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Summary of	HA 12-6 O 230V, HA 12-6 O	Reg. No.	40051134		
Certificate H	Certificate Holder				
Name	Saunier Duval Brand Group				
Address		Zip			
City		Country	Germany		
Certification Body	VDE Prüf- und Zertifizierungsinstitut GmbH				
Name of testing laboratory	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	07.04.2020				
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 14825:2016-10; EN 14825:2016 DIN EN 12102-1:2018-02; EN 12102-1:2017				



# Model: HA 12-6 O 230V

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	
Indoor water flow rate	1.48 m³/h	1.00 m³/h	

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
ης	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	0.99	0.99
Pdh Tj = +2°C	6.99 kW	6.43 kW
COP Tj = +2°C	5.17	3.73
Cdh	0.97	0.97
Pdh Tj = +7°C	5.81 kW	5.65 kW
COP Tj = +7°C	6.87	5.27
Cdh	0.95	0.96
Pdh Tj = 12°C	6.77 kW	6.58 kW





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COP Tj = 12°C	8.66	6.64
Cdh	0.95	0.96
Pdh Tj = Tbiv	11.27 kW	10.45 kW
COP Tj = Tbiv	2.58	2.10
Pdh Tj = TOL	9.85 kW	9.83 kW
COP Tj = TOL	2.29	1.87
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	5305 kWh	6501 kWh

## Warmer Climate

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	254 %	174 %
Prated	11.35 kW	11.06 kW
SCOP	6.41	4.42





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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	0.99	0.99
Pdh Tj = +7°C	7.41 kW	7.19 kW
$COP Tj = +7^{\circ}C$	5.97	3.82
Cdh	0.97	0.98
Pdh Tj = 12°C	6.63 kW	6.33 kW
COP Tj = 12°C	8.20	5.97
Cdh	0.95	0.96
Pdh Tj = Tbiv	11.35 kW	11.06 kW
COP Tj = Tbiv	3.23	2.21
Pdh Tj = TOL	11.35 kW	11.06 kW
COP Tj = TOL	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	o w	0 W
Supplementary Heater: Type of energy input	electricity	electricity
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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
$\eta_{s}$	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	0.98	0.96
Pdh Tj = +2°C	5.11 kW	4.83 kW
COP Tj = +2°C	5.51	4.20
Cdh	0.96	0.96





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Pdh Tj = +7°C	5.82 kW	5.62 kW
$COP Tj = +7^{\circ}C$	7.14	5.61
Cdh	0.95	0.96
Pdh Tj = 12°C	6.69 kW	6.55 kW
COP Tj = 12°C	8.51	6.95
Cdh	0.95	0.96
Pdh Tj = Tbiv	9.92 kW	9.04 kW
COP Tj = Tbiv	2.26	1.81
Pdh Tj = TOL	8.71 kW	7.73 kW
COP Tj = TOL	2.03	1.50
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	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	0.99	0.99
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EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	58 dB(A)	60 dB(A)



# Model: HA 12-6 O 230V B2

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
Indoor water flow rate	1.48 m³/h	1.00 m³/h

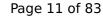
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

# 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
$\eta_{s}$	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	0.99	0.99
Pdh Tj = +2°C	6.99 kW	6.43 kW
COP Tj = +2°C	5.17	3.73
Cdh	0.97	0.97
Pdh Tj = +7°C	5.81 kW	5.65 kW
COP Tj = +7°C	6.87	5.27
Cdh	0.95	0.96
Pdh Tj = 12°C	6.77 kW	6.58 kW





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COP Tj = 12°C	8.66	6.64
Cdh	0.95	0.96
Pdh Tj = Tbiv	11.27 kW	10.45 kW
COP Tj = Tbiv	2.58	2.10
Pdh Tj = TOL	9.85 kW	9.83 kW
COP Tj = TOL	2.29	1.87
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	5335 kWh	6532 kWh

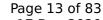
## Warmer Climate

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	250 %	172 %
Prated	11.35 kW	11.06 kW
SCOP	6.32	4.38





2 °C 2 °C 11.35 kW 3.23	2 °C 2 °C 11.06 kW
11.35 kW	11.06 kW
3.23	
	2.21
0.99	0.99
7.41 kW	7.19 kW
5.97	3.82
0.97	0.98
6.63 kW	6.33 kW
8.20	5.97
0.95	0.96
11.35 kW	11.06 kW
3.23	2.21
11.35 kW	11.06 kW
3.23	2.21
70 °C	70 °C
8 W	8 W
45 W	45 W
45 W	45 W
o w	o w
electricity	electricity
	7.41 kW 5.97 0.97 6.63 kW 8.20 0.95 11.35 kW 3.23 11.35 kW 3.23 70 °C 8 W 45 W 45 W



