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<u>Login</u>			
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	01.08.2022		
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	

### Warmer 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
η <sub>s</sub>	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
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°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



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2.21 11.06 kW 2.21
2 21
2.21
70 °C
8 W
45 W
45 W
0 W
Electricity
0.00 kW
3342 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 <sub>s</sub>	170 %	128 %
Prated	12.16 kW	11.09 kW

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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°C	5.11 kW	4.83 kW		
COP Tj = +2°C	5.51	4.20		
Cdh Tj = +2 °C	0.960	0.960		
Pdh Tj = +7°C	5.82 kW	5.62 kW		
COP Tj = +7°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		
		<u> </u>		

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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	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
$COP Tj = -15^{\circ}C (if TOL < -20^{\circ}C)$	2.26	1.81
Cdh Tj = -15 °C	0.990	0.990

## 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 <sub>s</sub>	195 %	147 %
Prated	12.73 kW	11.81 kW
SCOP	4.96	3.75

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This information was gene		IMARK UALADASE ON 5 DEC 202
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
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



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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	2.89 kW	1.98 kW
Annual energy consumption Qhe	5305 kWh	6501 kWh



## 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	

### Warmer 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
η <sub>s</sub>	250 %	172 %
Prated	11.35 kW	11.06 kW
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°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



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COP Tj = Tbiv3.232.21Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh11.35 kW11.06 kWCOP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh3.232.21WTOL70 °C70 °CPoff8 W8 WPTO45 W45 WPSB45 W45 WPCK0 W0 WSupplementary Heater: Type of energy inputElectricityElectricitySupplementary Heater: PSUP0.00 kW0.00 kWAnnual energy consumption Qhe2399 kWh3378 kWh				
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh3.232.21WTOL70 °C70 °CPoff8 W8 WPTO45 W45 WPSB45 W45 WPCK0 W0 WSupplementary Heater: Type of energy inputElectricityElectricitySupplementary Heater: PSUP0.00 kW0.00 kW	COP Tj = Tbiv	3.23	2.21	
WTOL70 °C70 °CPoff8 W8 WPTO45 W45 WPSB45 W45 WPCK0 W0 WSupplementary Heater: Type of energy inputElectricityElectricitySupplementary Heater: PSUP0.00 kW0.00 kW	Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.35 kW	11.06 kW	
Poff8 WPTO45 WPSB45 WPCK0 WSupplementary Heater: Type of energy inputElectricitySupplementary Heater: PSUP0.00 kW	COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.23	2.21	
PTO 45 W 45 W 45 W PSB 45 W 45 W 45 W PCK 0 W 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity 0.00 kW Supplementary Heater: PSUP 0.00 kW 0.00 kW	WTOL	70 °C	70 °C	
PSB 45 W 45 W PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 0.00 kW	Poff	8 W	8 W	
PCK 0 W 0 W Supplementary Heater: Type of energy input Electricity Electricity Supplementary Heater: PSUP 0.00 kW	РТО	45 W	45 W	
Supplementary Heater: Type of energy input       Electricity       Electricity         Supplementary Heater: PSUP       0.00 kW       0.00 kW	PSB	45 W	45 W	
Supplementary Heater: PSUP     0.00 kW     0.00 kW	РСК	0 W	0 W	
	Supplementary Heater: Type of energy input	Electricity	Electricity	
Annual energy consumption Qhe 2399 kWh 3378 kWh	Supplementary Heater: PSUP	0.00 kW	0.00 kW	
	Annual energy consumption Qhe	2399 kWh	3378 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 <sub>s</sub>	169 %	128 %
Prated	12.16 kW	11.09 kW

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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
Cdh Tj = +2 °C	0.960	0.960
Pdh Tj = +7°C	5.82 kW	5.62 kW
COP Tj = +7°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



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		INK database off 5 Dec 202
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	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
$COP Tj = -15^{\circ}C (if TOL < -20^{\circ}C)$	2.26	1.81
Cdh Tj = -15 °C	0.990	0.990

## 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 <sub>s</sub>	194 %	146 %	
Prated	12.73 kW	11.81 kW	
SCOP	4.93	3.74	

