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Summary of	M thermal A series 12 14 16 kW	Reg. No.	041-K007-09		
Certificate Holder	Certificate Holder				
Name	GD Midea Heating & Ventilating Equipment Co., Ltd.				
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 16 kW				
Heat Pump Type	Outdoor Air/Water				
Refrigerant	R32				
Mass of Refrigerant	1.84 kg				
Certification Date	02.12.2020				
Testing basis	HP Keymark Scheme Rules Rev 08				



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

Configure model			
Model name	MHA-V12W/D2N8-B+HB-A160/C****GN8-B		
Application	Heating (medium 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	
$\eta_{s}$	256 %	174 %	
Prated	11.11 kW	12.51 kW	
SCOP	6.53	4.43	
Tbiv	7 °C	7 °C	
TOL	2 °C	2 °C	
Pdh Tj = +2°C	11.11 kW	12.08 kW	
COP Tj = +2°C	3.59	2.31	
Cdh Tj = +2 °C	0.900	0.900	
Pdh Tj = +7°C	7.14 kW	8.04 kW	
COP Tj = +7°C	5.87	3.86	
Cdh Tj = +7 °C	0.900	0.900	
Pdh Tj = 12°C	3.56 kW	3.75 kW	
COP Tj = 12°C	7.94	5.70	
Cdh Tj = +12 °C	0.900	0.900	





Pdh Tj = Tbiv	7.14 kW	8.04 kW
COP Tj = Tbiv	5.87	3.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.11 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	o 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





	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 = $-7^{\circ}$ C	7.05 kW	6.63 kW
$COP Tj = -7^{\circ}C$	3.48	2.63
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = $+2$ °C	4.68 kW	4.07 kW
COP Tj = +2°C	4.96	3.60
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7^{\circ}$ C	3.14 kW	2.78 kW
$COP Tj = +7^{\circ}C$	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





COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.98	1.13
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	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





This information was gener	ated by the HE KETMA	TAK database on 22 jun 2022
$\eta_{s}$	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
$COPTj = -7^{\circ}C$	2.88	2.01
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = +2°C	6.69 kW	6.52 kW
$COPTj = +2^{\circ}C$	4.65	3.44
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7^{\circ}$ C	4.44 kW	4.36 kW
$COPTj = +7^{\circ}C$	6.62	4.59
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.61 kW	10.25 kW
COP Tj = Tbiv	2.88	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.75 kW	9.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.79
	+	-



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WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	24 W	24 W
PSB	14 W	14 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5152 kWh	6927 kWh



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

Configure model		
Model name	MHA-V16W/D2N8-B+HB-A160/C****GN8-B	
Application	Heating (medium 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

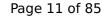
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

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



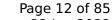


Pdh Tj = Tbiv	8.42 kW	9.11 kW
COP Tj = Tbiv	5.36	3.89
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	13.09 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.79 kW
Annual energy consumption Qhe	2781 kWh	4231 kWh

### Colder Climate

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

#### EN 14825





	Low temperature	Medium temperature
$\eta_{s}$	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
$COP Tj = +7^{\circ}C$	6.49	4.81
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	11.22 kW	9.62 kW
COP Tj = Tbiv	2.43	1.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.89 kW	5.22 kW



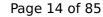


COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.97	1.23
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.87 kW	6.57 kW
Annual energy consumption Qhe	8431 kWh	9309 kWh
Pdh Tj = -15°C (if TOL<-20°C)	11.22	9.62
COP Tj = -15°C (if TOL<-20°C)	2.43	1.86
Cdh Tj = -15 °C	0.90	0.90

## Average Climate

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

EN 14825		
	Low temperature	Medium temperature





	<b>,</b> -	NK database on 22 jun 202.
$\eta_{s}$	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 = $-7^{\circ}$ 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 = $+7^{\circ}$ C	5.70 kW	4.68 kW
$COPTj = +7^{\circ}C$	6.56	4.61
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	13.45 kW	11.52 kW
COP Tj = Tbiv	2.72	1.99
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.52 kW	10.33 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.48	1.80



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



# Model: MHC-V12W/D2N8-B\*\*\*\*

Configure model		
Model name	MHC-V12W/D2N8-B****	
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data		
Power supply 1x230V 50Hz		

## Heating

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

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

### Warmer Climate



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

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



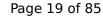


COP Tj = Tbiv	5.87	3.86
	3.07	3.00
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.11 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	14 W	14 W
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.44 kW
Annual energy consumption Qhe	2292 kWh	3776 kWh

