

Page 1 of 85

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Summary of	HA 12-6 O 230V, HA 12-6 O	Reg. No.	40051134
Certificate H	older		'
Name	Saunier Duval Brand Group		
Address	Zip		
City		Country	Germany
Certification Body	VDE Prüf- und Zertifizierungsinstitut GmbH		
Subtype title	HA 12-6 O 230V, HA 12-6 O		
Heat Pump Type	Outdoor Air/Water		
Refrigerant	R290		
Mass of Refrigerant	1.3 kg		
Certification Date	25.03.2022		
Testing basis	DIN EN 14511-1:2019-07; EN 14511-1:2018, DIN EN 14511-2:2019-07; EN 14511-2:2018, DIN EN 14511-3:2019-07; EN 14511-3:2018, DIN EN 14511-4:2019-07; EN 14511-4:2018, DIN EN 14825:2019-07; EN 14825:2018, DIN EN 12102-1:2018-02; EN 12102-1:2017		



Model: HA 12-6 O 230V

Configure model		
Model name	HA 12-6 O 230V	
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	8.54 kW	9.13 kW	
El input	1.58 kW	2.92 kW	
СОР	5.38	3.11	

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



EN 12102-1			
	Low temperature	Medium temperature	
Sound power level outdoor	58 dB(A)	60 dB(A)	

EN 14825		
	Low temperature	Medium temperature
η_{s}	195 %	147 %
Prated	12.73 kW	11.81 kW
SCOP	4.96	3.75
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.27 kW	10.45 kW
COP Tj = -7°C	2.58	2.10
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = +2°C	6.99 kW	6.43 kW
COP Tj = +2°C	5.17	3.73
Cdh Tj = +2 °C	0.970	0.970
Pdh Tj = +7°C	5.81 kW	5.65 kW
$COP Tj = +7^{\circ}C$	6.87	5.27
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.77 kW	6.58 kW





COP Tj = 12°C	8.66	6.64
Cdh Tj = +12 °C	0.950	0.960
Pdh Tj = Tbiv	11.27 kW	10.45 kW
COP Tj = Tbiv	2.58	2.10
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.85 kW	9.83 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.29	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	70 °C	70 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.89 kW	1.98 kW
Annual energy consumption Qhe	5305 kWh	6501 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_s	254 %	174 %
Prated	11.35 kW	11.06 kW





SCOP	6.41	4.42
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.35 kW	11.06 kW
$COPTj = +2^{\circ}C$	3.23	2.21
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.41 kW	7.19 kW
$COP Tj = +7^{\circ}C$	5.97	3.82
Cdh Tj = +7 °C	0.97	0.98
Pdh Tj = 12°C	6.63 kW	6.33 kW
COP Tj = 12°C	8.20	5.97
Cdh Tj = +12 °C	0.95	0.96
Pdh Tj = Tbiv	11.35 kW	11.06 kW
COP Tj = Tbiv	3.23	2.21
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.35 kW	11.06 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.23	2.21
WTOL	70 °C	70 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	0 W	0 W





Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2363 kWh	3342 kWh

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level outdoor	58 dB(A)	60 dB(A)	

Colder Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	170 %	128 %
Prated	12.16 kW	11.09 kW
SCOP	4.32	3.28
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	6.93 kW	7.06 kW
COP Tj = -7 °C	3.72	2.65
Cdh Tj = -7 °C	0.980	0.960
Pdh Tj = $+2^{\circ}$ C	5.11 kW	4.83 kW
COP Tj = +2°C	5.51	4.20
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Cdh Tj = +2 °C	0.960	0.960
Pdh Tj = +7°C	5.82 kW	5.62 kW
$COPTj = +7^{\circ}C$	7.14	5.61
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.69 kW	6.55 kW
COP Tj = 12°C	8.51	6.95
Cdh Tj = +12 °C	0.950	0.960
Pdh Tj = Tbiv	9.92 kW	9.04 kW
COP Tj = Tbiv	2.26	1.81
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.71 kW	7.73 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.03	1.50
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	70 °C	70 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	12.16 kW	11.09 kW
Annual energy consumption Qhe	6936 kWh	8321 kWh
Pdh Tj = -15°C (if TOL $<$ -20°C)	9.92	9.04





COP Tj = -15°C (if TOL $<$ -20°C)	2.26	1.81
Cdh Tj = -15 °C	0.990	0.990

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)



Model: HA 12-6 O 230V B2

Configure model	
Model name	HA 12-6 O 230V B2
Application	Heating (medium temp)
Units	Outdoor
Climate Zone	Colder Climate + Warmer Climate
Reversibility	No
Cooling mode application (optional)	n/a

General Data		
Power supply 1x230V 50Hz		

Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	8.54 kW	9.13 kW
El input	1.58 kW	2.92 kW
СОР	5.38	3.11

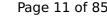
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

Average Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	194 %	146 %
Prated	12.73 kW	11.81 kW
SCOP	4.93	3.74
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.27 kW	10.45 kW
COP Tj = -7°C	2.58	2.10
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = +2°C	6.99 kW	6.43 kW
COP Tj = +2°C	5.17	3.73
Cdh Tj = +2 °C	0.970	0.970
Pdh Tj = +7°C	5.81 kW	5.65 kW
COP Tj = +7°C	6.87	5.27
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.77 kW	6.58 kW





 $$\operatorname{\textit{Page}}\ 11$$ of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

COP Tj = 12°C	8.66	6.64
Cdh Tj = +12 °C	0.950	0.960
Pdh Tj = Tbiv	11.27 kW	10.45 kW
COP Tj = Tbiv	2.58	2.10
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.85 kW	9.83 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.29	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	70 °C	70 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.89 kW	1.98 kW
Annual energy consumption Qhe	5335 kWh	6532 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_{S}	250 %	172 %
Prated	11.35 kW	11.06 kW
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$$\operatorname{\textit{Page}}\ 12$$ of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