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····= ····=		
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 = $+2^{\circ}C$	6.99 kW	6.43 kW
COP Tj = +2°C	5.17	3.73
Cdh Tj = +2 °C	0.970	0.970
Pdh Tj = $+7^{\circ}$ 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	0.950	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



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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	2.89 kW	1.98 kW
Annual energy consumption Qhe	5335 kWh	6532 kWh



# 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	

## Warmer 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
η <sub>s</sub>	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°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°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



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3.23	2.21
11.35 kW	11.06 kW
3.23	2.21
70 °C	70 °C
14 W	14 W
51 W	51 W
51 W	51 W
0 W	0 W
Electricity	Electricity
0.00 kW	0.00 kW
2363 kWh	3354 kWh
	11.35 kW 3.23 70 °C 14 W 51 W 51 W 51 W 0 W Electricity 0.00 kW

### **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 <sub>s</sub>	170 %	128 %
Prated	12.16 kW	11.09 kW

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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 = $+2^{\circ}C$	5.11 kW	4.83 kW
COP Tj = +2°C	5.51	4.20
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = $+7^{\circ}$ C	5.82 kW	5.62 kW
COP Tj = +7°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



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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	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
$COP Tj = -15^{\circ}C (if TOL < -20^{\circ}C)$	2.26	1.81
Cdh Tj = -15 °C	0.990	0.990

## 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 <sub>s</sub>	195 %	147 %
Prated	12.73 kW	11.81 kW
SCOP	4.96	3.75

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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 = $+2^{\circ}C$	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°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
		•



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This information was generated by the HP KEYMARK database on 5 Dec 2022

	1	
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	2.89 kW	1.98 kW
Annual energy consumption Qhe	5313 kWh	6511 kWh



## 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

## Warmer 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		
η <sub>s</sub>	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°C	7.41 kW	7.19 kW		
COP Tj = +7°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		



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3.23	2.21
11.35 kW	11.06 kW
3.23	2.21
70 °C	70 °C
14 W	14 W
51 W	51 W
51 W	51 W
0 W	0 W
Electricity	Electricity
0.00 kW	0.00 kW
2399 kWh	3417 kWh
	11.35 kW 3.23 70 °C 14 W 51 W 51 W 51 W 0 W Electricity 0.00 kW

### **Colder Climate**

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

EN 14825		
	Low temperature	Medium temperature
$\eta_s$	169 %	128 %
Prated	12.16 kW	11.09 kW

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	· · · · <b>,</b> ·	In a database on 5 Dec 202
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°C	5.51	4.20
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = +7°C	5.82 kW	5.62 kW
COP Tj = +7°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



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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       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	This information was gener		INK Gatabase off 5 Dec 202
PSB51 W51 WPCK0 W0 WSupplementary Heater: Type of energy inputElectricityElectricitySupplementary Heater: PSUP12.16 kW11.09 kWAnnual energy consumption Qhe6954 kWh8365 kWhPdh Tj = -15°C (if TOL<-20°C)	Poff	14 W	14 W
PCK0 W0 WSupplementary Heater: Type of energy inputElectricityElectricitySupplementary Heater: PSUP12.16 kW11.09 kWAnnual energy consumption Qhe6954 kWh8365 kWhPdh Tj = -15°C (if TOL<-20°C)	РТО	51 W	51 W
Supplementary Heater: Type of energy inputElectricityElectricitySupplementary Heater: PSUP12.16 kW11.09 kWAnnual energy consumption Qhe6954 kWh8365 kWhPdh Tj = -15°C (if TOL<-20°C)	PSB	51 W	51 W
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)	РСК	0 W	0 W
Annual energy consumption Qhe       6954 kWh       8365 kWh         Pdh Tj = -15°C (if TOL<-20°C)	Supplementary Heater: Type of energy input	Electricity	Electricity
Pdh Tj = -15°C (if TOL<-20°C)	Supplementary Heater: PSUP	12.16 kW	11.09 kW
COP Tj = -15°C (if TOL<-20°C) 2.26 1.81	Annual energy consumption Qhe	6954 kWh	8365 kWh
	Pdh Tj = -15°C (if TOL<-20°C)	9.92	9.04
Cdh Tj = -15 °C 0.990 0.990	COP Tj = -15°C (if TOL<-20°C)	2.26	1.81
	Cdh Tj = -15 °C	0.990	0.990