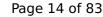


Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2399 kWh	3378 kWh

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
$\eta_{s}$	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	0.98	0.96
Pdh Tj = +2°C	5.11 kW	4.83 kW
$COP Tj = +2^{\circ}C$	5.51	4.20
Cdh	0.96	0.96





5.82 kW	5.62 kW
7.14	5.61
0.95	0.96
6.69 kW	6.55 kW
8.51	6.95
0.95	0.96
9.92 kW	9.04 kW
2.26	1.81
8.71 kW	7.73 kW
2.03	1.50
70 °C	70 °C
8 W	8 W
45 W	45 W
45 W	45 W
o w	0 W
electricity	electricity
0.00 kW	0.00 kW
6954 kWh	8339 kWh
9.92	9.04
2.26	1.81
0.99	0.99
	7.14  0.95  6.69 kW  8.51  0.95  9.92 kW  2.26  8.71 kW  2.03  70 °C  8 W  45 W  0 W  electricity  0.00 kW  6954 kWh  9.92  2.26





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

# **Model: HA 12-6 O**

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	
Indoor water flow rate	1.48 m³/h	1.00 m³/h	

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

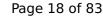
# Average Climate



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

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	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	0.99	0.99
Pdh Tj = +2°C	6.99 kW	6.43 kW
COP Tj = +2°C	5.17	3.73
Cdh	0.96	0.97
Pdh Tj = +7°C	5.81 kW	5.65 kW
COP Tj = +7°C	6.87	5.27
Cdh	0.95	0.96
Pdh Tj = 12°C	6.77 kW	6.58 kW





COP Tj = 12°C	8.66	6.64
Cdh	0.94	0.95
Pdh Tj = Tbiv	11.27 kW	10.45 kW
COP Tj = Tbiv	2.58	2.10
Pdh Tj = TOL	9.85 kW	9.83 kW
COP Tj = TOL	2.29	1.87
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
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	5313 kWh	6511 kWh

## Warmer Climate

EN 14825			
Low temperature Medium temperature			
$\eta_{s}$	254 %	173 %	
Prated	11.35 kW	11.06 kW	
SCOP	6.41	4.42	
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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	0.99	0.99
Pdh Tj = +7°C	7.41 kW	7.19 kW
$COP Tj = +7^{\circ}C$	5.97	3.82
Cdh	0.96	0.97
Pdh Tj = 12°C	6.63 kW	6.33 kW
COP Tj = 12°C	8.20	5.97
Cdh	0.94	0.95
Pdh Tj = Tbiv	11.35 kW	11.06 kW
COP Tj = Tbiv	3.23	2.21
Pdh Tj = TOL	11.35 kW	11.06 kW
COP Tj = TOL	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
Supplementary Heater: Type of energy input	electricity	electricity
	1	



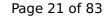


Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2363 kWh	3354 kWh

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
$\eta_{s}$	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	0.97	0.98
Pdh Tj = +2°C	5.11 kW	4.83 kW
COP Tj = +2°C	5.51	4.20
Cdh	0.95	0.96





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Pdh Tj = +7°C	5.82 kW	5.62 kW
$COP Tj = +7^{\circ}C$	7.14	5.61
Cdh	0.94	0.95
Pdh Tj = 12°C	6.69 kW	6.55 kW
COP Tj = 12°C	8.51	6.95
Cdh	0.94	0.95
Pdh Tj = Tbiv	9.92 kW	9.04 kW
COP Tj = Tbiv	2.26	1.81
Pdh Tj = TOL	8.71 kW	7.73 kW
COP Tj = TOL	2.03	1.50
WTOL	70 °C	70 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	0 W	o w
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	6936 kWh	8334 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	0.99	0.99





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



# Model: HA 12-6 O B2

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	
Indoor water flow rate	1.48 m³/h	1.00 m³/h	

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

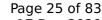
# Average Climate



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

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	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
COP Tj = -7°C	2.58	2.10
Cdh	0.99	0.99
Pdh Tj = +2°C	6.99 kW	6.43 kW
COP Tj = +2°C	5.17	3.73
Cdh	0.96	0.97
Pdh Tj = +7°C	5.81 kW	5.65 kW
COP Tj = +7°C	6.87	5.27
Cdh	0.95	0.96
Pdh Tj = 12°C	6.77 kW	6.58 kW





