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#### This information was generated by the HP KEYMARK database on 23 Jun 2022

#### **Login**

Summary of	ERIA M PLUS 12 16	Reg. No.	041-K024-02
Certificate Holder		<u> </u>	
Name	BDR Thermea FR (CHAPPE	E)	
Address	57 rue de la Gare	Zip	67580
City	Mertzwiller	Country	France
Certification Body	BRE Global Limited		
Subtype title	ERIA M PLUS 12 16		
Heat Pump Type	Outdoor Air/Water		
Refrigerant	R32		
Mass of Refrigerant	1.84 kg		
Certification Date	18.03.2022		
Testing basis	Heat Pump Keymark Scheme Rules Rev 09		

# **Model: ERIA M PLUS 12MR**

Configure model		
Model name	ERIA M PLUS 12MR	
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data		
Power supply	1x230V 50Hz	

## Heating

EN 14511-2			
	Low temperature	Medium temperature	
Heat output	12.10 kW	11.90 kW	
El input	2.44 kW	3.90 kW	
СОР	4.95	3.05	

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

## Warmer Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	256 %	174 %
Prated	11.11 kW	12.51 kW
SCOP	6.53	4.43
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.11 kW	12.08 kW
$COPTj = +2^{\circ}C$	3.59	2.31
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = $+7^{\circ}$ C	7.14 kW	8.04 kW
$COP Tj = +7^{\circ}C$	5.87	3.86
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.56 kW	3.75 kW
COP Tj = 12°C	7.94	5.70
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	7.14 kW	8.04 kW
	·	





COP Tj = Tbiv  5.87  3.86  Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh  11.11 kW  12.08 kW  COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh  3.59  2.31  Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh 3.59 2.31
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh
WTOL 65 °C 65 °C
Poff 14 W 14 W
PTO 24 W 24 W
PSB 14 W 14 W
PCK 0 W
Supplementary Heater: Type of energy input Electricity Electricity
Supplementary Heater: PSUP 0.00 kW 0.44 kW
Annual energy consumption Qhe 2292 kWh 3776 kWh

### Colder Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{S}$	160 %	118 %





Prated	11.38 kW	10.32 kW
Truccu	11.30 KVV	10.32 KVV
SCOP	4.08	3.02
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = $-7^{\circ}$ C	7.05 kW	6.63 kW
$COPTj = -7^{\circ}C$	3.48	2.63
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	4.68 kW	4.07 kW
COP Tj = +2°C	4.96	3.60
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7^{\circ}$ C	3.14 kW	2.78 kW
$COPTj = +7^{\circ}C$	6.10	4.54
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.57 kW	3.33 kW
COP Tj = 12°C	7.87	6.25
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	9.28 kW	8.42 kW
COP Tj = Tbiv	2.59	1.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.01 kW	4.20 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.98	1.13
WTOL	65 °C	65 °C
	+	!





Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.37 kW	6.12 kW
Annual energy consumption Qhe	6870 kWh	8419 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.28	8.42
COP Tj = -15°C (if TOL $<$ -20°C)	2.59	1.84
Cdh Tj = -15 °C	0.90	0.90

## Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)

EN 14825		
Low temperature	Medium temperature	
189 %	135 %	
12.00 kW	11.58 kW	
4.81	3.45	
	Low temperature  189 %  12.00 kW	





This information was gene	rated by the HP KETMA	ARK database on 23 Jun 2022
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.61 kW	10.25 kW
COP Tj = -7°C	2.88	2.01
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	6.69 kW	6.52 kW
COP Tj = +2°C	4.65	3.44
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7$ °C	4.44 kW	4.36 kW
$COP Tj = +7^{\circ}C$	6.62	4.59
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.61 kW	10.25 kW
COP Tj = Tbiv	2.88	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.75 kW	9.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.79
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W



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PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5152 kWh	6927 kWh



# **Model: ERIA M PLUS 16MR**

Configure model		
Model name	ERIA M PLUS 16MR	
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data		
Power supply	1x230V 50Hz	

## Heating

EN 14511-2			
Low temperature Medium temperature			
Heat output	15.90 kW	16.00 kW	
El input	3.53 kW	5.61 kW	
СОР	4.50	2.85	

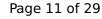
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