## 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 <sub>s</sub>	193 %	146 %	
Prated	12.73 kW	11.81 kW	
SCOP	4.90	3.72	

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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 = $+2^{\circ}C$	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°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
		•



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This information was generated by the HP KEYMARK database on 5 Dec 2022

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	2.89 kW	1.98 kW
Annual energy consumption Qhe	5366 kWh	6563 kWh

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## 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 14511-2		
	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

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

## Warmer Climate

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

EN 14825		
	Low temperature	Medium temperature
η <sub>s</sub>	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°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



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3.19	2.05			
12.02 kW	12.69 kW			
3.19	2.05			
55 °C	55 °C			
8 W	8 W			
45 W	45 W			
45 W	45 W			
0 W	0 W			
Electricity	Electricity			
0.00 kW	0.00 kW			
2595 kWh	3867 kWh			
	3.19 12.02 kW 3.19 55 °C 8 W 45 W 45 W 0 W Electricity 0.00 kW			

### **Colder Climate**

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

EN 14825		
	Low temperature	Medium temperature
η <sub>s</sub>	168 %	125 %
Prated	12.73 kW	12.17 kW

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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 = $+2^{\circ}C$	5.16 kW	4.80 kW
COP Tj = +2°C	5.33	4.08
Cdh Tj = +2 °C	0.960	0.960
Pdh Tj = $+7^{\circ}$ C	5.81 kW	5.55 kW
COP Tj = +7°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



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8 W	8 W
1	
45 W	45 W
45 W	45 W
0 W	0 W
Electricity	Electricity
12.73 kW	12.17 kW
7330 kWh	9377 kWh
10.38	9.93
2.37	1.76
0.990	0.990
-	45 W 0 W Electricity 12.73 kW 7330 kWh 10.38 2.37

## Average Climate

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

EN 14825			
	Low temperature	Medium temperature	
η <sub>s</sub>	187 %	144 %	
Prated	12.69 kW	12.00 kW	
SCOP	4.74	3.66	

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This mornation was gene	This information was generated by the HF KETMARK database on 5 Dec 2022				
Tbiv	-7 °C	-10 °C			
TOL	-10 °C	-10 °C			
Pdh Tj = -7°C	11.23 kW	10.62 kW			
COP Tj = -7°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°C	4.88	3.68			
Cdh Tj = +2 °C	0.970	0.980			
Pdh Tj = +7°C	5.79 kW	5.43 kW			
COP Tj = +7°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			
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	9.82 kW	11.05 kW			
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.23	1.75			
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh					
WTOL	55 °C	55 °C			
Poff	8 W	8 W			



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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	2.87 kW	0.00 kW
Annual energy consumption Qhe	5532 kWh	6767 kWh

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## 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 14511-2			
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	

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

### Warmer Climate

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

EN 14825		
	Low temperature	Medium temperature
η <sub>s</sub>	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°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



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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

### **Colder Climate**

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

EN 14825		
	Low temperature	Medium temperature
η <sub>s</sub>	168 %	125 %
Prated	12.73 kW	12.17 kW

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	-	
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°C	5.16 kW	4.80 kW
COP Tj = +2°C	5.33	4.08
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = $+7^{\circ}$ C	5.81 kW	5.55 kW
COP Tj = +7°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



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This information was gene		INR Gatabase off 5 Dec 202
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	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

### Average Climate

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

EN 14825			
Low temperature Medium temperatu			
η <sub>s</sub>	186 %	143 %	
Prated	12.69 kW	12.00 kW	
SCOP	4.73	3.66	

