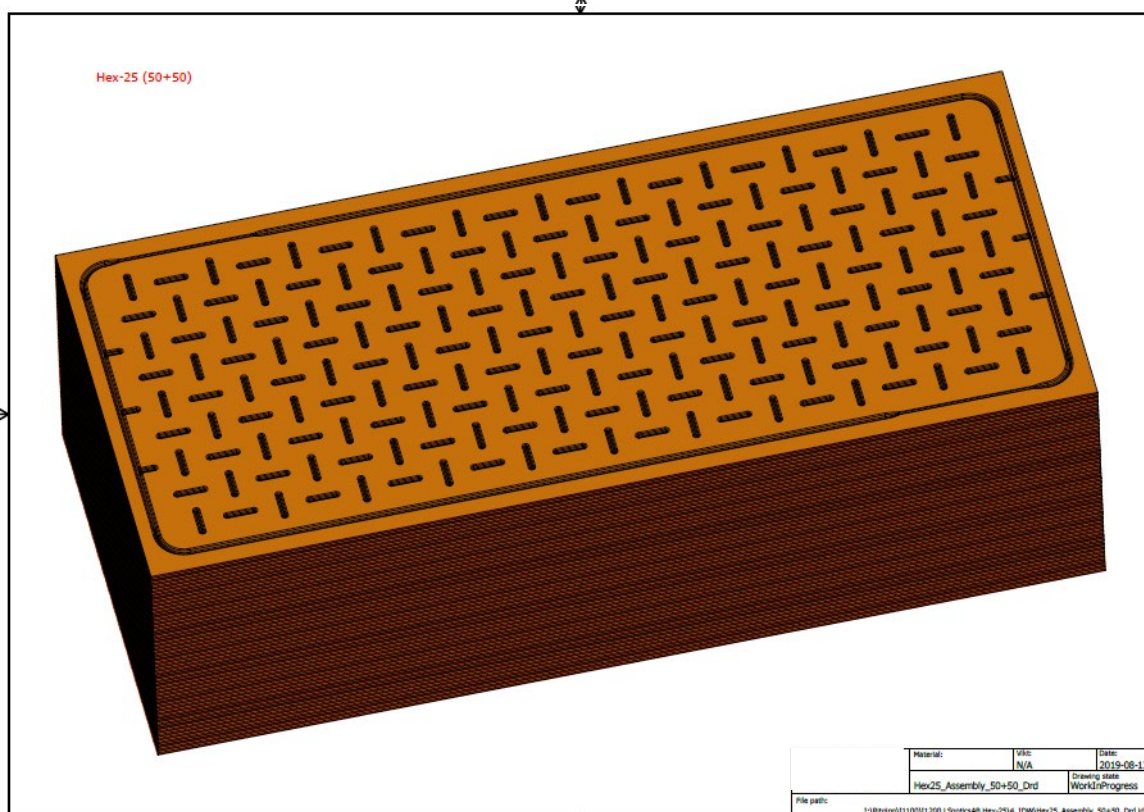
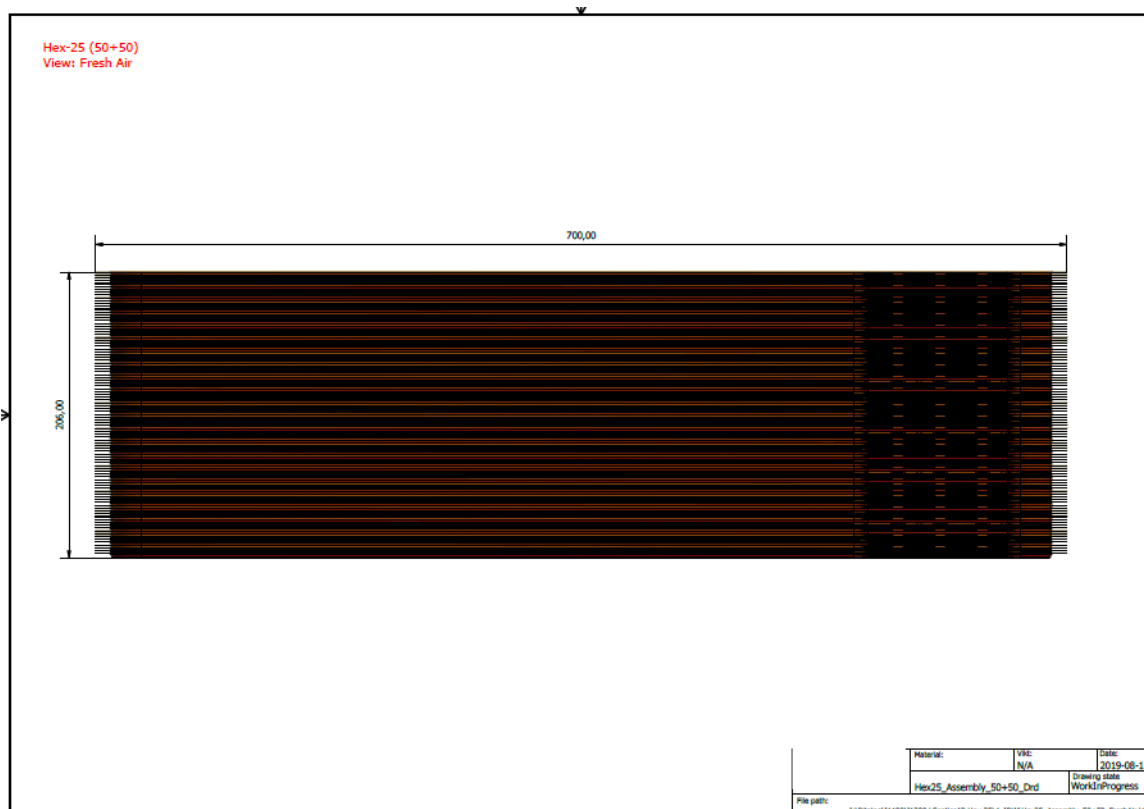