SCOP	6.32	4.38
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = $+2$ °C	11.35 kW	11.06 kW
COP Tj = +2°C	3.23	2.21
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.41 kW	7.19 kW
$COP Tj = +7^{\circ}C$	5.97	3.82
Cdh Tj = +7 °C	0.97	0.98
Pdh Tj = 12°C	6.63 kW	6.33 kW
COP Tj = 12°C	8.20	5.97
Cdh Tj = +12 °C	0.95	0.96
Pdh Tj = Tbiv	11.35 kW	11.06 kW
COP Tj = Tbiv	3.23	2.21
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL $<$ Tdesignh	11.35 kW	11.06 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.23	2.21
WTOL	70 °C	70 °C
Poff	8 W	8 W
PTO	45 W	45 W
PSB	45 W	45 W
PCK	0 W	o w



3378 kWh



Annual energy consumption Qhe

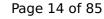
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW

2399 kWh

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level outdoor	58 dB(A)	60 dB(A)	

Colder Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	169 %	128 %
Prated	12.16 kW	11.09 kW
SCOP	4.31	3.28
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	6.93 kW	7.06 kW
COP Tj = -7°C	3.72	2.65
Cdh Tj = -7 °C	0.980	0.960
Pdh Tj = +2°C	5.11 kW	4.83 kW
COP Tj = +2°C	5.51	4.20
	3.31	1.20





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Cdh Tj = +2 °C	0.960	0.960	
Pdh Tj = $+7^{\circ}$ C	5.82 kW	5.62 kW	
$COP Tj = +7^{\circ}C$	7.14	5.61	
Cdh Tj = +7 °C	0.950	0.960	
Pdh Tj = 12°C	6.69 kW	6.55 kW	
COP Tj = 12°C	8.51	6.95	
Cdh Tj = +12 °C	0.950	0.960	
Pdh Tj = Tbiv	9.92 kW	9.04 kW	
COP Tj = Tbiv	2.26	1.81	
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.71 kW	7.73 kW	
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.03	1.50	
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh			
WTOL	70 °C	70 °C	
Poff	8 W	8 W	
РТО	45 W	45 W	
PSB	45 W	45 W	
PCK	o w	o w	
Supplementary Heater: Type of energy input	Electricity	Electricity	
Supplementary Heater: PSUP	12.16 kW	11.09 kW	
Annual energy consumption Qhe	6954 kWh	8339 kWh	
Pdh Tj = -15°C (if TOL<-20°C)	9.92	9.04	
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$$\operatorname{\textit{Page}}\ 15$$ of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

COP Tj = -15°C (if TOL $<$ -20°C)	2.26	1.81
Cdh Tj = -15 °C	0.990	0.990

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)



Model: HA 12-6 O

Configure model		
Model name	HA 12-6 O	
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	8.54 kW	9.13 kW	
El input	1.58 kW	2.92 kW	
СОР	5.38	3.11	

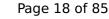
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

Average Climate



EN 12102-1		
Low temperature Medium temperature		
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	195 %	147 %
Prated	12.73 kW	11.81 kW
SCOP	4.96	3.75
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.27 kW	10.45 kW
COP Tj = -7°C	2.58	2.10
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = +2°C	6.99 kW	6.43 kW
COP Tj = +2°C	5.17	3.73
Cdh Tj = +2 °C	0.960	0.970
Pdh Tj = +7°C	5.81 kW	5.65 kW
COP Tj = +7°C	6.87	5.27
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.77 kW	6.58 kW

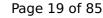




COP Tj = 12°C	8.66	6.64
Cdh Tj = +12 °C	0.940	0.950
Pdh Tj = Tbiv	11.27 kW	10.45 kW
COP Tj = Tbiv	2.58	2.10
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.85 kW	9.83 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.29	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	70 °C	70 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.89 kW	1.98 kW
Annual energy consumption Qhe	5313 kWh	6511 kWh

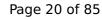
Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_s	254 %	173 %
Prated	11.35 kW	11.06 kW





SCOP	6.41	4.42
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.35 kW	11.06 kW
$COP Tj = +2^{\circ}C$	3.23	2.21
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	7.41 kW	7.19 kW
$COP Tj = +7^{\circ}C$	5.97	3.82
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	6.63 kW	6.33 kW
COP Tj = 12°C	8.20	5.97
Cdh Tj = +12 °C	0.94	0.95
Pdh Tj = Tbiv	11.35 kW	11.06 kW
COP Tj = Tbiv	3.23	2.21
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.35 kW	11.06 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.23	2.21
WTOL	70 °C	70 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
РСК	0 W	0 W





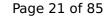
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Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2363 kWh	3354 kWh

	EN 12102-1	
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)

Colder Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	170 %	128 %
Prated	12.16 kW	11.09 kW
SCOP	4.32	3.28
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	6.93 kW	7.06 kW
COP Tj = -7°C	3.72	2.65
Cdh Tj = -7 °C	0.970	0.980
Pdh Tj = +2°C	5.11 kW	4.83 kW
COP Tj = +2°C	5.51	4.20





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Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = $+7^{\circ}$ C	5.82 kW	5.62 kW
$COP Tj = +7^{\circ}C$	7.14	5.61
Cdh Tj = +7 °C	0.940	0.950
Pdh Tj = 12°C	6.69 kW	6.55 kW
COP Tj = 12°C	8.51	6.95
Cdh Tj = +12 °C	0.940	0.950
Pdh Tj = Tbiv	9.92 kW	9.04 kW
COP Tj = Tbiv	2.26	1.81
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.71 kW	7.73 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.03	1.50
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	70 °C	70 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	12.16 kW	11.09 kW
Annual energy consumption Qhe	6936 kWh	8334 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.92	9.04



$$\operatorname{\textit{Page}}\xspace$ 22 of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

COP Tj = -15°C (if TOL $<$ -20°C)	2.26	1.81
Cdh Tj = -15 °C	0.990	0.990

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)



Model: HA 12-6 O B2

Configure model	
Model name	HA 12-6 O B2
Application	Heating (medium temp)
Units	Outdoor
Climate Zone	Colder Climate + Warmer Climate
Reversibility	No
Cooling mode application (optional)	n/a

General Data		
Power supply	3x400V 50Hz	

Heating

EN 14511-2			
Low temperature Medium temperature			
Heat output	8.44 kW	8.93 kW	
El input	1.60 kW	2.93 kW	
СОР	5.24	3.04	