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-7 °C	-10 °C
-10 °C	-10 °C
11.23 kW	10.62 kW
2.46	2.08
0.990	0.990
6.98 kW	6.54 kW
4.88	3.68
0.970	0.970
5.79 kW	5.43 kW
6.54	4.91
0.950	0.960
6.65 kW	6.31 kW
9.06	6.32
0.940	0.950
11.23 kW	11.05 kW
2.46	1.75
9.82 kW	11.05 kW
2.23	1.75
55 °C	55 °C
14 W	14 W
	-10 °C 11.23 kW 2.46 0.990 6.98 kW 4.88 0.970 5.79 kW 6.54 0.950 6.65 kW 9.06 0.940 11.23 kW 2.46 9.82 kW 2.23



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This information was generated by the HP KEYMARK database on 5 Dec 2022

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	2.87 kW	0.00 kW
Annual energy consumption Qhe	5542 kWh	6776 kWh

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## 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		
	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

### Warmer 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
η <sub>s</sub>	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°C	6.71 kW	6.37 kW
COP Tj = +7°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



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This mornation was generated by the first RETARK database on 5 Dec 20		
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	2167 kWh	3104 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 <sub>s</sub>	172 %	125 %
Prated	7.61 kW	7.38 kW

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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
Cdh Tj = +2 °C	0.960	0.960
Pdh Tj = +7°C	5.67 kW	5.47 kW
COP Tj = +7°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



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	•	
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	7.61 kW	7.38 kW
Annual energy consumption Qhe	4296 kWh	5673 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
$COP Tj = -15^{\circ}C (if TOL < -20^{\circ}C)$		
Cdh Tj = -15 °C		

### 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 <sub>s</sub>	199 %	143 %	
Prated	8.86 kW	9.09 kW	
SCOP	5.05	3.66	

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	,	ink database on 5 Dec 202
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 = $+2^{\circ}C$	4.92 kW	4.77 kW
COP Tj = +2°C	5.06	3.63
Cdh Tj = +2 °C	0.960	0.970
Pdh Tj = $+7^{\circ}$ 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
	· ·	·



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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	3623 kWh	5135 kWh

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## 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	

### Warmer 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
η <sub>s</sub>	250 %	173 %
Prated	10.42 kW	10.36 kW
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°C	6.71 kW	6.37 kW
COP Tj = +7°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



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3.42	2.32
10.42 kW	10.36 kW
3.42	2.32
55 °C	55 °C
8 W	8 W
45 W	45 W
45 W	45 W
0 W	0 W
Electricity	Electricity
0.00 kW	0.00 kW
2204 kWh	3141 kWh
	<ul> <li>10.42 kW</li> <li>3.42</li> <li>55 °C</li> <li>8 W</li> <li>45 W</li> <li>45 W</li> <li>0 W</li> <li>Electricity</li> <li>0.00 kW</li> </ul>

### **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 <sub>s</sub>	171 %	125 %
Prated	7.61 kW	7.38 kW

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	,	
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
Cdh Tj = +2 °C	0.960	0.960
Pdh Tj = +7°C	5.67 kW	5.47 kW
COP Tj = +7°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
1		



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8 W	8 W
45 W	45 W
45 W	45 W
0 W	0 W
Electricity	Electricity
7.61 kW	7.38 kW
4314 kWh	5691 kWh
	45 W 45 W 0 W Electricity 7.61 kW

### 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 <sub>s</sub>	197 %	142 %
Prated	8.86 kW	9.09 kW
SCOP	5.01	3.64

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		ARK Galabase on 5 Dec 202.
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		
WTOL	55 °C	55 °C
Poff	8 W	8 W

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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	3653 kWh	5165 kWh

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## 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

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	

### Warmer 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
η <sub>s</sub>	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°C	6.71 kW	6.37 kW
COP Tj = +7°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



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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
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

### **Colder Climate**

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

EN 14825			
Low temperature Medium temperatur			
η <sub>s</sub>	171 %	125 %	
Prated	7.61 kW	7.38 kW	

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		1
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
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = +7°C	5.67 kW	5.47 kW
COP Tj = +7°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



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This mornation was get		MAIN UALABASE OIL 5 DEC 202
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	7.61 kW	7.38 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 Tj = -15 °C		

### 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 <sub>s</sub>	198 %	143 %	
Prated	8.86 kW	9.09 kW	
SCOP	5.04	3.65	