### Colder Climate

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

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





This information was gener	The Third Remark	The database on 22 Juli 2022
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 = $+7^{\circ}$ C	3.14 kW	2.78 kW
$COPTj = +7^{\circ}C$	6.10	4.54
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.57 kW	3.33 kW
COP Tj = 12°C	7.87	6.25
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	9.28 kW	8.42 kW
COP Tj = Tbiv	2.59	1.84
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	7.01 kW	4.20 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.98	1.13
WTOL	65 °C	65 °C
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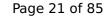


Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.37 kW	6.12 kW
Annual energy consumption Qhe	6870 kWh	8419 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.28	8.42
COP Tj = -15°C (if TOL $<$ -20°C)	2.59	1.84
Cdh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

## Average Climate

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

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





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Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = $-7^{\circ}$ C	10.61 kW	10.25 kW
COP $Tj = -7$ °C	2.88	2.01
Cdh Tj = -7 $^{\circ}$ 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 = $+7^{\circ}$ C	4.44 kW	4.36 kW
$COP Tj = +7^{\circ}C$	6.62	4.59
Cdh Tj = $+7$ °C	0.90	0.90
Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.61 kW	10.25 kW
COP Tj = Tbiv	2.88	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.75 kW	9.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.79
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
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PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5152 kWh	6927 kWh



# Model: MHC-V14W/D2N8-B\*\*\*\*

Configure model		
Model name	MHC-V14W/D2N8-B****	
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	14.50 kW	13.80 kW	
El input	3.15 kW	4.68 kW	
СОР	4.60	2.95	

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

### Warmer Climate



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

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	260 %	175 %
Prated	12.11 kW	14.17 kW
SCOP	6.63	4.45
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	9.11 kW
COP Tj = +7°C	5.84	3.89
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
Pdh Tj = Tbiv	7.78 kW	9.11 kW





5.84	3.89
12.04 kW	13.05 kW
3.44	2.20
65 °C	65 °C
14 W	14 W
24 W	24 W
14 W	14 W
o w	o w
Electricity	Electricity
0.07 kW	1.13 kW
2457 kWh	4258 kWh
	12.04 kW  3.44  65 °C  14 W  24 W  14 W  0 W  Electricity  0.07 kW

### Colder Climate

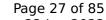
EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	160 %	119 %
	I	





		NK database on 22 jun 202
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 = $+2$ °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 = $+7^{\circ}$ C	3.16 kW	3.06 kW
$COPTj = +7^{\circ}C$	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
WTOL	65 °C	65 °C
	+	-





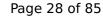
	This information was generated by the HP KEYMARK database on 22 jun 2022			-
ff		14 W	14 W	

Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	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°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 outdoor	65 dB(A)	65 dB(A)

EN 14825		
Low temperature	Medium temperature	
186 %	136 %	
13.73 kW	12.08 kW	
4.72	3.47	
	Low temperature  186 %  13.73 kW	





This information was gener	ated by the HF KLIMF	ark database on 22 jun 202.
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
$COPTj = +7^{\circ}C$	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
Poff	14 W	14 W
РТО	24 W	24 W



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PSB	14 W	14 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.23 kW	2.91 kW
Annual energy consumption Qhe	6012 kWh	7202 kWh



# Model: MHC-V16W/D2N8-B\*\*\*\*

Configure model		
Model name	MHC-V16W/D2N8-B****	
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data	
Power supply 1x230V 50Hz	

## Heating

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

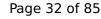
EN 14511-4		
Shutting off the heat transfer medium flow	passed	
Complete power supply failure	passed	
Defrost test	passed	
Starting and operating test	passed	

### Warmer Climate



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

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



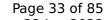


COP Tj = Tbiv	5.36	3.89
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	13.09 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: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

### Colder Climate

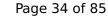
EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	68 dB(A)	68 dB(A)

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	158 %	122 %
	<u> </u>	





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



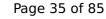


Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.87 kW	6.57 kW
Annual energy consumption Qhe	8431 kWh	9309 kWh
Pdh Tj = -15°C (if TOL<-20°C)	11.22	9.62
COP Tj = -15°C (if TOL $<$ -20°C)	2.43	1.86
Cdh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

## Average Climate

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

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





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
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W



