

#### Page 1 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

<u>Login</u>				
Summary of	M thermal A Series 12 14 16kW with 240L tank	Reg. No.	041-K007-10	
Certificate Holder	Certificate Holder			
Name	GD Midea Heating & Ventilating Equipment Co., Ltd	J.		
Address	Penglai Industry Road	Zip	528311	
City	Beijiao, Shunde, Foshan	Country	China	
Certification Body	BRE Global Limited			
Subtype title	M thermal A Series 12 14 16kW with 240L tank			
Heat Pump Type	Outdoor Air/Water			
Refrigerant	R32			
Mass of Refrigerant	1.84 kg			
Certification Date	12.06.2020			
Testing basis	Heat Pump Keymark Scheme Rules Rev 08			

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# Model: MHA-V12W/D2N8-B+HBT-A160/240C\*\*\*\*GN8-B

Configure model		
Model name	MHA-V12W/D2N8-B+HBT-A160/240C****GN8-B	
Application	Heating + DHW + low temp	
Units	Indoor + Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional) n/a		

General Data	
Power supply	1x230V 50Hz

### Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	12.10 kW	12.00 kW
El input	2.44 kW	3.87 kW
СОР	4.95	3.10

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 indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	64 dB(A)	64 dB(A)

EN 14825		
	Low temperature	Medium temperature
η <sub>s</sub>	256 %	174 %
Prated	11.11 kW	12.51 kW
SCOP	6.53	4.43
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.11 kW	12.08 kW
COP Tj = +2°C	3.59	2.31
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.14 kW	8.04 kW
COP Tj = +7°C	5.87	3.86
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.56 kW	3.75 kW
COP Tj = 12°C	7.94	5.70
Cdh Tj = +12 °C	0.900	0.900

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Page 4 of 49

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	, 	
Pdh Tj = Tbiv	7.14 kW	8.04 kW
COP Tj = Tbiv	5.87	3.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.11 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.44 kW
Annual energy consumption Qhe	2292 kWh	3776 kWh

## Colder Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	64 dB(A)	64 dB(A)

#### EN 14825

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Page 5 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

This information was gener	Low temperature	Medium temperature
η <sub>s</sub>	160 %	118 %
Prated	11.38 kW	10.32 kW
SCOP	4.08	3.02
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.05 kW	6.63 kW
COP Tj = -7°C	3.48	2.63
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	4.68 kW	4.07 kW
COP Tj = +2°C	4.96	3.60
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	3.14 kW	2.78 kW
$COP Tj = +7^{\circ}C$	6.10	4.54
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.57 kW	3.33 kW
COP Tj = 12°C	7.87	6.25
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	9.28 kW	8.42 kW
COP Tj = Tbiv	2.59	1.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.01 kW	4.20 kW

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Page 6 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

	·····	
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.98	1.13
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.37 kW	6.12 kW
Annual energy consumption Qhe	6870 kWh	8419 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.28	8.42
COP Tj = -15°C (if TOL<-20°C)	2.59	1.84
Cdh Tj = -15 °C	0.90	0.90

### Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	64 dB(A)	64 dB(A)

EN 14825			
	Low temperature	Medium temperature	

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Page 7 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

I his information was generated by the HP KEYMARK database on 28 Jun 2022			
η <sub>s</sub>	189 %	135 %	
Prated	12.00 kW	11.58 kW	
SCOP	4.81	3.45	
Tbiv	-7 °C	-7 °C	
TOL	-10 °C	-10 °C	
Pdh Tj = -7°C	10.61 kW	10.25 kW	
COP Tj = -7°C	2.88	2.01	
Cdh Tj = -7 °C	0.90	0.90	
Pdh Tj = $+2^{\circ}$ C	6.69 kW	6.52 kW	
COP Tj = +2°C	4.65	3.44	
Cdh Tj = +2 °C	0.90	0.90	
Pdh Tj = $+7^{\circ}$ C	4.44 kW	4.36 kW	
COP Tj = +7°C	6.62	4.59	
Cdh Tj = +7 °C	0.90	0.90	
Pdh Tj = 12°C	3.74 kW	3.30 kW	
COP Tj = 12°C	8.47	6.05	
Cdh Tj = +12 °C	0.90	0.90	
Pdh Tj = Tbiv	10.61 kW	10.25 kW	
COP Tj = Tbiv	2.88	2.01	
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.75 kW	9.10 kW	
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.79	
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Page 8 of 49

