

This information was generated by the HP KEYMARK database on 5 Mar 2021

Summary of	M thermal A series 12 14 16 kW	Reg. No.	041-K007-09
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

## General Data

Power supply	1x230V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	12.10 kW	12.00 kW
El input	2.44 kW	3.87 kW
COP	4.95	3.10

## Average Climate

This information was generated by the HP KEYMARK database on 5 Mar 2021

### 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
$\eta_s$	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	0.90	0.90
Pdh Tj = +2°C	6.69 kW	6.52 kW
COP Tj = +2°C	4.65	3.44
Cdh	0.90	0.90
Pdh Tj = +7°C	4.44 kW	4.36 kW
COP Tj = +7°C	6.62	4.59
Cdh	0.90	0.90

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Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh	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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5152 kWh	6927 kWh

## Warmer Climate

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

This information was generated by the HP KEYMARK database on 5 Mar 2021

**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	11.26 kW	12.08 kW
COP Tj = +2°C	3.59	2.31
Cdh	0.90	0.90
Pdh Tj = +7°C	7.14 kW	8.04 kW
COP Tj = +7°C	5.87	3.86
Cdh	0.90	0.90
Pdh Tj = 12°C	3.56 kW	3.75 kW
COP Tj = 12°C	7.94	5.70
Cdh	0.90	0.90
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	11.26 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
WTOL	65 °C	65 °C

This information was generated by the HP KEYMARK database on 5 Mar 2021

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	electric	electric
Supplementary Heater: PSUP	0 kW	0.44 kW
Annual energy consumption Qhe	2292 kWh	3776 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	160 %	118 %
Prated	11.38 kW	10.32 kW
SCOP	4.08	3.02
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = -7°C	7.05 kW	6.63 kW
COP Tj = -7°C	3.48	2.63
Cdh	0.90	0.90
Pdh Tj = +2°C	4.68 kW	4.07 kW
COP Tj = +2°C	4.96	3.60
Cdh	0.90	0.90
Pdh Tj = +7°C	3.14 kW	2.78 kW
COP Tj = +7°C	6.10	4.54
Cdh	0.90	0.90
Pdh Tj = 12°C	3.57 kW	3.33 kW
COP Tj = 12°C	7.87	6.25
Cdh	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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	4.37 kW	6.12 kW
Annual energy consumption Q <sub>he</sub>	6870 kWh	8419 kWh
P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL<-20°C)	9.28	8.42
COP T <sub>j</sub> = -15°C (if TOL<-20°C)	2.59	1.84
C <sub>dh</sub>	0.90	0.90



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

## General Data

Power supply	1x230V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	16.00 kW	16.00 kW
El input	3.56 kW	5.52 kW
COP	4.50	2.90

## Average Climate

This information was generated by the HP KEYMARK database on 5 Mar 2021

### 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
$\eta_s$	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	0.90	0.90
Pdh Tj = +2°C	8.57 kW	7.18 kW
COP Tj = +2°C	4.41	3.34
Cdh	0.90	0.90
Pdh Tj = +7°C	5.70 kW	4.68 kW
COP Tj = +7°C	6.56	4.61
Cdh	0.90	0.90

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh	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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	2.68 kW	2.67 kW
Annual energy consumption Qhe	6804 kWh	7895 kWh

## Warmer Climate

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

This information was generated by the HP KEYMARK database on 5 Mar 2021

**EN 14825**

	Low temperature	Medium temperature
$\eta_s$	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	13.12 kW	13.38 kW
COP Tj = +2°C	3.35	2.29
Cdh	0.90	0.90
Pdh Tj = +7°C	8.42 kW	8.86 kW
COP Tj = +7°C	5.36	3.84
Cdh	0.90	0.90
Pdh Tj = 12°C	3.88 kW	4.06 kW
COP Tj = 12°C	8.11	5.86
Cdh	0.90	0.90
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	13.12 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
WTOL	65 °C	65 °C