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



 $$\operatorname{\textit{Page}}\xspace$ 24 of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

EN 12102-1			
Low temperature Medium temperature			
Sound power level outdoor	59 dB(A)	59 dB(A)	

EN 14825		
	Low temperature	Medium temperature
η_{s}	193 %	146 %
Prated	12.73 kW	11.81 kW
SCOP	4.90	3.72
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.27 kW	10.45 kW
$COPTj = -7^{\circ}C$	2.58	2.10
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = +2°C	6.99 kW	6.43 kW
COP Tj = +2°C	5.17	3.73
Cdh Tj = +2 °C	0.960	0.970
Pdh Tj = $+7^{\circ}$ C	5.81 kW	5.65 kW
$COP Tj = +7^{\circ}C$	6.87	5.27
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.77 kW	6.58 kW

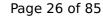




COP Tj = 12°C	8.66	6.64
Cdh Tj = +12 °C	0.940	0.950
Pdh Tj = Tbiv	11.27 kW	10.45 kW
COP Tj = Tbiv	2.58	2.10
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.85 kW	9.83 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.29	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	70 °C	70 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.89 kW	1.98 kW
Annual energy consumption Qhe	5366 kWh	6563 kWh

Warmer Climate

EN 14825			
Low temperature Medium temperature			
η_{s}	250 %	170 %	
Prated	11.35 kW	11.06 kW	





		-
SCOP	6.32	4.33
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.35 kW	11.06 kW
COP Tj = +2°C	3.23	2.21
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	7.41 kW	7.19 kW
$COPTj = +7^{\circ}C$	5.97	3.82
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	6.63 kW	6.33 kW
COP Tj = 12°C	8.20	5.97
Cdh Tj = +12 °C	0.94	0.95
Pdh Tj = Tbiv	11.35 kW	11.06 kW
COP Tj = Tbiv	3.23	2.21
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.35 kW	11.06 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.23	2.21
WTOL	70 °C	70 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	0 W	0 W





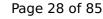
3	•		
Supplementary Heater: Type of energy input	Electricity	Electricity	
Supplementary Heater: PSUP	0.00 kW	0.00 kW	

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2399 kWh	3417 kWh

EN 12102-1			
Low temperature Medium temperature			
Sound power level outdoor	59 dB(A)	59 dB(A)	

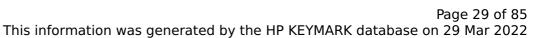
Colder Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	169 %	128 %
Prated	12.16 kW	11.09 kW
SCOP	4.31	3.27
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	6.93 kW	7.06 kW
COP Tj = -7°C	3.72	2.65
Cdh Tj = -7 °C	0.970	0.980
Pdh Tj = +2°C	5.11 kW	4.83 kW
$COP Tj = +2^{\circ}C$	5.51	4.20





This information was genera		
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = +7°C	5.82 kW	5.62 kW
$COP Tj = +7^{\circ}C$	7.14	5.61
Cdh Tj = +7 °C	0.940	0.950
Pdh Tj = 12°C	6.69 kW	6.55 kW
COP Tj = 12°C	8.51	6.95
Cdh Tj = +12 °C	0.950	0.960
Pdh Tj = Tbiv	9.92 kW	9.04 kW
COP Tj = Tbiv	2.26	1.81
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.71 kW	7.73 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.03	1.50
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	70 °C	70 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	12.16 kW	11.09 kW
Annual energy consumption Qhe	6954 kWh	8365 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.92	9.04





COP Tj = -15°C (if TOL $<$ -20°C)	2.26	1.81
Cdh Tj = -15 °C	0.990	0.990

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	59 dB(A)	59 dB(A)

Model: HA 15-6 O 230V B3

Configure model		
Model name	HA 15-6 O 230V B3	
Application	Heating (medium temp)	
Units Outdoor		
Climate Zone	Colder Climate + Warmer Climate	
Reversibility Yes		
Cooling mode application (optional)	n/a	

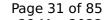
General Data		
Power supply 1x230V 50Hz		

Heating

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

EN 14511-2			
Low temperature Medium temperature			
Heat output	14.29 kW	14.16 kW	
El input	3.29 kW	5.06 kW	
СОР	4.33	2.79	

Average Climate





EN 14825

	Low temperature	Medium temperature
η_{S}	187 %	144 %
Prated	12.69 kW	12.00 kW
SCOP	4.74	3.66
Tbiv	-7 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.23 kW	10.62 kW
$COP Tj = -7^{\circ}C$	2.46	2.08
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = +2°C	6.98 kW	6.54 kW
$COP Tj = +2^{\circ}C$	4.88	3.68
Cdh Tj = +2 °C	0.970	0.980
Pdh Tj = $+7^{\circ}$ C	5.79 kW	5.43 kW
$COP Tj = +7^{\circ}C$	6.54	4.91
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.65 kW	6.31 kW
COP Tj = 12°C	9.06	6.32
Cdh Tj = +12 °C	0.940	0.960
Pdh Tj = Tbiv	11.23 kW	11.05 kW
COP Tj = Tbiv	2.46	1.75



Page 32 of 85

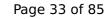
This information was generated by the HP KEYMARK database on 29 Mar 2022

9.82 kW	11.05 kW
2.23	1.75
55 °C	55 °C
8 W	8 W
45 W	45 W
45 W	45 W
0 W	0 W
Electricity	Electricity
2.87 kW	0.00 kW
5532 kWh	6767 kWh
	2.23 55 °C 8 W 45 W 45 W 0 W Electricity 2.87 kW

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	61 dB(A)	61 dB(A)

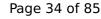
Warmer Climate

EN 14825			
Low temperature Medium temperature			
η_{s}	245 %	172 %	
Prated	12.02 kW	12.69 kW	
	'		