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65 °C	65 °C
14 W	14 W
24 W	24 W
14 W	14 W
0 W	0 W
Electricity	Electricity
1.26 kW	2.50 kW
5152 kWh	6927 kWh
	14 W 24 W 14 W 0 W Electricity 1.26 kW

## Domestic Hot Water (DHW)

### Warmer Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	153 %	
СОР	3.73	
Heating up time	1:33 h:min	
Standby power input	30.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	

### **Colder Climate**



Page 9 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	92 %	
СОР	2.24	
Heating up time	2:06 h:min	
Standby power input	36.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

### Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	123 %	
СОР	3.00	
Heating up time	1:38 h:min	
Standby power input	34.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	

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# Model: MHA-V14W/D2N8-B+HBT-A160/240C\*\*\*\*GN8-B

Configure model		
Model name	MHA-V14W/D2N8-B+HBT-A160/240C****GN8-B	
Application Heating + DHW + low temp		
Units	Indoor + 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	14.50 kW	13.80 kW
El input	3.09 kW	4.60 kW
СОР	4.70	3.00

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 indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

EN 14825		
	Low temperature	Medium temperature
η <sub>s</sub>	260 %	177 %
Prated	12.11 kW	13.74 kW
SCOP	6.63	4.49
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.04 kW	13.05 kW
COP Tj = +2°C	3.44	2.20
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	7.78 kW	8.83 kW
COP Tj = +7°C	5.84	3.91
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.75 kW	4.09 kW
COP Tj = 12°C	8.25	5.90
Cdh Tj = +12 °C	0.90	0.90

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Page 12 of 49

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Pdh Tj = Tbiv	7.78 kW	8.83 kW
COP Tj = Tbiv	5.84	3.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.04 kW	13.05 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.44	2.20
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.07 kW	0.69 kW
Annual energy consumption Qhe	2457 kWh	4088 kWh

### **Colder Climate**

EN 12102-1				
	Low temperature	Medium temperature		
Sound power level indoor	43 dB(A)	43 dB(A)		
Sound power level outdoor	65 dB(A)	65 dB(A)		

EN 14825				
	Low temperature	Medium temperature		

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Page 13 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

η <sub>s</sub>	160 %	119 %
Prated	12.64 kW	10.97 kW
SCOP	4.07	3.05
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.97 kW	6.89 kW
COP Tj = -7°C	3.44	2.66
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = $+2^{\circ}$ C	5.05 kW	4.32 kW
COP Tj = +2°C	4.92	3.66
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	3.16 kW	3.06 kW
COP Tj = +7°C	6.11	4.72
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.58 kW	3.33 kW
COP Tj = 12°C	7.82	6.25
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.31 kW	8.95 kW
COP Tj = Tbiv	2.53	1.79
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.57 kW	4.20 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.92	1.13
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Page 14 of 49

		5
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		-
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.07 kW	6.77 kW
Annual energy consumption Qhe	7667 kWh	8866 kWh
Pdh Tj = -15°C (if TOL<-20°C)	10.31	8.95
$COP Tj = -15^{\circ}C (if TOL < -20^{\circ}C)$	2.53	1.79
Cdh Tj = -15 °C	0.90	0.90

## Average Climate

EN 12102-1				
	Low temperature	Medium temperature		
Sound power level indoor	43 dB(A)	43 dB(A)		
Sound power level outdoor	65 dB(A)	65 dB(A)		

EN 14825				
	Low temperature	Medium temperature		
η <sub>s</sub>	186 %	136 %		

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Page 15 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

Prated	13.73 kW	12.08 kW
SCOP	4.72	3.47
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	12.14 kW	10.69 kW
COP Tj = -7°C	2.79	2.01
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	7.95 kW	6.86 kW
COP Tj = +2°C	4.52	3.43
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7^{\circ}$ C	5.20 kW	4.64 kW
COP Tj = +7°C	6.68	4.66
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.76 kW	3.32 kW
COP Tj = 12°C	8.52	6.13
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	12.14 kW	10.69 kW
COP Tj = Tbiv	2.79	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.48 kW	9.19 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.59	1.76
WTOL	65 °C	65 °C