COP Tj = 12°C	8.66	6.64
Cdh	0.94	0.95
Pdh Tj = Tbiv	11.27 kW	10.45 kW
COP Tj = Tbiv	2.58	2.10
Pdh Tj = TOL	9.85 kW	9.83 kW
COP Tj = TOL	2.29	1.87
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
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	5366 kWh	6563 kWh

## Warmer Climate

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	250 %	170 %
Prated	11.35 kW	11.06 kW
SCOP	6.32	4.33





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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	0.99	0.99
Pdh Tj = +7°C	7.41 kW	7.19 kW
$COP Tj = +7^{\circ}C$	5.97	3.82
Cdh	0.96	0.97
Pdh Tj = 12°C	6.63 kW	6.33 kW
COP Tj = 12°C	8.20	5.97
Cdh	0.94	0.95
Pdh Tj = Tbiv	11.35 kW	11.06 kW
COP Tj = Tbiv	3.23	2.21
Pdh Tj = TOL	11.35 kW	11.06 kW
COP Tj = TOL	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
Supplementary Heater: Type of energy input	electricity	electricity
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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
$\eta_{s}$	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	0.97	0.98
Pdh Tj = +2°C	5.11 kW	4.83 kW
COP Tj = +2°C	5.51	4.20
Cdh	0.95	0.96





# $$\operatorname{\textit{Page}}\xspace$ 28 of 83 This information was generated by the HP KEYMARK database on 17 Dec 2020

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Pdh Tj = +7°C	5.82 kW	5.62 kW
$COP Tj = +7^{\circ}C$	7.14	5.61
Cdh	0.94	0.95
Pdh Tj = 12°C	6.69 kW	6.55 kW
COP Tj = 12°C	8.51	6.95
Cdh	0.95	0.96
Pdh Tj = Tbiv	9.92 kW	9.04 kW
COP Tj = Tbiv	2.26	1.81
Pdh Tj = TOL	8.71 kW	7.73 kW
COP Tj = TOL	2.03	1.50
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
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 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	0.99	0.99





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



# Model: HA 15-6 O 230V B3

General Data	
Power supply	1x230V 50Hz

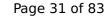
# Heating

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
Indoor water flow rate	2.46 m³/h	1.54 m³/h

## **Average Climate**

EN 14825		
	Low temperature	Medium temperature
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	· · ·	Title database on 17 Dec 202
$\eta_{s}$	187 %	143 %
Prated	12.69 kW	12.00 kW
SCOP	4.74	3.66
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	11.23 kW	10.62 kW
$COPTj = -7^{\circ}C$	2.46	2.08
Cdh	0.99	0.99
Pdh Tj = +2°C	6.98 kW	6.54 kW
COP Tj = +2°C	4.88	3.68
Cdh	0.97	0.98
Pdh Tj = $+7^{\circ}$ C	5.79 kW	5.43 kW
$COPTj = +7^{\circ}C$	6.54	4.91
Cdh	0.95	0.96
Pdh Tj = 12°C	6.65 kW	6.31 kW
COP Tj = 12°C	9.06	6.32
Cdh	0.94	0.96
Pdh Tj = Tbiv	11.23 kW	10.62 kW
COP Tj = Tbiv	2.46	2.08
Pdh Tj = TOL	9.82 kW	11.05 kW
COP Tj = TOL	2.23	1.75
	•	



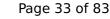


WTOL	55 °C	55 °C
Poff	8 W	8 W
РТО	45 W	45 W
PSB	45 W	45 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	5532 kWh	6780 kWh

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
$\eta_{s}$	245 %	172 %
Prated	12.02 kW	12.69 kW
SCOP	6.19	4.38
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C





		THE GULLBUSE OF IT BEE 202
Pdh Tj = +2°C	12.02 kW	12.69 kW
COP Tj = +2°C	3.19	2.05
Cdh	0.99	0.99
Pdh Tj = +7°C	7.55 kW	7.46 kW
$COP Tj = +7^{\circ}C$	5.70	3.87
Cdh	0.97	0.98
Pdh Tj = 12°C	6.64 kW	6.19 kW
COP Tj = 12°C	7.90	5.77
Cdh	0.95	0.96
Pdh Tj = Tbiv	12.02 kW	12.69 kW
COP Tj = Tbiv	3.19	2.05
Pdh Tj = TOL	12.02 kW	12.69 kW
COP Tj = TOL	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	0 W
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

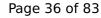
EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	61 dB(A)	61 dB(A)