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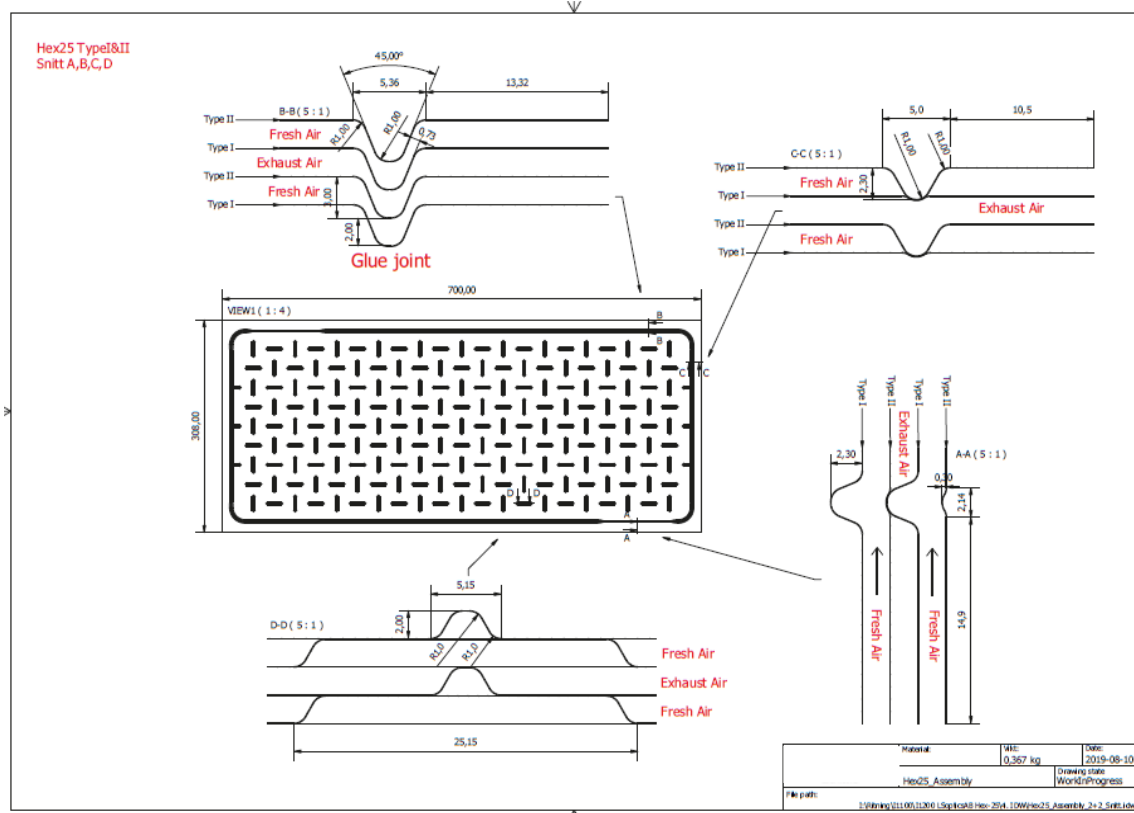
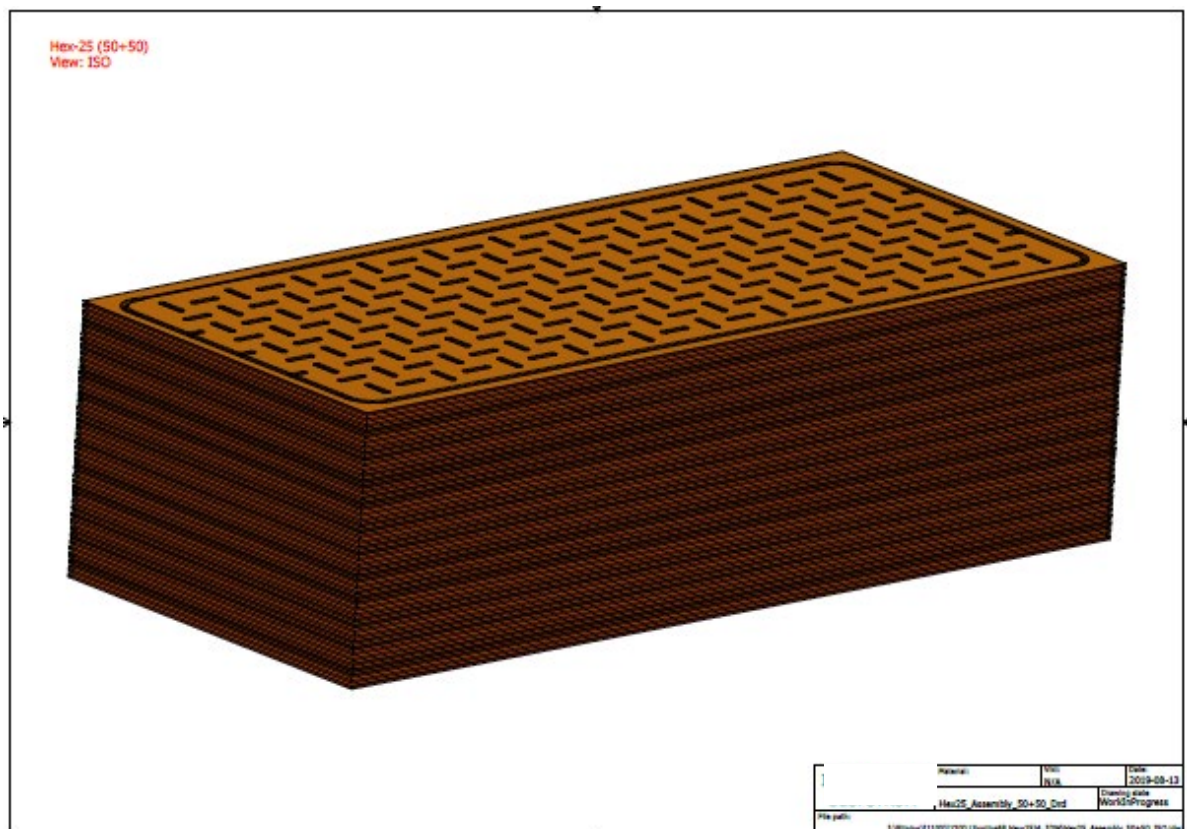