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Page 16 of 49

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<u> </u>	
14 W	14 W
24 W	24 W
14 W	14 W
0 W	0 W
lementary Heater: Type of energy input Electricit	y Electricity
elementary Heater: PSUP 2.23 kW	2.91 kW
al energy consumption Qhe 6012 kW	'h 7202 kWh
elementary Heater: Type of energy input Electricit	Electricity 2.91 kW

## Domestic Hot Water (DHW)

### Warmer Climate

EN 16147			
Declared load profile	XL		
Efficiency ηDHW	153 %		
СОР	3.73		
Heating up time	1:33 h:min		
Standby power input	30.0 W		
Reference hot water temperature	48.5 °C		
Mixed water at 40°C	280		

## **Colder Climate**



Page 17 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

EN 16147	
Declared load profile	XL
Efficiency ηDHW	92 %
СОР	2.24
Heating up time	2:06 h:min
Standby power input	36.0 W
Reference hot water temperature	48.5 °C
Mixed water at 40°C	280 I

### Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	123 %	
СОР	3.00	
Heating up time	1:38 h:min	
Standby power input	34.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	

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# Model: MHA-V16W/D2N8-B+HBT-A160/240C\*\*\*\*GN8-B

Configure model		
Model name MHA-V16W/D2N8-B+HBT-A160/240C****GN8-B		
Application Heating + DHW + low temp		
Units Indoor + 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	16.00 kW	16.00 kW	
El input	3.56 kW	5.52 kW	
СОР	4.50	2.90	

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 indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	68 dB(A)	68 dB(A)

EN 14825		
	Low temperature	Medium temperature
η <sub>s</sub>	249 %	176 %
Prated	13.09 kW	13.78 kW
SCOP	6.33	4.48
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	13.09 kW	13.38 kW
COP Tj = +2°C	3.35	2.29
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.42 kW	8.86 kW
COP Tj = +7°C	5.36	3.84
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.88 kW	4.06 kW
COP Tj = 12°C	8.11	5.86
Cdh Tj = +12 °C	0.900	0.900

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Page 20 of 49

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Pdh Tj = Tbiv	8.42 kW	8.86 kW
COP Tj = Tbiv	5.36	3.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	13.09 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.40 kW
Annual energy consumption Qhe	2781 kWh	4112 kWh

## **Colder Climate**

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	68 dB(A)	68 dB(A)

#### EN 14825

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Page 21 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

	Low temperature	Medium temperature
η <sub>s</sub>	158 %	122 %
Prated	13.76 kW	11.79 kW
SCOP	4.02	3.12
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	8.31 kW	7.64 kW
COP Tj = -7°C	3.37	2.65
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	5.27 kW	4.43 kW
COP Tj = +2°C	4.86	3.79
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	3.62 kW	2.98 kW
COP Tj = +7°C	6.49	4.81
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	11.22 kW	9.62 kW
COP Tj = Tbiv	2.43	1.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.89 kW	5.22 kW

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Page 22 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

1.97	1.23
65 °C	65 °C
14 W	14 W
24 W	24 W
14 W	14 W
0 W	0 W
Electricity	Electricity
4.87 kW	6.57 kW
8431 kWh	9309 kWh
11.22	9.62
2.43	1.86
0.90	0.90
	<ul> <li>65 °C</li> <li>14 W</li> <li>24 W</li> <li>14 W</li> <li>0 W</li> <li>Electricity</li> <li>4.87 kW</li> <li>8431 kWh</li> <li>11.22</li> <li>2.43</li> </ul>

### Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	68 dB(A)	68 dB(A)

EN 14825		
	Low temperature	Medium temperature
		,

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Page 23 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

η <sub>s</sub>	182 %	133 %
Prated	15.21 kW	13.02 kW
SCOP	4.62	3.41
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = -7°C	13.45 kW	11.52 kW
COP Tj = -7°C	2.72	1.99
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	8.57 kW	7.18 kW
COP Tj = +2°C	4.41	3.34
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	5.70 kW	4.68 kW
COP Tj = +7°C	6.56	4.61
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	13.45 kW	11.52 kW
COP Tj = Tbiv	2.72	1.99
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.52 kW	10.33 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.48	1.80
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Page 24 of 49

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WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.68 kW	2.67 kW
Annual energy consumption Qhe	6804 kWh	7895 kWh

## Domestic Hot Water (DHW)

### Warmer Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	153 %	
СОР	3.73	
Heating up time	1:33 h:min	
Standby power input	30.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	