This information was generated by the HP KEYMARK database on 5 Mar 2021

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	electric	electric
Supplementary Heater: PSUP	0.00 kW	0.40 kW
Annual energy consumption Qhe	2781 kWh	4112 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	158 %	122 %
Prated	13.76 kW	11.79 kW
SCOP	4.02	3.12
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = -7°C	8.31 kW	7.64 kW
COP Tj = -7°C	3.37	2.65
Cdh	0.90	0.90
Pdh Tj = +2°C	5.27 kW	4.43 kW
COP Tj = +2°C	4.86	3.79
Cdh	0.90	0.90
Pdh Tj = +7°C	3.62 kW	2.98 kW
COP Tj = +7°C	6.49	4.81
Cdh	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh	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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	4.87 kW	6.57 kW
Annual energy consumption Q <sub>he</sub>	8431 kWh	9309 kWh
P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL<-20°C)	11.22	9.62
COP T <sub>j</sub> = -15°C (if TOL<-20°C)	2.43	1.86
C <sub>dh</sub>	0.90	0.90

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

### General Data

Power supply	1x230V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	12.10 kW	11.90 kW
El input	2.44 kW	3.90 kW
COP	4.95	3.05

## Average Climate

### EN 12102-1

	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)



This information was generated by the HP KEYMARK database on 5 Mar 2021

**EN 14825**

	Low temperature	Medium temperature
$\eta_s$	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
COP Tj = -7°C	2.88	2.01
Cdh	0.90	0.90
Pdh Tj = +2°C	6.69 kW	6.52 kW
COP Tj = +2°C	4.65	3.44
Cdh	0.90	0.90
Pdh Tj = +7°C	4.44 kW	4.36 kW
COP Tj = +7°C	6.62	4.59
Cdh	0.90	0.90
Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh	0.90	0.90
Pdh Tj = Tbiv	10.61 kW	10.25 kW
COP Tj = Tbiv	2.88	2.01

This information was generated by the HP KEYMARK database on 5 Mar 2021

$P_{dh} T_j = TOL$ or $P_{dh} T_j = T_{designh}$ if $TOL < T_{designh}$	10.75 kW	9.10 kW
$COP T_j = TOL$ or $COP T_j = T_{designh}$ if $TOL < T_{designh}$	2.77	1.79
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	electric	electric
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption $Q_{he}$	5152 kWh	6927 kWh

## Warmer Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	256 %	174 %
Prated	11.11 kW	12.51 kW
SCOP	6.53	4.43

This information was generated by the HP KEYMARK database on 5 Mar 2021

Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.26 kW	12.08 kW
COP Tj = +2°C	3.59	2.31
Cdh	0.90	0.90
Pdh Tj = +7°C	7.14 kW	8.04 kW
COP Tj = +7°C	5.87	3.86
Cdh	0.90	0.90
Pdh Tj = 12°C	3.56 kW	3.75 kW
COP Tj = 12°C	7.94	5.70
Cdh	0.90	0.90
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	11.26 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
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	electric	electric

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: PSUP	0 kW	0.44 kW
Annual energy consumption Q <sub>he</sub>	2292 kWh	3776 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	160 %	118 %
Prated	11.38 kW	10.32 kW
SCOP	4.08	3.02
T <sub>biv</sub>	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	7.05 kW	6.63 kW
COP T <sub>j</sub> = -7°C	3.48	2.63
C <sub>dh</sub>	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +2°C	4.68 kW	4.07 kW
COP T <sub>j</sub> = +2°C	4.96	3.60
C <sub>dh</sub>	0.90	0.90

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = +7°C	3.14 kW	2.78 kW
COP Tj = +7°C	6.10	4.54
Cdh	0.90	0.90
Pdh Tj = 12°C	3.57 kW	3.33 kW
COP Tj = 12°C	7.87	6.25
Cdh	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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
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	0.90	0.90

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

### General Data

Power supply	1x230V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	14.50 kW	13.80 kW
El input	3.15 kW	4.68 kW
COP	4.60	2.95

## Average Climate

### EN 12102-1

	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)