SCOP	6.19	4.38
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.02 kW	12.69 kW
COP Tj = +2°C	3.19	2.05
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.55 kW	7.46 kW
$COP Tj = +7^{\circ}C$	5.70	3.87
Cdh Tj = +7 °C	0.97	0.98
Pdh Tj = 12°C	6.64 kW	6.19 kW
COP Tj = 12°C	7.90	5.77
Cdh Tj = +12 °C	0.95	0.96
Pdh Tj = Tbiv	12.02 kW	12.69 kW
COP Tj = Tbiv	3.19	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.02 kW	12.69 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.19	2.05
WTOL	55 °C	55 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	o w	o w





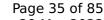
This information was	generated by	y the HP KEYMARK	database on	29 Mar 2022

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2595 kWh	3867 kWh

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level outdoor	61 dB(A)	61 dB(A)	

Colder Climate

EN 14825			
	Low temperature	Medium temperature	
η_{s}	168 %	125 %	
Prated	12.73 kW	12.17 kW	
SCOP	4.28	3.20	
Tbiv	-15 °C	-15 °C	
TOL	-20 °C	-20 °C	
Pdh Tj = -7°C	7.04 kW	7.02 kW	
COP Tj = -7°C	3.64	2.56	
Cdh Tj = -7 °C	0.980	0.980	
Pdh Tj = +2°C	5.16 kW	4.80 kW	
COP Tj = +2°C	5.33	4.08	
	,		





This information was general	icca by the fill RETINA	iii database on 25 mai 2022
Cdh Tj = +2 °C	0.960	0.960
Pdh Tj = +7°C	5.81 kW	5.55 kW
$COPTj = +7^{\circ}C$	7.45	5.43
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.66 kW	6.42 kW
COP Tj = 12°C	9.04	6.82
Cdh Tj = +12 °C	0.940	0.960
Pdh Tj = Tbiv	10.38 kW	9.93 kW
COP Tj = Tbiv	2.37	1.76
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.93 kW	8.65 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.00	1.46
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	55 °C	55 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	12.73 kW	12.17 kW
Annual energy consumption Qhe	7330 kWh	9377 kWh
Pdh Tj = -15°C (if TOL<-20°C)	10.38	9.93



$$\operatorname{Page}$ 36 of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

COP Tj = -15°C (if TOL $<$ -20°C)	2.37	1.76
Cdh Tj = -15 °C	0.990	0.990

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level outdoor	61 dB(A)	61 dB(A)	



Model: HA 15-6 O B3

Configure model		
Model name HA 15-6 O B3		
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone Colder Climate + Warmer Climate		
Reversibility Yes		
Cooling mode application (optional)	n/a	

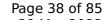
General Data		
Power supply	3x400V 50Hz	

Heating

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

EN 14511-2		
	Low temperature	Medium temperature
Heat output	14.29 kW	14.16 kW
El input	3.29 kW	5.06 kW
СОР	4.33	2.79

Average Climate





EN 14825

	Low temperature	Medium temperature
η_{S}	186 %	143 %
Prated	12.69 kW	12.00 kW
SCOP	4.73	3.66
Tbiv	-7 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.23 kW	10.62 kW
$COP Tj = -7^{\circ}C$	2.46	2.08
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = $+2^{\circ}$ C	6.98 kW	6.54 kW
$COP Tj = +2^{\circ}C$	4.88	3.68
Cdh Tj = +2 °C	0.970	0.970
Pdh Tj = $+7^{\circ}$ C	5.79 kW	5.43 kW
$COP Tj = +7^{\circ}C$	6.54	4.91
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.65 kW	6.31 kW
COP Tj = 12°C	9.06	6.32
Cdh Tj = +12 °C	0.940	0.950
Pdh Tj = Tbiv	11.23 kW	11.05 kW
COP Tj = Tbiv	2.46	1.75



Page 39 of 85

This information was generated by the HP KEYMARK database on 29 Mar 2022

9.82 kW	11.05 kW
2.23	1.75
55 °C	55 °C
14 W	14 W
51 W	51 W
51 W	51 W
o w	0 W
Electricity	Electricity
2.87 kW	0.00 kW
5542 kWh	6776 kWh
	2.23 55 °C 14 W 51 W 51 W 0 W Electricity 2.87 kW

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	61 dB(A)	61 dB(A)

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_s	244 %	172 %
Prated	12.02 kW	12.69 kW





SCOP	6.16	4.37
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.02 kW	12.69 kW
COP Tj = +2°C	3.19	2.05
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = +7°C	7.55 kW	7.46 kW
$COP Tj = +7^{\circ}C$	5.70	3.87
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	6.64 kW	6.19 kW
COP Tj = 12°C	7.90	5.77
Cdh Tj = +12 °C	0.94	0.96
Pdh Tj = Tbiv	12.02 kW	12.69 kW
COP Tj = Tbiv	3.19	2.05
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.02 kW	12.69 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.19	2.05
WTOL	55 °C	55 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
РСК	0 W	0 W





Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2606 kWh	3878 kWh

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	61 dB(A)	61 dB(A)

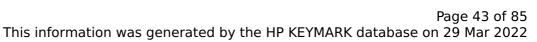
Colder Climate

EN 14825		
	Low temperature	Medium temperature
η_{S}	168 %	125 %
Prated	12.73 kW	12.17 kW
SCOP	4.27	3.20
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	7.04 kW	7.02 kW
COP Tj = -7°C	3.64	2.56
Cdh Tj = -7 °C	0.970	0.980
Pdh Tj = $+2^{\circ}$ C	5.16 kW	4.80 kW
COP Tj = +2°C	5.33	4.08





This information was genera	ted by the in Reinna	
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = $+7^{\circ}$ C	5.81 kW	5.55 kW
$COPTj = +7^{\circ}C$	7.45	5.43
Cdh Tj = +7 °C	0.940	0.950
Pdh Tj = 12°C	6.66 kW	6.42 kW
COP Tj = 12°C	9.04	6.82
Cdh Tj = +12 °C	0.940	0.950
Pdh Tj = Tbiv	10.38 kW	9.93 kW
COP Tj = Tbiv	2.37	1.76
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.93 kW	8.65 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.00	1.46
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	55 °C	55 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
РСК	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	12.73 kW	12.17 kW
Annual energy consumption Qhe	7341 kWh	9386 kWh
Pdh Tj = -15°C (if TOL<-20°C)	10.38	9.93