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The first pressed lammellae with the new HEX-25 press tool.

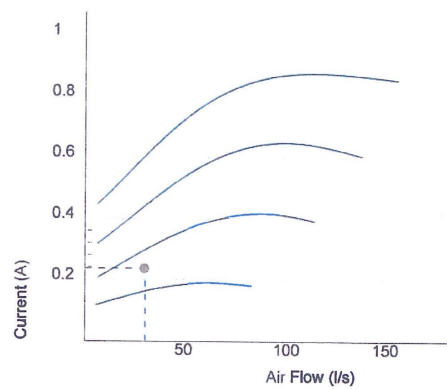
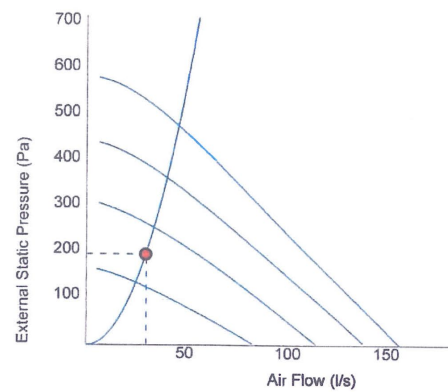


Thickness: 0,05 mm



Appendix 1: Duct fan diagram

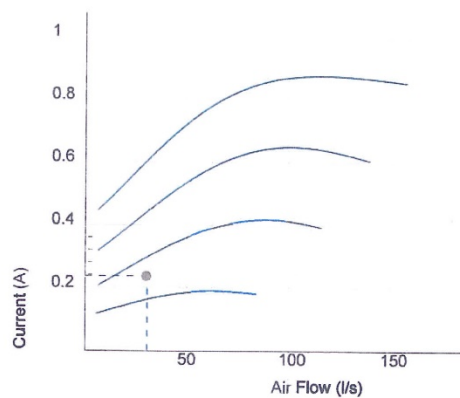
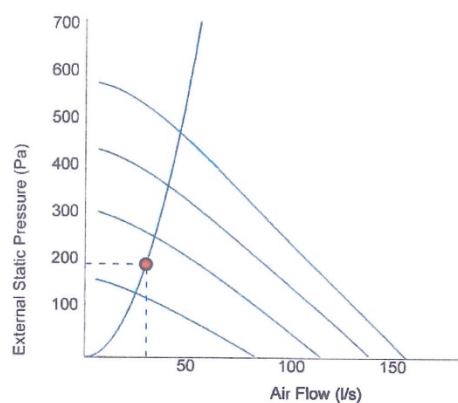
0.237

Verkningsgrad (%)
24.7SFP (kW/m³/s)
0.817Spänning (V)
6.11



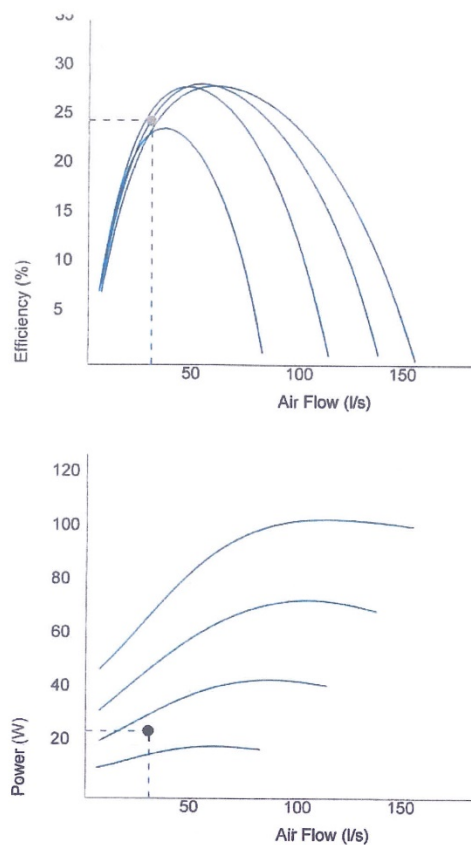