## Colder Climate

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	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	0.98	0.98
Pdh Tj = +2°C	5.16 kW	4.80 kW
COP Tj = +2°C	5.33	4.08
Cdh	0.96	0.96
Pdh Tj = +7°C	5.81 kW	5.55 kW
COP Tj = +7°C	7.45	5.43
Cdh	0.95	0.96



Pdh Tj = 12°C	6.66 kW	6.42 kW
COP Tj = 12°C	9.04	6.82
Cdh	0.94	0.96
Pdh Tj = Tbiv	10.38 kW	9.93 kW
COP Tj = Tbiv	2.37	1.76
Pdh Tj = TOL	8.93 kW	8.65 kW
COP Tj = TOL	2.00	1.46
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	0.00 kW	0.00 kW
Annual energy consumption Qhe	7330 kWh	9377 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	0.99	0.99





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

# Model: HA 15-6 O B3

General Data	
Power supply	3x400V 50Hz

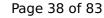
# Heating

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	
Indoor water flow rate	2.46 m³/h	1.54 m³/h	

## **Average Climate**

EN 14825		
	Low temperature	Medium temperature





This information was ge		
$\eta_{S}$	186 %	143 %
Prated	12.69 kW	12.00 kW
SCOP	4.73	3.65
Tbiv	-7 °C	-7 °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	0.99	0.99
Pdh Tj = $+2$ °C	6.98 kW	6.54 kW
COP Tj = +2°C	4.88	3.68
Cdh	0.97	0.97
Pdh Tj = $+7^{\circ}$ C	5.79 kW	5.43 kW
$COP Tj = +7^{\circ}C$	6.54	4.91
Cdh	0.95	0.96
Pdh Tj = 12°C	6.65 kW	6.31 kW
COP Tj = 12°C	9.06	6.32
Cdh	0.94	0.95
Pdh Tj = Tbiv	11.23 kW	10.62 kW
COP Tj = Tbiv	2.46	2.08
Pdh Tj = TOL	9.82 kW	11.05 kW
COP Tj = TOL	2.23	1.75
	·	





WTOL	55 °C	55 °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
Annual energy consumption Qhe	5542 kWh	6789 kWh

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
$\eta_{s}$	244 %	172 %
Prated	12.02 kW	12.69 kW
SCOP	6.16	4.37
Tbiv	2 °C	2 °C
TOL	2 °C	2 °C





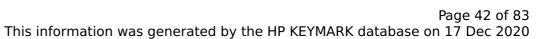
		7.11.11. database on 17 Dec 2021
Pdh Tj = +2°C	12.02 kW	12.69 kW
COP Tj = +2°C	3.19	2.05
Cdh	0.99	0.99
Pdh Tj = $+7$ °C	7.55 kW	7.46 kW
$COPTj = +7^{\circ}C$	5.70	3.87
Cdh	0.96	0.97
Pdh Tj = 12°C	6.64 kW	6.19 kW
COP Tj = 12°C	7.90	5.77
Cdh	0.94	0.96
Pdh Tj = Tbiv	12.02 kW	12.69 kW
COP Tj = Tbiv	3.19	2.05
Pdh Tj = TOL	12.02 kW	12.69 kW
COP Tj = TOL	3.19	2.05
WTOL	55 °C	55 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	0 W	o 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
$\eta_{s}$	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	0.97	0.98
Pdh Tj = +2°C	5.16 kW	4.80 kW
COP Tj = +2°C	5.33	4.08
Cdh	0.95	0.96
Pdh Tj = +7°C	5.81 kW	5.55 kW
COP Tj = +7°C	7.45	5.43
Cdh	0.94	0.95





This information was generated by the Till Rethank adiabase of 17 Bee 2020			
Pdh Tj = 12°C	6.66 kW	6.42 kW	
COP Tj = 12°C	9.04	6.82	
Cdh	0.94	0.95	
Pdh Tj = Tbiv	10.38 kW	9.93 kW	
COP Tj = Tbiv	2.37	1.76	
Pdh Tj = TOL	8.93 kW	8.65 kW	
COP Tj = TOL	2.00	1.46	
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	0.00 kW	0.00 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	0.99	0.99	





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



# Model: HA 10-6 O 230V

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
Indoor water flow rate	1.42 m³/h	1.00 m³/h