COP Tj = -15°C (if TOL $<$ -20°C)	2.37	1.76
Cdh Tj = -15 °C	0.990	0.990

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	61 dB(A)	61 dB(A)



Model: HA 10-6 O 230V

Configure model		
Model name	HA 10-6 O 230V	
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	8.13 kW	9.08 kW
El input	1.54 kW	2.95 kW
СОР	5.27	3.08

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



EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	199 %	143 %
Prated	8.86 kW	9.09 kW
SCOP	5.05	3.66
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	7.84 kW	8.04 kW
COP Tj = -7°C	3.21	2.20
Cdh Tj = -7 °C	0.980	0.990
Pdh Tj = +2°C	4.92 kW	4.77 kW
COP Tj = +2°C	5.06	3.63
Cdh Tj = +2 °C	0.960	0.970
Pdh Tj = +7°C	5.65 kW	5.37 kW
COP Tj = +7°C	6.65	4.92
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.62 kW	6.30 kW





COP Tj = 12°C	8.41	6.34
Cdh Tj = +12 °C	0.950	0.960
Pdh Tj = Tbiv	8.93 kW	9.03 kW
COP Tj = Tbiv	2.58	1.87
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.93 kW	9.03 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.58	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	0.990	
WTOL	55 °C	55 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	3623 kWh	5135 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_s	254 %	175 %
Prated	10.42 kW	10.36 kW





SCOP	6.42	4.46
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	10.42 kW	10.36 kW
COP Tj = +2°C	3.42	2.32
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	6.71 kW	6.37 kW
$COPTj = +7^{\circ}C$	6.07	3.95
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	6.58 kW	6.20 kW
COP Tj = 12°C	8.09	5.85
Cdh Tj = +12 °C	0.95	0.96
Pdh Tj = Tbiv	10.42 kW	10.36 kW
COP Tj = Tbiv	3.42	2.32
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.42 kW	10.36 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.42	2.32
WTOL	55 °C	55 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
РСК	0 W	0 W





This information was generat	ed by the HP KEYMAR	K database on 29 Mar 2022

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2167 kWh	3104 kWh

EN 12102-1			
Low temperature Medium temperature			
Sound power level outdoor	58 dB(A)	60 dB(A)	

Colder Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	172 %	125 %
Prated	7.61 kW	7.38 kW
SCOP	4.37	3.21
Tbiv	-20 °C	-20 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	4.50 kW	4.50 kW
COP Tj = -7°C	3.79	2.65
Cdh Tj = -7 °C	0.970	0.970
Pdh Tj = +2°C	5.00 kW	4.62 kW
COP Tj = +2°C	5.34	3.96





This information was genera		
Cdh Tj = +2 °C	0.960	0.960
Pdh Tj = $+7^{\circ}$ C	5.67 kW	5.47 kW
$COP Tj = +7^{\circ}C$	6.89	5.34
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.60 kW	6.38 kW
COP Tj = 12°C	8.30	6.70
Cdh Tj = +12 °C	0.950	0.960
Pdh Tj = Tbiv	7.21 kW	6.99 kW
COP Tj = Tbiv	2.14	1.53
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.21 kW	6.99 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.14	1.53
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL $<$ Tdesignh		
WTOL	55 °C	55 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	0 W	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	7.61 kW	7.38 kW
Annual energy consumption Qhe	4296 kWh	5673 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
	.	



Page 50 of 85

COP Tj = -15°C (if TOL $<$ -20°C)	
Cdh Tj = -15 °C	

EN 12102-1			
Low temperature Medium temperature			
Sound power level outdoor	58 dB(A)	60 dB(A)	

Model: HA 10-6 O 230V B2

Configure model		
Model name	HA 10-6 O 230V B2	
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	No	
Cooling mode application (optional)	n/a	

General Data		
Power supply	1x230V 50Hz	

Heating

EN 14511-2			
Low temperature Medium temperature			
Heat output	8.13 kW	9.08 kW	
El input	1.54 kW	2.95 kW	
СОР	5.27	3.08	

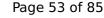
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

Average Climate



EN 12102-1			
Low temperature Medium temperature			
Sound power level outdoor	58 dB(A)	60 dB(A)	

EN 14825		
	Low temperature	Medium temperature
η_{s}	197 %	142 %
Prated	8.86 kW	9.09 kW
SCOP	5.01	3.64
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	7.84 kW	8.04 kW
COP Tj = -7°C	3.21	2.20
Cdh Tj = -7 °C	0.980	0.990
Pdh Tj = +2°C	4.92 kW	4.77 kW
COP Tj = +2°C	5.06	3.63
Cdh Tj = +2 °C	0.960	0.970
Pdh Tj = +7°C	5.65 kW	5.37 kW
COP Tj = +7°C	6.65	4.92
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.62 kW	6.30 kW





 $$\operatorname{\textit{Page}}\xspace$ 53 of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

COP Tj = 12°C	8.41	6.34
Cdh Tj = +12 °C	0.950	0.960
Pdh Tj = Tbiv	8.93 kW	9.03 kW
COP Tj = Tbiv	2.58	1.87
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.93 kW	9.03 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.58	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	55 °C	55 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	3653 kWh	5165 kWh

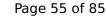
Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_{S}	250 %	173 %
Prated	10.42 kW	10.36 kW
	'	1





SCOP	6.32	4.41
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	10.42 kW	10.36 kW
COP Tj = +2°C	3.42	2.32
Cdh Tj = +2 °C	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	6.71 kW	6.37 kW
$COPTj = +7^{\circ}C$	6.07	3.95
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	6.58 kW	6.20 kW
COP Tj = 12°C	8.09	5.85
Cdh Tj = +12 °C	0.95	0.96
Pdh Tj = Tbiv	10.42 kW	10.36 kW
COP Tj = Tbiv	3.42	2.32
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.42 kW	10.36 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.42	2.32
WTOL	55 °C	55 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
РСК	0 W	0 W





Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2204 kWh	3141 kWh

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)