### **Colder Climate**



Page 25 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	92 %	
СОР	2.24	
Heating up time	2:06 h:min	
Standby power input	36.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

# Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	123 %	
СОР	3.00	
Heating up time	1:38 h:min	
Standby power input	34.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	

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# Model: MHA-V12W/D2RN8-B+HBT-A160/240C\*\*\*\*GN8-B

Configure model		
Model name	MHA-V12W/D2RN8-B+HBT-A160/240C****GN8-B	
Application	Heating + DHW + low temp	
Units	Indoor + Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data		
Power supply	1x230V 50Hz	

### Heating

EN 14511-2		
	Low temperature	Medium temperature
Heat output	12.10 kW	12.00 kW
El input	2.44 kW	3.87 kW
СОР	4.95	3.10

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 indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	64 dB(A)	64 dB(A)	

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

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Page 28 of 49

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Pdh Tj = Tbiv	7.14 kW	8.04 kW
COP Tj = Tbiv	5.87	3.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.11 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.44 kW
Annual energy consumption Qhe	2296 kWh	3780 kWh

## **Colder Climate**

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	64 dB(A)	64 dB(A)	

#### EN 14825

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Page 29 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

	Low temperature	Medium temperature
$\eta_s$	160 %	118 %
Prated	11.38 kW	10.32 kW
SCOP	4.08	3.02
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = -7°C	7.05 kW	6.63 kW
COP Tj = -7°C	3.48	2.63
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	4.68 kW	4.07 kW
COP Tj = +2°C	4.96	3.60
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	3.14 kW	2.78 kW
COP Tj = +7°C	6.10	4.54
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.57 kW	3.33 kW
COP Tj = 12°C	7.87	6.25
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	9.28 kW	8.42 kW
COP Tj = Tbiv	2.59	1.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.01 kW	4.20 kW

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Page 30 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

1.98	1.13
65 °C	65 °C
20 W	20 W
30 W	30 W
20 W	20 W
0 W	0 W
Electricity	Electricity
4.37 kW	6.12 kW
6871 kWh	8420 kWh
9.28	8.42
2.59	1.84
0.90	0.90
	1.98 65 °C 20 W 30 W 20 W 20 W 0 W Electricity 4.37 kW 6871 kWh 9.28 2.59

### Average Climate

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	64 dB(A)	64 dB(A)	

EN 14825		
	Low temperature	Medium temperature

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Page 31 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

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η <sub>s</sub>	189 %	135 %	
Prated	12.00 kW	11.58 kW	
SCOP	4.81	3.45	
Tbiv	-7 °C	-7 °C	
TOL	-10 °C	-10 °C	
Pdh Tj = -7°C	10.61 kW	10.25 kW	
COP Tj = -7°C	2.88	2.01	
Cdh Tj = -7 °C	0.90	0.90	
Pdh Tj = +2°C	6.69 kW	6.52 kW	
COP Tj = +2°C	4.65	3.44	
Cdh Tj = +2 °C	0.90	0.90	
Pdh Tj = +7°C	4.44 kW	4.36 kW	
COP Tj = +7°C	6.62	4.59	
Cdh Tj = +7 °C	0.90	0.90	
Pdh Tj = 12°C	3.74 kW	3.30 kW	
COP Tj = 12°C	8.47	6.05	
Cdh Tj = +12 °C	0.90	0.90	
Pdh Tj = Tbiv	10.61 kW	10.25 kW	
COP Tj = Tbiv	2.88	2.01	
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.75 kW	9.10 kW	
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.79	
	1	1	

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Page 32 of 49

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	-	-
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5153 kWh	6928 kWh

## Domestic Hot Water (DHW)

### Warmer Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	153 %	
СОР	3.73	
Heating up time	1:33 h:min	
Standby power input	30.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	

### **Colder Climate**



Page 33 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	92 %	
СОР	2.24	
Heating up time	2:06 h:min	
Standby power input	36.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

# Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	123 %	
СОР	3.00	
Heating up time	1:38 h:min	
Standby power input	34.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	

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# Model: MHA-V14W/D2RN8-B+HBT-A160/240C\*\*\*\*GN8-B