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
$\eta_{s}$	199 %	143 %
Prated	8.86 kW	9.09 kW
SCOP	5.05	3.66
Tbiv	-7 °C	-7 °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	0.98	0.99
Pdh Tj = +2°C	4.92 kW	4.77 kW
COP Tj = +2°C	5.06	3.63
Cdh	0.96	0.97
Pdh Tj = +7°C	5.65 kW	5.37 kW
$COP Tj = +7^{\circ}C$	6.65	4.92
Cdh	0.95	0.96
Pdh Tj = 12°C	6.62 kW	6.30 kW





This information was g	enerated by the HP KEYM	IARK database on 17 Dec 2020
COP Tj = 12°C	8.41	6.34
Cdh	0.95	0.96
Pdh Tj = Tbiv	7.84 kW	8.04 kW
COP Tj = Tbiv	3.21	2.20
Pdh Tj = TOL	8.93 kW	9.03 kW
COP Tj = TOL	2.58	1.87
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	0.00 kW	0.00 kW

## Warmer Climate

Annual energy consumption Qhe

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	254 %	175 %
Prated	10.42 kW	10.36 kW
SCOP	6.42	4.46

3624 kWh

5138 kWh





mo momation was g	jeneracea by the in Rein	militaria da cabase on 17 bee 202
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	0.99	0.99
Pdh Tj = +7°C	6.71 kW	6.37 kW
$COP Tj = +7^{\circ}C$	6.07	3.95
Cdh	0.96	0.97
Pdh Tj = 12°C	6.58 kW	6.20 kW
COP Tj = 12°C	8.09	5.85
Cdh	0.95	0.96
Pdh Tj = Tbiv	10.42 kW	10.36 kW
COP Tj = Tbiv	3.42	2.32
Pdh Tj = TOL	10.42 kW	10.36 kW
COP Tj = TOL	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	o w	o w
Supplementary Heater: Type of energy input	electricity	electricity
	1	'





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

	Low temperature	Medium temperature
$\eta_{s}$	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	0.97	0.97
Pdh Tj = +2°C	5.00 kW	4.62 kW
COP Tj = +2°C	5.34	3.96
Cdh	0.96	0.96





5.67 kW	5.47 kW
6.89	5.34
0.95	0.96
6.60 kW	6.38 kW
8.30	6.70
0.95	0.96
7.21 kW	6.99 kW
2.14	1.53
7.21 kW	6.99 kW
2.14	1.53
55 °C	55 °C
8 W	8 W
45 W	45 W
45 W	45 W
o w	o w
electricity	electricity
0.00 kW	0.00 kW
4296 kWh	5673 kWh
	6.60 kW  8.30  0.95  7.21 kW  2.14  7.21 kW  2.14  55 °C  8 W  45 W  0 W  electricity  0.00 kW





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



# Model: HA 10-6 O 230V B2

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
Indoor water flow rate	1.42 m³/h	1.00 m³/h

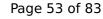
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

## 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
$\eta_{s}$	197 %	142 %
Prated	8.86 kW	9.09 kW
SCOP	5.01	3.64
Tbiv	-7 °C	-7 °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	0.98	0.99
Pdh Tj = +2°C	4.92 kW	4.77 kW
COP Tj = +2°C	5.06	3.63
Cdh	0.96	0.97
Pdh Tj = +7°C	5.65 kW	5.37 kW
$COP Tj = +7^{\circ}C$	6.65	4.92
Cdh	0.95	0.96
Pdh Tj = 12°C	6.62 kW	6.30 kW





	<u> </u>	
COP Tj = 12°C	8.41	6.34
Cdh	0.95	0.96
Pdh Tj = Tbiv	7.84 kW	8.04 kW
COP Tj = Tbiv	3.21	2.20
Pdh Tj = TOL	8.93 kW	9.03 kW
COP Tj = TOL	2.58	1.87
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	0.00 kW	0.00 kW
Annual energy consumption Qhe	3654 kWh	5168 kWh

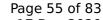
## Warmer Climate

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	250 %	173 %
Prated	10.42 kW	10.36 kW
SCOP	6.32	4.41





This information was t	generated by the III KEII	MARK database on 17 Dec 202
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	0.99	0.99
Pdh Tj = $+7^{\circ}$ C	6.71 kW	6.37 kW
COP Tj = +7°C	6.07	3.95
Cdh	0.96	0.97
Pdh Tj = 12°C	6.58 kW	6.20 kW
COP Tj = 12°C	8.09	5.85
Cdh	0.95	0.96
Pdh Tj = Tbiv	10.42 kW	10.36 kW
COP Tj = Tbiv	3.42	2.32
Pdh Tj = TOL	10.42 kW	10.36 kW
COP Tj = TOL	3.42	2.32
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	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	Medium temperature
$\eta_{s}$	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	0.97	0.97
Pdh Tj = +2°C	5.00 kW	4.62 kW
COP Tj = +2°C	5.34	3.96
Cdh	0.96	0.96