Colder Climate

EN 14825		
	Low temperature	e Medium temperature
η_{s}	171 %	125 %
Prated	7.61 kW	7.38 kW
SCOP	4.35	3.20
Tbiv	-20 °C	-20 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	4.50 kW	4.50 kW
COP Tj = -7°C	3.79	2.65
Cdh Tj = -7 °C	0.970	0.970
Pdh Tj = $+2$ °C	5.00 kW	4.62 kW
COP Tj = +2°C	5.34	3.96





This information was genera	ated by the HE KLIMAI	TR database on 29 Mai 202
Cdh Tj = $+2$ °C	0.960	0.960
Pdh Tj = $+7^{\circ}$ C	5.67 kW	5.47 kW
$COP Tj = +7^{\circ}C$	6.89	5.34
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.60 kW	6.38 kW
COP Tj = 12°C	8.30	6.70
Cdh Tj = +12 °C	0.950	0.960
Pdh Tj = Tbiv	7.21 kW	6.99 kW
COP Tj = Tbiv	2.14	1.53
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.21 kW	6.99 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.14	1.53
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	55 °C	55 °C
Poff	8 W	8 W
PTO	45 W	45 W
PSB	45 W	45 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	7.61 kW	7.38 kW
Annual energy consumption Qhe	4314 kWh	5691 kWh
Pdh Tj = -15 °C (if TOL< -20 °C)		
	·	·



Page 57 of 85

COP Tj = -15°C (if TOL $<$ -20°C)	
Cdh Tj = -15 °C	

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)



Model: HA 10-6 O

Configure model		
Model name	HA 10-6 O	
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

COP

5.27

EN 14511-2					
Low temperature Medium temperature					
Heat output	8.13 kW	9.08 kW			
El input	1.54 kW	2.95 kW			

3.08

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



EN 12102-1			
	Low temperature	Medium temperature	
Sound power level outdoor	59 dB(A)	59 dB(A)	

EN 14825		
	Low temperature	Medium temperature
η_{s}	199 %	143 %
Prated	8.86 kW	9.09 kW
SCOP	5.05	3.65
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	7.84 kW	8.04 kW
COP Tj = -7°C	3.21	2.20
Cdh Tj = -7 °C	0.980	0.990
Pdh Tj = +2°C	4.92 kW	4.77 kW
COP Tj = +2°C	5.06	3.63
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = +7°C	5.65 kW	5.37 kW
COP Tj = +7°C	6.65	4.92
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.62 kW	6.30 kW

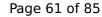




COP Tj = 12°C	8.41	6.34
Cdh Tj = +12 °C	0.940	0.950
Pdh Tj = Tbiv	8.93 kW	9.03 kW
COP Tj = Tbiv	2.58	1.87
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.93 kW	9.03 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.58	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	55 °C	55 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	3634 kWh	5146 kWh

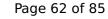
Warmer Climate

EN 14825			
	Low temperature	Medium temperature	
η_s	252 %	175 %	
Prated	10.42 kW	10.36 kW	
	·		





SCOP	6.39	4.44
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	10.42 kW	10.36 kW
COP Tj = +2°C	3.42	2.32
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = $+7^{\circ}$ C	6.71 kW	6.37 kW
$COPTj = +7^{\circ}C$	6.07	3.95
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	6.58 kW	6.20 kW
COP Tj = 12°C	8.09	5.85
Cdh Tj = +12 °C	0.94	0.96
Pdh Tj = Tbiv	10.42 kW	10.36 kW
COP Tj = Tbiv	3.42	2.32
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.42 kW	10.36 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.42	2.32
WTOL	55 °C	55 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	0 W	0 W





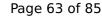
This information was generat	This information was generated by the HP KEYMARK database on 29 Mar 2022			
pplementary Heater: Type of energy input	Electricity	Electricity		
pplementary Heater: PSUP	0.00 kW	0.00 kW		

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2180 kWh	3117 kWh

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level outdoor	59 dB(A)	59 dB(A)	

Colder Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	171 %	125 %
Prated	7.61 kW	7.38 kW
SCOP	4.35	3.20
Tbiv	-20 °C	-20 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	4.50 kW	4.50 kW
COP Tj = -7°C	3.79	2.65
Cdh Tj = -7 °C	0.960	0.970
Pdh Tj = $+2$ °C	5.00 kW	4.62 kW
COP Tj = +2°C	5.34	3.96





This information was genera	iced by the in Reinna	
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = +7°C	5.67 kW	5.47 kW
$COP Tj = +7^{\circ}C$	6.89	5.34
Cdh Tj = +7 °C	0.940	0.950
Pdh Tj = 12°C	6.60 kW	6.38 kW
COP Tj = 12°C	8.30	6.70
Cdh Tj = +12 °C	0.940	0.950
Pdh Tj = Tbiv	7.21 kW	6.99 kW
COP Tj = Tbiv	2.14	1.53
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.21 kW	6.99 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.14	1.53
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	55 °C	55 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	7.61 kW	7.38 kW
Annual energy consumption Qhe	4314 kWh	5692 kWh
Pdh Tj = -15°C (if TOL<-20°C)		



Page 64 of 85

COP Tj = -15°C (if TOL $<$ -20°C)	
Cdh Tj = -15 °C	

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	59 dB(A)	59 dB(A)



Model: HA 10-6 O B2

Configure model		
Model name	HA 10-6 O B2	
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	No	
Cooling mode application (optional)	n/a	

General Data		
Power supply	3x400V 50Hz	

Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	8.13 kW	9.08 kW
El input	1.54 kW	2.95 kW
СОР	5.27	3.08

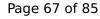
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

Average Climate



EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	59 dB(A)	59 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	196 %	141 %
Prated	8.86 kW	9.09 kW
SCOP	4.97	3.61
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	7.84 kW	8.04 kW
COP Tj = -7°C	3.21	2.20
Cdh Tj = -7 °C	0.980	0.990
Pdh Tj = +2°C	4.92 kW	4.77 kW
COP Tj = +2°C	5.06	3.63
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = +7°C	5.65 kW	5.37 kW
COP Tj = +7°C	6.65	4.92
Cdh Tj = +7 °C	0.950	0.960
Pdh Tj = 12°C	6.62 kW	6.30 kW

