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Summary of	HPS.Z 12-16kW/400 V	Reg. No.	011-1W0439
Certificate Holder			
Name	Kospel SP. z o.o.		
Address	ul. Olchowa 1	Zip	75-136
City	Koszalin	Country	Poland
Certification Body	DIN CERTCO Gesellschaft für Konformitätsbewertung mbH		
Subtype title	HPS.Z 12-16kW/400 V		
Heat Pump Type	Outdoor Air/Water		
Refrigerant	R410A		
Mass of Refrigerant	2.5 kg		
Certification Date	15.12.2021		
Testing basis	HP KEYMARK certification scheme rules rev. 9		

## Model: HPSO-12/400 + HPSI-9

Configure model	
Model name	HPSO-12/400 + HPSI-9
Application	Heating (medium temp)
Units	Indoor + Outdoor
Climate Zone	n/a
Reversibility	No
Cooling mode application (optional)	n/a

General Data	
Power supply	3x400V 50Hz

### Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	11.50 kW	9.72 kW
El input	2.58 kW	3.65 kW
COP	4.45	2.66

EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

### Average Climate

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### EN 12102-1

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	64 dB(A)	64 dB(A)

### EN 14825

		Low temperature	Medium temperature
P <sub>designh</sub>	8.80 kW		
$\eta_s$	156 %	110 %	
Prated	9.00 kW	8.79 kW	
SCOP	3.98	2.83	
T <sub>biv</sub>	-7 °C	-7 °C	
TOL	-20 °C	-20 °C	
P <sub>dh</sub> T <sub>j</sub> = -7°C	7.98 kW	7.70 kW	
COP T <sub>j</sub> = -7°C	2.87	1.93	
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.99	0.99	
P <sub>dh</sub> T <sub>j</sub> = +2°C	5.63 kW	5.17 kW	
COP T <sub>j</sub> = +2°C	3.90	3.50	
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.99	0.99	
P <sub>dh</sub> T <sub>j</sub> = +7°C	5.78 kW	8.52 kW	
COP T <sub>j</sub> = +7°C	4.86	3.66	

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Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	14.35 kW	6.41 kW
COP Tj = 12°C	6.08	4.84
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	7.98 kW	7.70 kW
COP Tj = Tbiv	2.87	1.93
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.54 kW	6.94 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.80	1.75
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	55 °C	55 °C
Poff	15 W	15 W
PTO	0 W	0 W
PSB	0 W	0 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.48 kW	1.85 kW
Backup Heater	0.00 kW	
Annual energy consumption Qhe	4696 kWh	6362 kWh

## Model: HPSO-16/400 + HPSI-9

Configure model	
Model name	HPSO-16/400 + HPSI-9
Application	Heating (medium temp)
Units	Indoor + Outdoor
Climate Zone	n/a
Reversibility	No
Cooling mode application (optional)	n/a

General Data	
Power supply	3x400V 50Hz

### Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	15.74 kW	12.67 kW
El input	3.60 kW	4.95 kW
COP	4.37	2.62

EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

### Average Climate

This information was generated by the HP KEYMARK database on 18 Mar 2022

### EN 12102-1

	Low temperature	Medium temperature
Sound power level indoor	41 dB(A)	41 dB(A)
Sound power level outdoor	64 dB(A)	64 dB(A)

### EN 14825

		Low temperature	Medium temperature
P <sub>designh</sub>	10.80 kW		
$\eta_s$	151 %	111 %	
Prated	12.80 kW	10.83 kW	
SCOP	3.85	2.85	
T <sub>biv</sub>	-7 °C	-4 °C	
TOL	-20 °C	-20 °C	
P <sub>dh</sub> T <sub>j</sub> = -7°C	11.33 kW	9.20 kW	
COP T <sub>j</sub> = -7°C	2.46	1.89	
C <sub>dh</sub> T <sub>j</sub> = -7 °C	0.99	0.99	
P <sub>dh</sub> T <sub>j</sub> = +2°C	7.16 kW	6.61 kW	
COP T <sub>j</sub> = +2°C	3.70	2.77	
C <sub>dh</sub> T <sub>j</sub> = +2 °C	0.99	0.99	
P <sub>dh</sub> T <sub>j</sub> = +7°C	5.98 kW	5.08 kW	
COP T <sub>j</sub> = +7°C	5.17	3.74	

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Cdh Tj = +7 °C	0.99	0.99
Pdh Tj = 12°C	7.17 kW	6.41 kW
COP Tj = 12°C	6.92	4.84
Cdh Tj = +12 °C	0.99	0.99
Pdh Tj = Tbiv	11.33 kW	8.33 kW
COP Tj = Tbiv	2.46	2.06
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.68 kW	9.51 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.41	1.88
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.99	0.99
WTOL	55 °C	55 °C
Poff	15 W	15 W
PTO	0 W	0 W
PSB	0 W	0 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.12 kW	1.32 kW
Backup Heater	0.00 kW	
Annual energy consumption Qhe	26449 kWh	22384 kWh