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

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

Configure model		
Model name MHA-V12W/D2RN8-B+HB-A160/C****GN8-B		
Application	Heating (medium 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	12.10 kW	12.00 kW	
El input	2.44 kW	3.87 kW	
СОР	4.95	3.10	

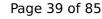
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

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





Pdh Tj = Tbiv	7.14 kW	8.04 kW
COP Tj = Tbiv	5.87	3.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.11 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	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





	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
$COP Tj = -7^{\circ}C$	3.48	2.63
Cdh Tj = -7 °C	0.90	0.90
Pdh Tj = $+2^{\circ}$ C	4.68 kW	4.07 kW
COPTj = +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





COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.98	1.13
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.37 kW	6.12 kW
Annual energy consumption Qhe	6871 kWh	8420 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.28	8.42
COP Tj = -15°C (if TOL $<$ -20°C)	2.59	1.84
Cdh Tj = -15 °C	0.90	0.90

# Average Climate

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

EN 14825		
	Low temperature	Medium temperature





		The database on 22 juil 202.
$\eta_{s}$	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 = $-7^{\circ}$ 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 = $+7^{\circ}$ C	4.44 kW	4.36 kW
$COPTj = +7^{\circ}C$	6.62	4.59
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.61 kW	10.25 kW
COP Tj = Tbiv	2.88	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.75 kW	9.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.79



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#### This information was generated by the HP KEYMARK database on 22 Jun 2022

WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5153 kWh	6928 kWh

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

Configure model		
Model name	MHA-V14W/D2RN8-B+HB-A160/C****GN8-B	
Application	Heating (medium 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	
260 %	175 %	
12.11 kW	14.17 kW	
6.63	4.44	
7 °C	7 °C	
2 °C	2 °C	
12.04 kW	13.05 kW	
3.44	2.20	
0.900	0.900	
7.78 kW	9.11 kW	
5.84	3.89	
0.900	0.900	
3.75 kW	4.09 kW	
8.25	5.90	
0.900	0.900	
	Low temperature  260 %  12.11 kW  6.63  7 °C  2 °C  12.04 kW  3.44  0.900  7.78 kW  5.84  0.900  3.75 kW  8.25	





Pdh Tj = Tbiv	7.78 kW	9.11 kW
COP Tj = Tbiv	5.84	3.89
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
PTO	30 W	30 W
PSB	20 W	20 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.07 kW	1.13 kW
Annual energy consumption Qhe	2462 kWh	4262 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
$\eta_{s}$	160 %	119 %
Prated	12.64 kW	10.97 kW
SCOP	4.06	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°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
$COP Tj = +7^{\circ}C$	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
WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.07 kW	6.77 kW
Annual energy consumption Qhe	7667 kWh	8867 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**

# 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





This information was gener	aced by the in itzini	THE database on 22 jun 2021
$\eta_{s}$	186 %	136 %
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°C	5.20 kW	4.64 kW
$COP Tj = +7^{\circ}C$	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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#### This information was generated by the HP KEYMARK database on 22 Jun 2022

WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.23 kW	2.91 kW
Annual energy consumption Qhe	6013 kWh	7203 kWh

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

Configure model		
Model name MHA-V16W/D2RN8-B+HB-A160/C****GN8-B		
Application	Heating (medium 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

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



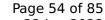


Dally Till This.	0.42.130	0.11 1.00
Pdh Tj = Tbiv	8.42 kW	9.11 kW
COP Tj = Tbiv	5.36	3.89
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	13.09 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.00 kW	0.79 kW
Annual energy consumption Qhe	2786 kWh	4236 kWh

## Colder Climate

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

#### EN 14825





This information was gene	Low temperature	Medium temperature
$\eta_{s}$	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 = $-7^{\circ}$ 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
$COP Tj = +2^{\circ}C$	4.86	3.79
Cdh Tj = +2 °C	0.90	0.90
Pdh Tj = $+7^{\circ}$ C	3.62 kW	2.98 kW
$COP Tj = +7^{\circ}C$	6.49	4.81
Cdh Tj = $+7$ °C	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	11.22 kW	9.62 kW
COP Tj = Tbiv	2.43	1.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	8.89 kW	5.22 kW
ran 1j = 10L or Pan Tj = Tdesignh if TOL < Tdesignh	8.89 kW	5.22 kW