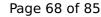




COP Tj = 12°C	8.41	6.34
Cdh Tj = +12 °C	0.940	0.950
Pdh Tj = Tbiv	8.93 kW	9.03 kW
COP Tj = Tbiv	2.58	1.87
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.93 kW	9.03 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.58	1.87
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	55 °C	55 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	3686 kWh	5199 kWh

Warmer Climate

EN 14825		
	Low temperature	Medium temperature
η_s	245 %	171 %
Prated	10.42 kW	10.36 kW





SCOP	6.21	4.35
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	10.42 kW	10.36 kW
COP Tj = +2°C	3.42	2.32
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = $+7^{\circ}$ C	6.71 kW	6.37 kW
$COP Tj = +7^{\circ}C$	6.07	3.95
Cdh Tj = +7 °C	0.96	0.97
Pdh Tj = 12°C	6.58 kW	6.20 kW
COP Tj = 12°C	8.09	5.85
Cdh Tj = +12 °C	0.94	0.96
Pdh Tj = Tbiv	10.42 kW	10.36 kW
COP Tj = Tbiv	3.42	2.32
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.42 kW	10.36 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.42	2.32
WTOL	55 °C	55 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
РСК	0 W	0 W





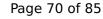
This information was generat	ed by the HP KEYMAR	K database on 29 Mar 2022	

Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2243 kWh	3180 kWh

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level outdoor	59 dB(A)	59 dB(A)	

Colder Climate

EN 14825		
	Low temperature	Medium temperature
η_{s}	170 %	124 %
Prated	7.61 kW	7.38 kW
SCOP	4.32	3.18
Tbiv	-20 °C	-20 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	4.50 kW	4.50 kW
COP Tj = -7°C	3.79	2.65
Cdh Tj = -7 °C	0.960	0.970
Pdh Tj = +2°C	5.00 kW	4.62 kW
COP Tj = +2°C	5.34	3.96





This information was genera	accurby the Hi KETMAI	N database on 29 Mai 2022
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = $+7^{\circ}$ C	5.67 kW	5.47 kW
$COPTj = +7^{\circ}C$	6.89	5.34
Cdh Tj = +7 °C	0.940	0.950
Pdh Tj = 12°C	6.60 kW	6.38 kW
COP Tj = 12°C	8.30	6.70
Cdh Tj = +12 °C	0.940	0.950
Pdh Tj = Tbiv	7.21 kW	6.99 kW
COP Tj = Tbiv	2.14	1.53
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.21 kW	6.99 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.14	1.53
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	55 °C	55 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
РСК	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	7.61 kW	7.38 kW
Annual energy consumption Qhe	4345 kWh	5723 kWh
Pdh Tj = -15 °C (if TOL< -20 °C)		



Page 71 of 85

COP Tj = -15°C (if TOL $<$ -20°C)	
Cdh Tj = -15 °C	

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	59 dB(A)	59 dB(A)



Model: HA 12-6 O 230V B3

Configure model		
Model name	HA 12-6 O 230V B3	
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	11.60 kW	13.15 kW
El input	2.46 kW	4.55 kW
СОР	4.71	2.89

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



 $$\operatorname{\textit{Page}}\xspace$ 73 of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	200 %	144 %
Prated	9.35 kW	9.66 kW
SCOP	5.07	3.67
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.09 kW	8.64 kW
COP Tj = -7°C	3.11	2.12
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.90 kW	5.30 kW
COP Tj = +2°C	4.98	3.62
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = +7°C	5.75 kW	5.47 kW
COP Tj = +7°C	6.73	4.94
Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	6.67 kW	6.35 kW



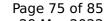


	1	
COP Tj = 12°C	8.74	6.50
Cdh Tj = +12 °C	0.97	0.98
Pdh Tj = Tbiv	9.35 kW	9.66 kW
COP Tj = Tbiv	2.58	1.92
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.35 kW	9.66 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.58	1.92
WTOL	75 °C	75 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	3812 kWh	5437 kWh

Warmer Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 1482	25	
	Low temperature	Medium temperature





This information was general		
η_s	256 %	176 %
Prated	11.16 kW	11.02 kW
SCOP	6.48	4.47
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.16 kW	11.02 kW
COP Tj = +2°C	3.26	2.23
Cdh Tj = +2 °C	0.99	1.00
Pdh Tj = +7°C	7.36 kW	7.20 kW
$COP Tj = +7^{\circ}C$	5.90	3.84
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	6.53 kW	6.25 kW
COP Tj = 12°C	8.26	5.95
Cdh Tj = +12 °C	0.97	0.98
Pdh Tj = Tbiv	11.16 kW	11.02 kW
COP Tj = Tbiv	3.26	2.23
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL $<$ Tdesignh	11.16 kW	11.02 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.26	2.23
WTOL	75 °C	75 °C
Poff	8 W	8 W





	,	
РТО	45 W	45 W
PSB	45 W	45 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW

2303 kWh

3295 kWh

Colder Climate

Annual energy consumption Qhe

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 14825		
	Low temper	ature Medium temperature
η_{s}	168 %	126 %
Prated	10.24 kW	10.65 kW
SCOP	4.27	3.24
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	6.34 kW	6.45 kW
COP Tj = -7°C	3.58	2.58





This information was general		
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = +2°C	5.00 kW	4.70 kW
COP Tj = +2°C	5.39	4.06
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = +7°C	5.79 kW	5.60 kW
$COP Tj = +7^{\circ}C$	7.02	5.45
Cdh Tj = +7 °C	0.970	0.980
Pdh Tj = 12°C	6.67 kW	6.47 kW
COP Tj = 12°C	8.74	7.14
Cdh Tj = +12 °C	0.970	0.980
Pdh Tj = Tbiv	8.35 kW	8.68 kW
COP Tj = Tbiv	2.41	1.90
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	7.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.06	1.48
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	75 °C	75 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity



$$\operatorname{\textit{Page}}$ 78 of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