## Warmer Climate



EN 12102-1			
Low temperature Medium temperature			
Sound power level outdoor	68 dB(A)	68 dB(A)	

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	249 %	176 %
Prated	13.09 kW	14.17 kW
SCOP	6.33	4.48
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	13.09 kW	13.38 kW
COP Tj = +2°C	3.35	2.29
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.42 kW	9.11 kW
COP Tj = +7°C	5.36	3.89
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.88 kW	4.06 kW
COP Tj = 12°C	8.11	5.86
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	8.42 kW	9.11 kW



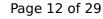


COP Tj = Tbiv       5.36       3.89         Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh       13.09 kW       13.38 kW         COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh       3.35       2.29         Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh       65 °C       65 °C         Poff       14 W       14 W         PTO       24 W       24 W         PSB       14 W       14 W         PCK       0 W       0 W         Supplementary Heater: Type of energy input       Electricity       Electricity         Supplementary Heater: PSUP       0.00 kW       0.79 kW         Annual energy consumption Qhe       2781 kWh       4231 kWh			
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh  Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh  WTOL  65 °C  65 °C  Poff  14 W  PTO  24 W  24 W  PSB  14 W  PCK  0 W  0 W  Supplementary Heater: Type of energy input  Electricity  Electricity  Supplementary Heater: PSUP  0.00 kW  0.79 kW	COP Tj = Tbiv	5.36	3.89
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh  WTOL 65 °C 65 °C  Poff 14 W 14 W  PTO 24 W 24 W  PSB 14 W 14 W  PCK 0 W  Supplementary Heater: Type of energy input Electricity  Electricity  Supplementary Heater: PSUP  0.00 kW 0.79 kW	Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	13.09 kW	13.38 kW
WTOL 65 °C 65 °C  Poff 14 W 14 W  PTO 24 W 24 W  PSB 14 W 14 W  PCK 0 W 0 W  Supplementary Heater: Type of energy input Electricity Electricity  Supplementary Heater: PSUP 0.00 kW 0.79 kW	COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
Poff 14 W 14 W  PTO 24 W 24 W  PSB 14 W 14 W  PCK 0 W 0 W  Supplementary Heater: Type of energy input Electricity Electricity  Supplementary Heater: PSUP 0.00 kW 0.79 kW	Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
PTO 24 W 24 W  PSB 14 W 14 W  PCK 0 W 0 W  Supplementary Heater: Type of energy input Electricity Electricity  Supplementary Heater: PSUP 0.00 kW 0.79 kW	WTOL	65 °C	65 °C
PSB 14 W 14 W  PCK 0 W 0 W  Supplementary Heater: Type of energy input Electricity Electricity  Supplementary Heater: PSUP 0.00 kW 0.79 kW	Poff	14 W	14 W
PCK 0 W 0 W  Supplementary Heater: Type of energy input Electricity Electricity  Supplementary Heater: PSUP 0.00 kW 0.79 kW	РТО	24 W	24 W
Supplementary Heater: Type of energy input Electricity Electricity  Supplementary Heater: PSUP 0.00 kW 0.79 kW	PSB	14 W	14 W
Supplementary Heater: PSUP 0.00 kW 0.79 kW	PCK	o w	o w
	Supplementary Heater: Type of energy input	Electricity	Electricity
Annual energy consumption Qhe 2781 kWh 4231 kWh	Supplementary Heater: PSUP	0.00 kW	0.79 kW
	Annual energy consumption Qhe	2781 kWh	4231 kWh

### Colder Climate

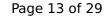
EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	68 dB(A)	68 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{S}$	158 %	122 %





This information was generated by the HP KEYMARK database on 23 Jun 202			
Prated	13.76 kW	11.79 kW	
SCOP	4.02	3.12	
Tbiv	-15 °C	-15 °C	
TOL	-22 °C	-22 °C	
Pdh Tj = -7°C	8.31 kW	7.64 kW	
$COP Tj = -7^{\circ}C$	3.37	2.65	
Cdh Tj = -7 °C	0.90	0.90	
Pdh Tj = +2°C	5.27 kW	4.43 kW	
COP Tj = +2°C	4.86	3.79	
Cdh Tj = +2 °C	0.90	0.90	
Pdh Tj = $+7^{\circ}$ C	3.62 kW	2.98 kW	
$COPTj = +7^{\circ}C$	6.49	4.81	
Cdh Tj = +7 °C	0.90	0.90	
Pdh Tj = 12°C	3.35 kW	3.43 kW	
COP Tj = 12°C	7.40	6.29	
Cdh Tj = +12 °C	0.90	0.90	
Pdh Tj = Tbiv	11.22 kW	9.62 kW	
COP Tj = Tbiv	2.43	1.86	
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.89 kW	5.22 kW	
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.97	1.23	
WTOL	65 °C	65 °C	
	•	•	





Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.87 kW	6.57 kW
Annual energy consumption Qhe	8431 kWh	9309 kWh
Pdh Tj = -15°C (if TOL<-20°C)	11.22	9.62
COP Tj = -15°C (if TOL $<$ -20°C)	2.43	1.86
Cdh Tj = -15 °C	0.90	0.90

## Average Climate

EN 12102-1			
Low temperature Medium temperature			
Sound power level outdoor	68 dB(A)	68 dB(A)	

EN 14825		
Low temperature	Medium temperature	
182 %	133 %	
15.21 kW	13.02 kW	
4.62	3.41	
	Low temperature  182 %  15.21 kW	





		ink database on 25 jun 202.
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	13.45 kW	11.52 kW
COP Tj = -7°C	2.72	1.99
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	8.57 kW	7.18 kW
COP Tj = +2°C	4.41	3.34
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7$ °C	5.70 kW	4.68 kW
$COPTj = +7^{\circ}C$	6.56	4.61
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	13.45 kW	11.52 kW
COP Tj = Tbiv	2.72	1.99
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.52 kW	10.33 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.48	1.80
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W



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PSB	14 W	14 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.68 kW	2.67 kW
Annual energy consumption Qhe	6804 kWh	7895 kWh

# **Model: ERIA M PLUS 12TR**

Configure model		
Model name ERIA M PLUS 12TR		
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone Colder Climate + Warmer Climate		
Reversibility Yes		
Cooling mode application (optional)	n/a	

General Data		
Power supply	3x400V 50Hz	

## Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	12.10 kW	11.90 kW
El input	2.44 kW	3.90 kW
СОР	4.95	3.05

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

## Warmer Climate



EN 12102-1			
Low temperature Medium temperature			
Sound power level outdoor	65 dB(A)	65 dB(A)	

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	256 %	174 %
Prated	11.11 kW	12.51 kW
SCOP	6.53	4.42
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.11 kW	12.08 kW
COP Tj = +2°C	3.59	2.31
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.14 kW	8.04 kW
COP Tj = +7°C	5.87	3.86
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.56 kW	3.75 kW
COP Tj = 12°C	7.94	5.70
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	7.14 kW	8.04 kW





COP Tj = Tbiv	5.87	3.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.11 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.44 kW
Annual energy consumption Qhe	2296 kWh	3780 kWh

### Colder Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{S}$	160 %	118 %





11.38 kW 4.08 -15 °C -22 °C 7.05 kW 3.48 0.90 4.68 kW 4.96 0.90	10.32 kW  3.02  -15 °C  -22 °C  6.63 kW  2.63  0.90  4.07 kW  3.60
-15 °C -22 °C 7.05 kW 3.48 0.90 4.68 kW	-15 °C  -22 °C  6.63 kW  2.63  0.90  4.07 kW  3.60
-22 °C 7.05 kW 3.48 0.90 4.68 kW 4.96	-22 °C 6.63 kW 2.63 0.90 4.07 kW 3.60
7.05 kW 3.48 0.90 4.68 kW 4.96	6.63 kW  2.63  0.90  4.07 kW  3.60
3.48 0.90 4.68 kW 4.96	2.63 0.90 4.07 kW
0.90 4.68 kW 4.96	0.90 4.07 kW 3.60
4.68 kW 4.96	4.07 kW 3.60
4.96	3.60
0.90	
	0.90
3.14 kW	2.78 kW
6.10	4.54
0.90	0.90
3.57 kW	3.33 kW
7.87	6.25
0.90	0.90
9.28 kW	8.42 kW
2.59	1.84
7.01 kW	4.20 kW
1.98	1.13
65 °C	65 °C
7 7 7 1	3.14 kW 5.10 0.90 3.57 kW 7.87 0.90 9.28 kW 2.59 7.01 kW