This intermation has g	The rated by the rin rearr	TANK database on 17 Dec 2020
Pdh Tj = +7°C	5.67 kW	5.47 kW
$COP Tj = +7^{\circ}C$	6.89	5.34
Cdh	0.95	0.96
Pdh Tj = 12°C	6.60 kW	6.38 kW
COP Tj = 12°C	8.30	6.70
Cdh	0.95	0.96
Pdh Tj = Tbiv	7.21 kW	6.99 kW
COP Tj = Tbiv	2.14	1.53
Pdh Tj = TOL	7.21 kW	6.99 kW
COP Tj = TOL	2.14	1.53
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	0.00 kW	0.00 kW
Annual energy consumption Qhe	4314 kWh	5691 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
COP Tj = $-15$ °C (if TOL< $-20$ °C)		
Cdh		
t and the second	•	





 $$\operatorname{\textit{Page}}\xspace$  57 of 83 This information was generated by the HP KEYMARK database on 17 Dec 2020

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

# **Model: HA 10-6 O**

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	
Indoor water flow rate	1.42 m³/h	1.00 m³/h	

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
$\eta_{s}$	198 %	143 %
Prated	8.86 kW	9.09 kW
SCOP	5.04	3.65
Tbiv	-7 °C	-7 °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	0.98	0.99
Pdh Tj = +2°C	4.92 kW	4.77 kW
COP Tj = +2°C	5.06	3.63
Cdh	0.95	0.96
Pdh Tj = +7°C	5.65 kW	5.37 kW
COP Tj = +7°C	6.65	4.92
Cdh	0.95	0.96
Pdh Tj = 12°C	6.62 kW	6.30 kW





The same and the s		
COP Tj = 12°C	8.41	6.34
Cdh	0.94	0.95
Pdh Tj = Tbiv	7.84 kW	8.04 kW
COP Tj = Tbiv	3.21	2.20
Pdh Tj = TOL	8.93 kW	9.03 kW
COP Tj = TOL	2.58	1.87
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	0.00 kW	0.00 kW
Annual energy consumption Qhe	3636 kWh	5149 kWh

#### Warmer Climate

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	252 %	175 %
Prated	10.42 kW	10.36 kW
SCOP	6.39	4.44





This information was generated by the HP KEYMARK database on 17 Dec 2020				
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	0.98	0.99		
Pdh Tj = +7°C	6.71 kW	6.37 kW		
$COPTj = +7^{\circ}C$	6.07	3.95		
Cdh	0.96	0.97		
Pdh Tj = 12°C	6.58 kW	6.20 kW		
COP Tj = 12°C	8.09	5.85		
Cdh	0.94	0.96		
Pdh Tj = Tbiv	10.42 kW	10.36 kW		
COP Tj = Tbiv	3.42	2.32		
Pdh Tj = TOL	10.42 kW	10.36 kW		
COP Tj = TOL	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	o w	o w		
Supplementary Heater: Type of energy input	electricity	electricity		



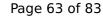


Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2180 kWh	3117 kWh

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
$\eta_{s}$	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	0.96	0.97
Pdh Tj = +2°C	5.00 kW	4.62 kW
COP Tj = +2°C	5.34	3.96
Cdh	0.95	0.96





	generated by the fir KL	IMAIN database on 17 Dec 202
Pdh Tj = +7°C	5.67 kW	5.47 kW
$COP Tj = +7^{\circ}C$	6.89	5.34
Cdh	0.94	0.95
Pdh Tj = 12°C	6.60 kW	6.38 kW
COP Tj = 12°C	8.30	6.70
Cdh	0.94	0.95
Pdh Tj = Tbiv	7.21 kW	6.99 kW
COP Tj = Tbiv	2.14	1.53
Pdh Tj = TOL	7.21 kW	6.99 kW
COP Tj = TOL	2.14	1.53
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	0.00 kW	0.00 kW
Annual energy consumption Qhe	4314 kWh	5692 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
COP Tj = -15°C (if TOL<-20°C)		
Cdh		
<del></del>		





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

# Model: HA 10-6 O B2

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	
Indoor water flow rate	1.42 m³/h	1.00 m³/h	