Configure model			
Model name	MHA-V14W/D2RN8-B+HBT-A160/240C****GN8-B		
Application	Heating + DHW + low temp		
Units	Indoor + 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	14.50 kW	13.80 kW
El input	3.09 kW	4.60 kW
СОР	4.70	3.00

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 indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

EN 14825		
	Low temperature	Medium temperature
η <sub>s</sub>	260 %	176 %
Prated	12.11 kW	13.74 kW
SCOP	6.63	4.48
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	12.04 kW	13.05 kW
COP Tj = +2°C	3.44	2.20
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	7.78 kW	8.83 kW
COP Tj = +7°C	5.84	3.91
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.75 kW	4.09 kW
COP Tj = 12°C	8.25	5.90
Cdh Tj = +12 °C	0.900	0.900

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Page 36 of 49

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Pdh Tj = Tbiv	7.78 kW	8.83 kW
COP Tj = Tbiv	5.84	3.91
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.04 kW	13.05 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.44	2.20
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.07 kW	0.69 kW
Annual energy consumption Qhe	2462 kWh	4092 kWh

## **Colder Climate**

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	65 dB(A)	65 dB(A)

#### EN 14825

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Page 37 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

	Low temperature	Medium temperature
η <sub>s</sub>	160 %	119 %
Prated	12.64 kW	10.97 kW
SCOP	4.06	3.05
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22.00 °C
Pdh Tj = -7°C	7.97 kW	6.89 kW
COP Tj = -7°C	3.44	2.66
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	5.05 kW	4.32 kW
COP Tj = +2°C	4.92	3.66
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	3.16 kW	3.06 kW
COP Tj = +7°C	6.11	4.72
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.58 kW	3.33 kW
COP Tj = 12°C	7.82	6.25
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.31 kW	8.95 kW
COP Tj = Tbiv	2.53	1.79
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.57 kW	4.20 kW

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Page 38 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.92	1.13
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.07 kW	6.77 kW
Annual energy consumption Qhe	7667.00 kWh	8867.00 kWh
Pdh Tj = -15°C (if TOL<-20°C)	10.31	8.95
COP Tj = -15°C (if TOL<-20°C)	2.53	1.79
Cdh Tj = -15 °C	0.90	0.90

#### Average Climate

EN 12102-1		
	Low temperature	Medium temperature
Sound power level indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	65 dB(A)	65.00 dB(A)

EN 14825		
	Low temperature	Medium temperature

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Page 39 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

		MARK Ualabase on 26 Jun 202
η <sub>s</sub>	186.00 %	136 %
Prated	13.73 kW	12.08 kW
SCOP	4.72	3.47
Tbiv	-7 °C	-7 °C
TOL	-10.00 °C	-10.00 °C
Pdh Tj = -7°C	12.14 kW	10.69 kW
COP Tj = -7°C	2.79	2.01
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	7.95 kW	6.86 kW
COP Tj = +2°C	4.52	3.43
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	5.20 kW	4.64 kW
COP Tj = +7°C	6.68	4.66
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.76 kW	3.32 kW
COP Tj = 12°C	8.52	6.13
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	12.14 kW	10.69 kW
COP Tj = Tbiv	2.79	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.48 kW	9.19 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.59	1.76
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Page 40 of 49

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65 °C	65 °C
20 W	20 W
30 W	30 W
20 W	20 W
0 W	0 W
Electricity	Electricity
2.23 kW	2.91 kW
6013.00 kWh	7203 kWh
	20 W 30 W 20 W 0 W Electricity 2.23 kW

### Domestic Hot Water (DHW)

#### Warmer Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	153 %	
СОР	3.73	
Heating up time	1:33 h:min	
Standby power input	30.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	

#### **Colder Climate**

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Page 41 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	92 %	
СОР	2.24	
Heating up time	2:06 h:min	
Standby power input	36.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

# Average Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	123 %	
СОР	3.00	
Heating up time	1:38 h:min	
Standby power input	34.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280	

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# Model: MHA-V16W/D2RN8-B+HBT-A160/240C\*\*\*\*GN8-B

Configure model		
Model name	MHA-V16W/D2RN8-B+HBT-A160/240C****GN8-B	
Application	Heating + DHW + low temp	
Units	Indoor + 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	16.00 kW	16.00 kW
El input	3.56 kW	5.52 kW
СОР	4.50	2.90

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 indoor	43 dB(A)	43 dB(A)
Sound power level outdoor	68 dB(A)	68 dB(A)