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

# Average Climate

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

EN 14825		
	Low temperature	Medium temperature





This information was generated by the HP KEYMARK database on 22 jun 2022			
$\eta_{s}$	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	
$COP Tj = -7^{\circ}C$	2.72	1.99	
Cdh Tj = -7 °C	0.90	0.90	
Pdh Tj = +2°C	8.57 kW	7.18 kW	
COP Tj = +2°C	4.41	3.34	
Cdh Tj = +2 °C	0.90	0.90	
Pdh Tj = $+7$ °C	5.70 kW	4.68 kW	
$COPTj = +7^{\circ}C$	6.56	4.61	
Cdh Tj = +7 °C	0.90	0.90	
Pdh Tj = 12°C	3.78 kW	3.32 kW	
COP Tj = 12°C	8.51	6.07	
Cdh Tj = +12 °C	0.90	0.90	
Pdh Tj = Tbiv	13.45 kW	11.52 kW	
COP Tj = Tbiv	2.72	1.99	
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.52 kW	10.33 kW	
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.48	1.80	
	-		



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#### This information was generated by the HP KEYMARK database on 22 Jun 2022

WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.68 kW	2.67 kW
Annual energy consumption Qhe	6805 kWh	7896 kWh

# Model: MHC-V12W/D2RN8-B\*\*\*\*

Configure model		
Model name	MHC-V12W/D2RN8-B****	
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

General Data		
Power supply	3x400V 50Hz	

# Heating

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

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

# Warmer Climate



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

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



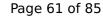


COP Tj = Tbiv	5.87	3.86
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	11.11 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: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

#### Colder Climate

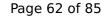
EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)

Low temperature Medium	
	n temperature
η <sub>s</sub> 160 % 118 %	





Prated	11.38 kW	10.32 kW
		-5.52 ***
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
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.98	1.13
WTOL	65 °C	65 °C
	-	!



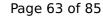


Poff	14 W	14 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.37 kW	6.12 kW
Annual energy consumption Qhe	6871 kWh	8420 kWh
Pdh Tj = -15°C (if TOL<-20°C)	9.28	8.42
COP Tj = -15°C (if TOL $<$ -20°C)	2.59	1.84
Cdh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

# Average Climate

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

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





The master was general		ink database on 22 juli 202
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 = $+7^{\circ}$ C	4.44 kW	4.36 kW
$COP Tj = +7^{\circ}C$	6.62	4.59
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	10.61 kW	10.25 kW
COP Tj = Tbiv	2.88	2.01
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	10.75 kW	9.10 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.77	1.79
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W



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#### This information was generated by the HP KEYMARK database on 22 Jun 2022

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

# Model: MHC-V14W/D2RN8-B\*\*\*\*

Configure model		
Model name	MHC-V14W/D2RN8-B****	
Application	Heating (medium temp)	
Units	Outdoor	
Climate Zone	Colder Climate + Warmer Climate	
Reversibility	Yes	
Cooling mode application (optional)	n/a	

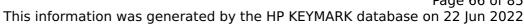
General Data		
Power supply	3x400V 50Hz	

# Heating

EN 14511-2			
	Low temperature	Medium temperature	
Heat output	14.50 kW	13.80 kW	
El input	3.15 kW	4.68 kW	
СОР	4.60	2.95	

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

# Warmer Climate





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

EN 14825		
	Low temperature	Medium temperature
$\eta_{s}$	260 %	175 %
Prated	12.11 kW	14.17 kW
SCOP	6.63	4.44
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	9.11 kW
COP Tj = +7°C	5.84	3.89
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
Pdh Tj = Tbiv	7.78 kW	9.11 kW



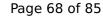


COP Tj = Tbiv	5.84	3.89
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.04 kW	13.05 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.44	2.20
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.07 kW	1.13 kW
Annual energy consumption Qhe	2462 kWh	4262 kWh

#### Colder Climate

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

EN 14825		
	Low temperature	Medium temperature
$\eta_{S}$	160 %	119 %





	, 	NK database on 22 juli 202.
Prated	12.64 kW	10.97 kW
SCOP	4.06	3.05
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C
Pdh Tj = $-7^{\circ}$ 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 = $+7^{\circ}$ C	3.16 kW	3.06 kW
$COP Tj = +7^{\circ}C$	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
WTOL	65 °C	65 °C
	•	



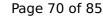


Poff	20 W	20 W
РТО	30 W	30 W
PSB	20 W	20 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.07 kW	6.77 kW
Annual energy consumption Qhe	7667 kWh	8867 kWh
Pdh Tj = -15°C (if TOL<-20°C)	10.31	8.95
COP Tj = -15°C (if TOL $<$ -20°C)	2.53	1.79
Cdh Tj = -15 °C	0.90	0.90