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
$\eta_{s}$	196 %	141 %
Prated	8.86 kW	9.09 kW
SCOP	4.97	3.61
Tbiv	-7 °C	-7 °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	0.98	0.99
Pdh Tj = +2°C	4.92 kW	4.77 kW
COP Tj = +2°C	5.06	3.63
Cdh	0.95	0.96
Pdh Tj = +7°C	5.65 kW	5.37 kW
COP Tj = +7°C	6.65	4.92
Cdh	0.95	0.96
Pdh Tj = 12°C	6.62 kW	6.30 kW
		·





Time initialities and gen	1	
COP Tj = 12°C	8.41	6.34
Cdh	0.94	0.95
Pdh Tj = Tbiv	7.84 kW	8.04 kW
COP Tj = Tbiv	3.21	2.20
Pdh Tj = TOL	8.93 kW	9.03 kW
COP Tj = TOL	2.58	1.87
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	0.00 kW	0.00 kW
Annual energy consumption Qhe	3688 kWh	5201 kWh

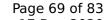
#### Warmer Climate

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	245 %	171 %
Prated	10.42 kW	10.36 kW
SCOP	6.21	4.35





This information was	generated by the HP i	KEYMARK database on 17 Dec 2020
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	0.98	0.99
Pdh Tj = +7°C	6.71 kW	6.37 kW
$COPTj = +7^{\circ}C$	6.07	3.95
Cdh	0.96	0.97
Pdh Tj = 12°C	6.58 kW	6.20 kW
COP Tj = 12°C	8.09	5.85
Cdh	0.94	0.96
Pdh Tj = Tbiv	10.42 kW	10.36 kW
COP Tj = Tbiv	3.42	2.32
Pdh Tj = TOL	10.42 kW	10.36 kW
COP Tj = TOL	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	o w	o w
Supplementary Heater: Type of energy input	electricity	electricity



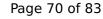


Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2243 kWh	3180 kWh

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

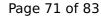
## Colder Climate

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	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	0.96	0.97
Pdh Tj = +2°C	5.00 kW	4.62 kW
COP Tj = +2°C	5.34	3.96
Cdh	0.95	0.96





Tins information was go	Theracea by the fill reality	ANN database on 17 Dec 2020
Pdh Tj = +7°C	5.67 kW	5.47 kW
$COP Tj = +7^{\circ}C$	6.89	5.34
Cdh	0.94	0.95
Pdh Tj = 12°C	6.60 kW	6.38 kW
COP Tj = 12°C	8.30	6.70
Cdh	0.94	0.95
Pdh Tj = Tbiv	7.21 kW	6.99 kW
COP Tj = Tbiv	2.14	1.53
Pdh Tj = TOL	7.21 kW	6.99 kW
COP Tj = TOL	2.14	1.53
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	0.00 kW	0.00 kW
Annual energy consumption Qhe	4345 kWh	5723 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
COP Tj = -15°C (if TOL<-20°C)		
Cdh		





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

# Model: HA 12-6 O 230V B3

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	
Indoor water flow rate	1.98 m³/h	1.42 m³/h	

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 outdoor	58 dB(A)	60 dB(A)	

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	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	0.99	0.99
Pdh Tj = +2°C	4.90 kW	5.30 kW
COP Tj = +2°C	4.98	3.62
Cdh	0.98	0.99
Pdh Tj = +7°C	5.75 kW	5.47 kW
COP Tj = +7°C	6.73	4.94
Cdh	0.98	0.98
Pdh Tj = 12°C	6.67 kW	6.35 kW





COP Tj = 12°C	8.74	6.50
Cdh	0.97	0.98
Pdh Tj = Tbiv	9.35 kW	9.66 kW
COP Tj = Tbiv	2.58	1.92
Pdh Tj = TOL	9.35 kW	9.66 kW
COP Tj = TOL	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	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	3812 kWh	5437 kWh

#### Warmer Climate

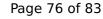
EN 12102-1			
Low temperature Medium temperature			
Sound power level outdoor	58 dB(A)	60 dB(A)	

EN 14825		
	Low temperature	Medium temperature





$\eta_{S}$	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	0.99	1.00
Pdh Tj = +7°C	7.36 kW	7.20 kW
$COP Tj = +7^{\circ}C$	5.90	3.84
Cdh	0.98	0.99
Pdh Tj = 12°C	6.53 kW	6.25 kW
COP Tj = 12°C	8.26	5.95
Cdh	0.97	0.98
Pdh Tj = Tbiv	11.16 kW	11.02 kW
COP Tj = Tbiv	3.26	2.23
Pdh Tj = TOL	11.16 kW	11.02 kW
COP Tj = TOL	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	o w	o w
Supplementary Heater: Type of energy input	electricity	electricty
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	2303 kWh	3295 kWh