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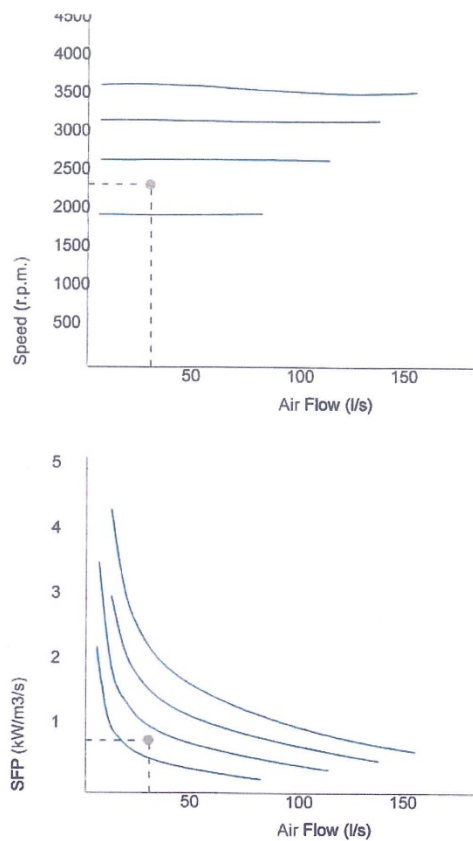


Appendix 1: Duct fan diagram





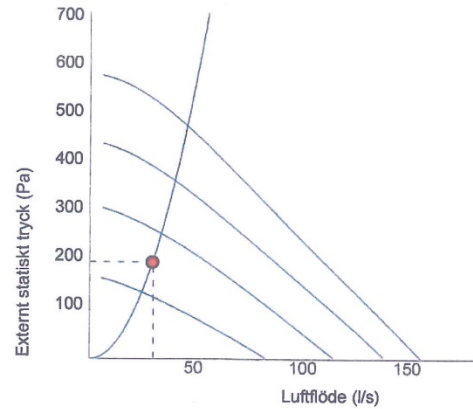
Appendix 1: Duct fan diagram



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Appendix 1: Duct fan diagram



	Tot	63	125	250	500	1k	2k	4k	8k
Inlopp Lw dB(A)	69	47	61	64	63	62	58	53	43
Utlöpp Lw dB(A)	69	49	61	63	62	61	60	52	43
Omgivning Lw dB(A)	42	24	23	35	36	37	32	32	29
Omgivning Lp dB (A) 3m	35	17	16	28	29	30	25	25	22