Poff	14 W	14 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.37 kW	6.12 kW
Annual energy consumption Qhe	6871 kWh	8420 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.28	8.42
COP Tj = -15°C (if TOL $<$ -20°C)	2.59	1.84
Cdh Tj = -15 °C	0.90	0.90

## Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	189 %	135 %
Prated	12.00 kW	11.58 kW
SCOP	4.81	3.45





<b>3</b>		in the did tabase on 25 juin 202
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	10.61 kW	10.25 kW
$COP Tj = -7^{\circ}C$	2.88	2.01
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	6.69 kW	6.52 kW
COPTj = +2°C	4.65	3.44
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	4.44 kW	4.36 kW
$COPTj = +7^{\circ}C$	6.62	4.59
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.61 kW	10.25 kW
COP Tj = Tbiv	2.88	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.75 kW	9.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.79
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
	!	!



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PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5153 kWh	6928 kWh



# **Model: ERIA M PLUS 16TR**

Configure model		
Model name	ERIA M PLUS 16TR	
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data		
Power supply	3x400V 50Hz	

## Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	15.90 kW	16.00 kW
El input	3.53 kW	5.61 kW
СОР	4.50	2.85

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

## Warmer Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	68 dB(A)	68 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	248 %	176 %
Prated	13.09 kW	14.17 kW
SCOP	6.33	4.47
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	13.09 kW	13.38 kW
COP Tj = +2°C	3.35	2.29
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.42 kW	9.11 kW
COP Tj = +7°C	5.36	3.89
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.88 kW	4.06 kW
COP Tj = 12°C	8.11	5.86
Cdh Tj = +12 °C	0.900	0.900
Pdh Tj = Tbiv	8.42 kW	9.11 kW





COP Tj = Tbiv	5.36	3.89
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	13.09 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.79 kW
Annual energy consumption Qhe	2786 kWh	4236 kWh

### Colder Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	68 dB(A)	68 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	158 %	122 %





<u> </u>	, , , , , , , , , , , , , , , , , , ,	The database on 23 Juli 202.
Prated	13.76 kW	11.79 kW
SCOP	4.02	3.12
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	8.31 kW	7.64 kW
COP Tj = -7°C	3.37	2.65
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = $+2$ °C	5.27 kW	4.43 kW
COP Tj = +2°C	4.86	3.79
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7^{\circ}$ C	3.62 kW	2.98 kW
$COP Tj = +7^{\circ}C$	6.49	4.81
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	11.22 kW	9.62 kW
COP Tj = Tbiv	2.43	1.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.89 kW	5.22 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.97	1.23
WTOL	65 °C	65 °C
	•	•





Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.87 kW	6.57 kW
Annual energy consumption Qhe	8431 kWh	9310 kWh
Pdh Tj = -15°C (if TOL<-20°C)	11.22	9.62
COP Tj = -15°C (if TOL $<$ -20°C)	2.43	1.86
Cdh Tj = -15 °C	0.90	0.90

## Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	68 dB(A)	68 dB(A)

EN 14825		
Low temperature	Medium temperature	
182 %	133 %	
15.21 kW	13.02 kW	
4.62	3.41	
	Low temperature  182 %  15.21 kW	





-7 °C	-7 °C
-10 °C	-10 °C
13.45 kW	11.52 kW
2.72	1.99
0.90	0.90
8.57 kW	7.18 kW
4.41	3.34
0.90	0.90
5.70 kW	4.68 kW
6.56	4.61
0.90	0.90
3.78 kW	3.32 kW
8.51	6.07
0.90	0.90
13.45 kW	11.52 kW
2.72	1.99
12.52 kW	10.33 kW
2.48	1.80
65 °C	65 °C
20 W	20 W
30 W	30 W
	-10 °C  13.45 kW  2.72  0.90  8.57 kW  4.41  0.90  5.70 kW  6.56  0.90  3.78 kW  8.51  0.90  13.45 kW  2.72  12.52 kW  2.48  65 °C



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PSB	20 W	20 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.68 kW	2.67 kW
Annual energy consumption Qhe	6805 kWh	7896 kWh