Certificate

Passive House Suitable Component

For cool temperate climates, valid until 31. December 2021

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Category: **Compact Heat Pump System**

Manufacturer: **Nilan A/S**
8722 Hedensted, DENMARK

Product name: **Compact P (172 m³/h)**

This certificate was awarded based on the following criteria (limit values*):

Thermal Comfort:	$\theta_{supply\ air} \geq 16{,}5°C$
Heat Recovery of ventilation system:	$\eta_{WRG,eff} \geq 75\%$
Electric efficiency ventilation system:	$P_{el} \leq 0{,}45$ Wh/m³
Air tightness (internal/external):	$V_{Leakage} \leq 3\%$
Total Primary Energy Demand (**):	$PE_{total} \leq 55$ kWh/(m²a)
Control and calibration (*)	
Air pollution filters (*)	
Anti freezing strategy (*)	
Noise emission and reduction (*)	

Measured values to be used in PHPP (set point 172 m³/h)
useful air flow rates 120 to 205 m³/h

Heating

		Test point 1	Test point 3	Test point 3	Test point 4	
Outside Air Temperature	T_{amb}	**-3.7 °C**	**2.0 °C**	**6.9 °C**		°C
Thermal Output Heating Heat Pump	$P_{heating}$	**0.61**	**0.78**	**0.92**		kW
COP number Heating Heat Pump	$COP_{Heating}$	**2.65**	**3.18**	**3.58**		-
Maximum available supply air temperature with Heat Pump only(*)		**28.6**				°C

Hot water

		Test point 1	Test point 3	Test point 3	Test point 4	
Outside Air Temperature	T_{amb}	**-4.0 °C**	**2.0 °C**	**7.0 °C**	**20.2 °C**	°C
Thermal Output Heat Pump for heating up storage tank.	P_{DHW} heating up	**0.60**	**0.83**	**0.99**	**1.14**	kW
Thermal Output Heat Pump for reheating storage tank	P_{DHW} reheating	**0.53**	**0.82**	**0.95**	**1.05**	kW
COP Heat Pump for heating up storage tank	COP_{DHW} heating up	**2.13**	**2.87**	**3.31**	**3.68**	-
COP Heat Pump for reheating storage tank	COP_{DHW} reheating	**1.81**	**2.72**	**3.05**	**3.28**	-
Averge storage tank temperature		**50.5**				°C
Specific storage heat losses		**1.63**				W/K
Exhaust air addition (if applicable)						m³/h

(*) detailed description of criteria and key values see attachment.
(**) for heating, domestic hot water (DHW), ventilation, auxiliary electricity in the reference building, explanation see attachment.

Heat Recovery
$\eta_{WRG,eff}$ = 80%

Electric efficiency
0.40 Wh/m³

Air tightness
$V_{leak,\ internal}$ = 1.0%
$V_{leak,\ external}$ = 1.1%

Frost protection
down to -4 °C

Total Primary Energy Demand (**)
51.4 kWh/(m²a)

CERTIFIED COMPONENT
Passive House Institute

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