EN 14825		
	Low temperature	Medium temperature
η <sub>s</sub>	248 %	176 %
Prated	13.09 kW	13.78 kW
SCOP	6.33	4.47
Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	13.09 kW	13.38 kW
COP Tj = +2°C	3.35	2.29
Cdh Tj = +2 °C	0.900	0.900
Pdh Tj = +7°C	8.42 kW	8.86 kW
COP Tj = +7°C	5.36	3.84
Cdh Tj = +7 °C	0.900	0.900
Pdh Tj = 12°C	3.88 kW	4.06 kW
COP Tj = 12°C	8.11	5.86
Cdh Tj = +12 °C	0.900	0.900

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Page 44 of 49

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	8.42 kW	8.86 kW
Pdh Tj = Tbiv	8.42 KW	8.80 KVV
COP Tj = Tbiv	5.36	3.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	13.09 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
РСК	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.40 kW
Annual energy consumption Qhe	2786 kWh	4116 kWh

#### Colder Climate

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	68 dB(A)	68 dB(A)	

#### EN 14825

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Page 45 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

	Low temperature	Medium temperature
η <sub>s</sub>	158 %	122 %
Prated	13.76 kW	11.79 kW
SCOP	4.02	3.12
Tbiv	-15 °C	-15 °C
TOL	-22.00 °C	-22.00 °C
Pdh Tj = -7°C	8.31 kW	7.64 kW
COP Tj = -7°C	3.37	2.65
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	5.27 kW	4.43 kW
COP Tj = +2°C	4.86	3.79
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	3.62 kW	2.98 kW
COP Tj = +7°C	6.49	4.81
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	11.22 kW	9.62 kW
COP Tj = Tbiv	2.43	1.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.89 kW	5.22 kW

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Page 46 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.97	1.23
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
РСК	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.87 kW	6.57 kW
Annual energy consumption Qhe	8431 kWh	9310 kWh
Pdh Tj = -15°C (if TOL<-20°C)	11.22	9.62
$COP Tj = -15^{\circ}C (if TOL < -20^{\circ}C)$	2.43	1.86
Cdh Tj = -15 °C	0.90	0.90

#### Average Climate

EN 12102-1			
	Low temperature	Medium temperature	
Sound power level indoor	43 dB(A)	43 dB(A)	
Sound power level outdoor	68 dB(A)	68 dB(A)	

EN 14825		
	Low temperature	Medium temperature

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Page 47 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

	<b>5</b>	, , , , , , , , , , , , , , , , , , ,
η <sub>s</sub>	182 %	133 %
Prated	15.21 kW	13.02 kW
SCOP	4.62	3.41
Tbiv	-7.00 °C	-7.00 °C
TOL	-10.00 °C	-10.00 °C
Pdh Tj = -7°C	13.45 kW	11.52 kW
COP Tj = -7°C	2.72	1.99
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	8.57 kW	7.18 kW
COP Tj = +2°C	4.41	3.34
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = +7°C	5.70 kW	4.68 kW
COP Tj = +7°C	6.56	4.61
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	13.45 kW	11.52 kW
COP Tj = Tbiv	2.72	1.99
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.52 kW	10.33 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.48	1.80

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Page 48 of 49

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65 °C	65 °C
20 W	20 W
30 W	30 W
20 W	20 W
0.00 W	0.00 W
Electricity	Electricity
2.68 kW	2.67 kW
6805.00 kWh	7896 kWh
	20 W 30 W 20 W 0.00 W Electricity 2.68 kW

### Domestic Hot Water (DHW)

#### Warmer Climate

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	153 %	
СОР	3.73	
Heating up time	1:33 h:min	
Standby power input	30.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

## Colder Climate

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Page 49 of 49 This information was generated by the HP KEYMARK database on 28 Jun 2022

EN 16147		
Declared load profile	XL	
Efficiency ηDHW	92 %	
СОР	2.24	
Heating up time	2:06 h:min	
Standby power input	36.0 W	
Reference hot water temperature	48.5 °C	
Mixed water at 40°C	280 I	

# Average Climate

EN 16147	
Declared load profile	XL
Efficiency ηDHW	123 %
СОР	3.00
Heating up time	1:38 h:min
Standby power input	34.0 W
Reference hot water temperature	48.5 °C
Mixed water at 40°C	280

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