# Average Climate

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

EN 14825		
Low temperature	Medium temperature	
186 %	136 %	
13.73 kW	12.08 kW	
4.72	3.47	
	186 % 13.73 kW	





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 = $+2^{\circ}$ 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
$COP Tj = +7^{\circ}C$	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
Poff	20 W	20 W
PTO	30 W	30 W



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#### This information was generated by the HP KEYMARK database on 22 Jun 2022

PSB	20 W	20 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.23 kW	2.91 kW
Annual energy consumption Qhe	6013 kWh	7203 kWh



# Model: MHC-V16W/D2RN8-B\*\*\*\*

Configure model	
Model name	MHC-V16W/D2RN8-B****
Application	Heating (medium temp)
Units	Outdoor
Climate Zone	Colder Climate + Warmer Climate
Reversibility	Yes
Cooling mode application (optional)	n/a

General Data			
Power supply	3x400V 50Hz		

# Heating

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

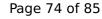
EN 14511-4	
Shutting off the heat transfer medium flow	passed
Complete power supply failure	passed
Defrost test	passed
Starting and operating test	passed

# Warmer Climate



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

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



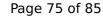


COP Tj = Tbiv	5.36	3.89
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	13.09 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	o w	0 W
Supplementary Heater: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

### Colder Climate

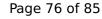
EN 12102-1		
	Low temperature	Medium temperature
Sound power level outdoor	68 dB(A)	68 dB(A)

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





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



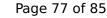


Poff	20 W	20 W
PTO	30 W	30 W
PSB	20 W	20 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	4.87 kW	6.57 kW
Annual energy consumption Qhe	8431 kWh	9310 kWh
Pdh Tj = -15°C (if TOL<-20°C)	11.22	9.62
COP Tj = -15°C (if TOL $<$ -20°C)	2.43	1.86
Cdh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

## Average Climate

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

EN 14825		
	Low temperature	Medium temperature
$\eta_{S}$	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
$COP Tj = +7^{\circ}C$	6.56	4.61
Cdh Tj = +7 °C	0.90	0.90
Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh Tj = +12 °C	0.90	0.90
Pdh Tj = Tbiv	13.45 kW	11.52 kW
COP Tj = Tbiv	2.72	1.99
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.52 kW	10.33 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	2.48	1.80
WTOL	65 °C	65 °C
Poff	20 W	20 W
РТО	30 W	30 W



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#### This information was generated by the HP KEYMARK database on 22 Jun 2022

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

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

Configure model		
Model name	MHA-V14W/D2N8-B+HB-A160/C****GN8-B	
Application	Heating (medium 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
$\eta_{s}$	260 %	175 %
Prated	12.11 kW	14.17 kW
SCOP	6.63	4.45
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	9.11 kW
COP Tj = +7°C	5.84	3.89
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



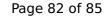


Pdh Tj = Tbiv	7.78 kW	9.11 kW
COP Tj = Tbiv	5.84	3.89
Pdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh	12.04 kW	13.05 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.44	2.20
Cdh Tj = TOL or Pdh Tj = Tdesignh if TOL < Tdesignh		
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	0.07 kW	1.13 kW
Annual energy consumption Qhe	2457 kWh	4258 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
$\eta_{s}$	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°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
$COP Tj = +7^{\circ}C$	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



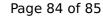


COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	1.92	1.13
WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	o w	o w
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	5.07 kW	6.77 kW
Annual energy consumption Qhe	7667 kWh	8866 kWh
Pdh Tj = -15°C (if TOL<-20°C)	10.31	8.95
COP Tj = -15°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 dB(A)	

EN 14825		
	Low temperature	Medium temperature





3.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1		NK database on 22 jun 202.
$\eta_{s}$	186 %	136 %
Prated	13.73 kW	12.08 kW
SCOP	4.72	3.47
Tbiv	-7 °C	-7 °C
TOL	-10 °C	-10 °C
Pdh Tj = $-7^{\circ}$ 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
$COPTj = +7^{\circ}C$	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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#### This information was generated by the HP KEYMARK database on 22 Jun 2022

WTOL	65 °C	65 °C
Poff	14 W	14 W
РТО	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	Electricity	Electricity
Supplementary Heater: PSUP	2.23 kW	2.91 kW
Annual energy consumption Qhe	6012 kWh	7202 kWh