Supplementary Heater: PSUP	10.24 kW	10.65 kW
Annual energy consumption Qhe	5906 kWh	8111 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
COP Tj = -15°C (if TOL $<$ -20°C)		
Cdh Tj = -15 °C		





Model: HA 12-6 O B3

Configure model	
Model name	HA 12-6 O B3
Application	Heating (medium temp)
Units	Outdoor
Climate Zone	Colder Climate + Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a

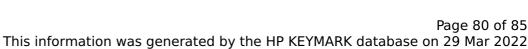
General Data		
Power supply	3x400V 50Hz	

Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	11.60 kW	13.15 kW
El input	2.46 kW	4.55 kW
СОР	4.71	2.89

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



EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)

CEN heat pump KEYMARK

EN 14825		
	Low temperature	Medium temperature
η_{s}	200 %	144 %
Prated	9.35 kW	9.66 kW
SCOP	5.06	3.67
Tbiv	-10 °C	-10 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	8.09 kW	8.64 kW
COP Tj = -7°C	3.11	2.12
Cdh Tj = -7 °C	0.99	0.99
Pdh Tj = +2°C	4.90 kW	5.30 kW
COP Tj = +2°C	4.98	3.62
Cdh Tj = +2 °C	0.98	0.99
Pdh Tj = $+7$ °C	5.75 kW	5.47 kW
COP Tj = +7°C	6.73	4.94
Cdh Tj = +7 °C	0.98	0.98
Pdh Tj = 12°C	6.67 kW	6.35 kW





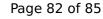
 $$\operatorname{\textit{Page}}\xspace$ 81 of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

Cdh Tj = +12 °C 0.97 0.98 Pdh Tj = Tbiv 9.35 kW 9.66 kW COP Tj = Tbiv 2.58 1.92 Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh 9.35 kW 9.66 kW COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh 2.58 1.92 WTOL 75 °C 75 °C Poff 14 W 14 W PTO 51 W 51 W PSB 51 W 51 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 0.00 kW 0.00 kW			
Pdh Tj = Tbiv 9.35 kW 9.66 kW COP Tj = Tbiv 2.58 1.92 Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	COP Tj = 12°C	8.74	6.50
COP Tj = Tbiv 2.58 1.92 Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	Cdh Tj = +12 °C	0.97	0.98
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	Pdh Tj = Tbiv	9.35 kW	9.66 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	COP Tj = Tbiv	2.58	1.92
WTOL 75 °C 75 °C Poff 14 W 14 W PTO 51 W 51 W PSB 51 W 51 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 0.00 kW 0.00 kW	Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.35 kW	9.66 kW
Poff 14 W 14 W PTO 51 W 51 W PSB 51 W 51 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 0.00 kW 0.00 kW	COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.58	1.92
PTO 51 W 51 W PSB 51 W 51 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 0.00 kW 0.00 kW	WTOL	75 °C	75 °C
PSB 51 W 51 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 0.00 kW 0.00 kW	Poff	14 W	14 W
PCK 0 W Supplementary Heater: Type of energy input Electricity Electricity O.00 kW 0.00 kW	РТО	51 W	51 W
Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 0.00 kW 0.00 kW	PSB	51 W	51 W
Supplementary Heater: PSUP 0.00 kW 0.00 kW	PCK	o w	o w
	Supplementary Heater: Type of energy input	Electricity	Electricity
Annual energy consumption Qhe 3813 kWh 5438 kWh	Supplementary Heater: PSUP	0.00 kW	0.00 kW
	Annual energy consumption Qhe	3813 kWh	5438 kWh

Warmer Climate

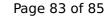
EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 1482	25	
	Low temperature	Medium temperature





This information was general	,	
η_s	255 %	175 %
Prated	11.16 kW	11.02 kW
SCOP	6.46	4.46
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.16 kW	11.02 kW
$COPTj = +2^{\circ}C$	3.26	2.23
Cdh Tj = +2 °C	0.99	1.00
Pdh Tj = $+7$ °C	7.36 kW	7.20 kW
$COPTj = +7^{\circ}C$	5.90	3.84
Cdh Tj = +7 °C	0.98	0.99
Pdh Tj = 12°C	6.53 kW	6.25 kW
COP Tj = 12°C	8.26	5.95
Cdh Tj = +12 °C	0.97	0.98
Pdh Tj = Tbiv	11.16 kW	11.02 kW
COP Tj = Tbiv	3.26	2.23
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.16 kW	11.02 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.26	2.23
WTOL	75 °C	75 °C
Poff	14 W	14 W



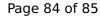


РТО	51 W	51 W
PSB	51 W	51 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2307 kWh	3299 kWh

Colder Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)

EN 14825		
	Low temperature	Medium temperature
η_{s}	168 %	126 %
Prated	10.24 kW	10.65 kW
SCOP	4.27	3.24
Tbiv	-15 °C	-15 °C
TOL	-20 °C	-20 °C
Pdh Tj = -7°C	6.34 kW	6.45 kW
COP Tj = -7°C	3.58	2.58





This information was genera		
Cdh Tj = -7 °C	0.990	0.990
Pdh Tj = +2°C	5.00 kW	4.70 kW
COP Tj = +2°C	5.39	4.06
Cdh Tj = +2 °C	0.980	0.980
Pdh Tj = $+7^{\circ}$ C	5.79 kW	5.60 kW
$COPTj = +7^{\circ}C$	7.02	5.45
Cdh Tj = +7 °C	0.970	0.980
Pdh Tj = 12°C	6.67 kW	6.47 kW
COP Tj = 12°C	8.74	7.14
Cdh Tj = +12 °C	0.970	0.980
Pdh Tj = Tbiv	8.35 kW	8.68 kW
COP Tj = Tbiv	2.41	1.90
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.20 kW	7.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.06	1.48
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	75 °C	75 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity



$$\operatorname{\textit{Page}}$$ 85 of 85 This information was generated by the HP KEYMARK database on 29 Mar 2022

Supplementary Heater: PSUP	10.24 kW	10.65 kW
Annual energy consumption Qhe	5907 kWh	8112 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
COP Tj = -15°C (if TOL $<$ -20°C)		
Cdh Tj = -15 °C		