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		INK UALADASE ON 5 DEC 202.
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 = $+2^{\circ}C$	4.92 kW	4.77 kW
COP Tj = +2°C	5.06	3.63
Cdh Tj = +2 °C	0.950	0.960
Pdh Tj = $+7^{\circ}$ 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



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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	3634 kWh	5146 kWh

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## 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	

### Warmer 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
η <sub>s</sub>	245 %	171 %
Prated	10.42 kW	10.41 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	0.980	0.990
Pdh Tj = +7°C	6.71 kW	6.37 kW
COP Tj = +7°C	6.07	3.95
Cdh Tj = +7 °C	0.960	0.970
Pdh Tj = 12°C	6.58 kW	6.20 kW
COP Tj = 12°C	8.09	5.85
Cdh Tj = +12 °C	0.940	0.960
Pdh Tj = Tbiv	10.42 kW	10.36 kW



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	,	
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
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	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	2243 kWh	3195 kWh

### **Colder 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 <sub>s</sub>	170 %	124 %

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This mornation was generated by the TF RETMARK database of 5 Dec 2022				
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		
Cdh Tj = +2 °C	0.950	0.960		
Pdh Tj = +7°C	5.67 kW	5.47 kW		
COP Tj = +7°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				



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	•	
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	7.61 kW	7.38 kW
Annual energy consumption Qhe	4345 kWh	5723 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
$COP Tj = -15^{\circ}C (if TOL < -20^{\circ}C)$		
Cdh Tj = -15 °C		

### 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

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This mornation was generated by the TF KETMARK database of 5 Dec 2022				
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		



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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	3686 kWh	5199 kWh	

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## 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	

### Warmer 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
η <sub>s</sub>	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°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



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This mornation was generated by the first Remark autobase on 5 Dec 2021			
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	
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	2303 kWh	3295 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
$\eta_s$	168 %	126 %
Prated	10.24 kW	10.65 kW



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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 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°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



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This information was generated by the HP KEYMARK database on 5 Dec 2022

	,	
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	10.24 kW	10.65 kW
Annual energy consumption Qhe	5906 kWh	8111 kWh
Pdh Tj = -15°C (if TOL<-20°C)		
$COP Tj = -15^{\circ}C (if TOL < -20^{\circ}C)$		
Cdh Tj = -15 °C		

#### 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 <sub>s</sub>	200 %	144 %
Prated	9.35 kW	9.66 kW
SCOP	5.07	3.67

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This information was generated by the HP KETMARK database on 5 Dec 202			
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 = $+7^{\circ}$ 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	
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	



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This information was generated by the HP KEYMARK database on 5 Dec 2022

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	3812 kWh	5437 kWh



# 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		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

#### 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
η <sub>s</sub>	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
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°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



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3.26	2.23
11.16 kW	11.02 kW
3.26	2.23
75 °C	75 °C
14 W	14 W
51 W	51 W
51 W	51 W
0 W	0 W
Electricity	Electricity
0.00 kW	0.00 kW
2307 kWh	3299 kWh
-	11.16 kW         3.26         75 °C         14 W         51 W         51 W         0 W         Electricity         0.00 kW

# 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
$\eta_s$	168 %	126 %
Prated	10.24 kW	10.65 kW

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	,	
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 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°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



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This information was generated by the HP KEYMARK database on 5 Dec 2022

14 W	14 W
51 W	51 W
51 W	51 W
0 W	0 W
Electricity	Electricity
10.24 kW	10.65 kW
5907 kWh	8112 kWh
	51 W 51 W 0 W Electricity 10.24 kW

#### 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 <sub>s</sub>	200 %	144 %	
Prated	9.35 kW	9.66 kW	
SCOP	5.06	3.67	

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This mornation was generated by the HF KL MAKK database of 5 Dec 202				
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 = $+2^{\circ}C$	4.90 kW	5.30 kW		
COP Tj = +2°C	4.98	3.62		
Cdh Tj = +2 °C	0.98	0.99		
Pdh Tj = $+7^{\circ}$ 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		
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	14 W	14 W		
РТО	51 W	51 W		



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This information was generated by the HP KEYMARK database on 5 Dec 2022

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	3813 kWh	5438 kWh