#### Colder Climate

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

	Low temperature	Medium temperature
$\eta_{s}$	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
Cdh	0.99	0.99





Tills illioithadion was g	Theracea by the fill RETIF	ANN database on 17 Dec 2020
Pdh Tj = +2°C	5.00 kW	4.70 kW
COP Tj = +2°C	5.39	4.06
Cdh	0.98	0.98
Pdh Tj = +7°C	5.79 kW	5.60 kW
$COP Tj = +7^{\circ}C$	7.02	5.45
Cdh	0.97	0.98
Pdh Tj = 12°C	6.67 kW	6.47 kW
COP Tj = 12°C	8.74	7.14
Cdh	0.97	0.98
Pdh Tj = Tbiv	8.35 kW	8.68 kW
COP Tj = Tbiv	2.41	1.90
Pdh Tj = TOL	7.20 kW	7.10 kW
COP Tj = TOL	2.06	1.48
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
Annual energy consumption Qhe	5906 kWh	8111 kWh



# Model: HA 12-6 O B3

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	
Indoor water flow rate	1.98 m³/h	1.42 m³/h	

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 outdoor	58 dB(A)	60 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{S}$	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	0.99	0.99
Pdh Tj = +2°C	4.90 kW	5.30 kW
COP Tj = +2°C	4.98	3.62
Cdh	0.98	0.99
Pdh Tj = $+7^{\circ}$ C	5.75 kW	5.47 kW
$COP Tj = +7^{\circ}C$	6.73	4.94
Cdh	0.98	0.98
Pdh Tj = 12°C	6.67 kW	6.35 kW
	I	



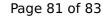


COP Tj = 12°C	8.74	6.50
Cdh	0.97	0.98
Pdh Tj = Tbiv	9.35 kW	9.66 kW
COP Tj = Tbiv	2.58	1.92
Pdh Tj = TOL	9.35 kW	9.66 kW
COP Tj = TOL	2.58	1.92
WTOL	75 °C	75 °C
Poff	14 W	14 W
РТО	51 W	51 W
PSB	51 W	51 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electricity	electricity
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	3813 kWh	5438 kWh

## Warmer Climate

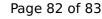
EN 12102-1			
	Low temperature	Medium temperature	
Sound power level outdoor	58 dB(A)	60 dB(A)	

EN 14825			
	Low temperature	Medium temperature	





$\eta_{s}$	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 = $+2^{\circ}$ C	11.16 kW	11.02 kW
COP Tj = +2°C	3.26	2.23
Cdh	0.99	1.00
Pdh Tj = $+7^{\circ}$ C	7.36 kW	7.20 kW
$COP Tj = +7^{\circ}C$	5.90	3.84
Cdh	0.98	0.99
Pdh Tj = 12°C	6.53 kW	6.25 kW
COP Tj = 12°C	8.26	5.95
Cdh	0.97	0.98
Pdh Tj = Tbiv	11.16 kW	11.02 kW
COP Tj = Tbiv	3.26	2.23
Pdh Tj = TOL	11.16 kW	11.02 kW
COP Tj = TOL	3.26	2.23
WTOL	75 °C	75 °C
Poff	14 W	14 W
РТО	51 W	51 W





This infor	mation was	generated by	y the HP	KEYMARK	database of	n 17 Dec 2	020

PSB	51 W	51 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	electricity	electricty
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)	

	Low temperature	Medium temperature
$\eta_{s}$	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
Cdh	0.99	0.99





This information was 9	cherated by the Hi KETI	IANK database on 17 Dec 2020
Pdh Tj = +2°C	5.00 kW	4.70 kW
COP Tj = +2°C	5.39	4.06
Cdh	0.98	0.98
Pdh Tj = +7°C	5.79 kW	5.60 kW
$COP Tj = +7^{\circ}C$	7.02	5.45
Cdh	0.97	0.98
Pdh Tj = 12°C	6.67 kW	6.47 kW
COP Tj = 12°C	8.74	7.14
Cdh	0.97	0.98
Pdh Tj = Tbiv	8.35 kW	8.68 kW
COP Tj = Tbiv	2.41	1.90
Pdh Tj = TOL	7.20 kW	7.10 kW
COP Tj = TOL	2.06	1.48
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
Supplementary Heater: PSUP	0.00 kW	0.00 kW
Annual energy consumption Qhe	5907 kWh	8112 kWh