This information was generated by the HP KEYMARK database on 5 Mar 2021

**EN 14825**

	Low temperature	Medium temperature
$\eta_s$	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	0.90	0.90
Pdh Tj = +2°C	7.95 kW	6.86 kW
COP Tj = +2°C	4.52	3.43
Cdh	0.90	0.90
Pdh Tj = +7°C	5.20 kW	4.64 kW
COP Tj = +7°C	6.68	4.66
Cdh	0.90	0.90
Pdh Tj = 12°C	3.76 kW	3.32 kW
COP Tj = 12°C	8.52	6.13
Cdh	0.90	0.90
Pdh Tj = Tbiv	12.14 kW	10.69 kW
COP Tj = Tbiv	2.79	2.01

This information was generated by the HP KEYMARK database on 5 Mar 2021

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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	2.23 kW	2.91 kW
Annual energy consumption Qhe	6012 kWh	7202 kWh

## Warmer Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	260 %	177 %
Prated	12.11 kW	13.74 kW
SCOP	6.63	4.49



This information was generated by the HP KEYMARK database on 5 Mar 2021

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	0.90	0.90
Pdh Tj = +7°C	7.78 kW	8.83 kW
COP Tj = +7°C	5.84	3.91
Cdh	0.90	0.90
Pdh Tj = 12°C	3.75 kW	4.09 kW
COP Tj = 12°C	8.25	5.90
Cdh	0.90	0.90
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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: PSUP	0.07 kW	0.69 kW
Annual energy consumption Q <sub>he</sub>	2457 kWh	4088 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	160 %	119 %
Prated	12.64 kW	10.97 kW
SCOP	4.07	3.05
T <sub>biv</sub>	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	7.97 kW	6.89 kW
COP T <sub>j</sub> = -7°C	3.44	2.66
C <sub>dh</sub>	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +2°C	5.05 kW	4.32 kW
COP T <sub>j</sub> = +2°C	4.92	3.66
C <sub>dh</sub>	0.90	0.90

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = +7°C	3.16 kW	3.06 kW
COP Tj = +7°C	6.11	4.72
Cdh	0.90	0.90
Pdh Tj = 12°C	3.58 kW	3.33 kW
COP Tj = 12°C	7.82	6.25
Cdh	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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
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	0.90	0.90

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

### General Data

Power supply	1x230V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	15.90 kW	16.00 kW
El input	3.53 kW	5.61 kW
COP	4.50	2.85

## Average Climate

### EN 12102-1

	Low temperature	Medium temperature
Sound power level outdoor	68 dB(A)	68 dB(A)

This information was generated by the HP KEYMARK database on 5 Mar 2021

**EN 14825**

	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	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	0.90	0.90
Pdh Tj = +2°C	8.57 kW	7.18 kW
COP Tj = +2°C	4.41	3.34
Cdh	0.90	0.90
Pdh Tj = +7°C	5.70 kW	4.68 kW
COP Tj = +7°C	6.56	4.61
Cdh	0.90	0.90
Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh	0.90	0.90
Pdh Tj = Tbiv	13.45 kW	11.52 kW
COP Tj = Tbiv	2.72	1.99

This information was generated by the HP KEYMARK database on 5 Mar 2021

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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	2.68 kW	2.67 kW
Annual energy consumption Qhe	6804 kWh	7895 kWh

## Warmer Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	249 %	176 %
Prated	13.09 kW	13.78 kW
SCOP	6.33	4.48

This information was generated by the HP KEYMARK database on 5 Mar 2021

Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	13.12 kW	13.38 kW
COP Tj = +2°C	3.35	2.29
Cdh	0.90	0.90
Pdh Tj = +7°C	8.42 kW	8.86 kW
COP Tj = +7°C	5.36	3.84
Cdh	0.90	0.90
Pdh Tj = 12°C	3.88 kW	4.06 kW
COP Tj = 12°C	8.11	5.86
Cdh	0.90	0.90
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	13.12 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
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	electric	electric

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: PSUP	0.00 kW	0.40 kW
Annual energy consumption Q <sub>he</sub>	2781 kWh	4112 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	158 %	122 %
Prated	13.76 kW	11.79 kW
SCOP	4.02	3.12
T <sub>biv</sub>	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	8.31 kW	7.64 kW
COP T <sub>j</sub> = -7°C	3.37	2.65
C <sub>dh</sub>	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +2°C	5.27 kW	4.43 kW
COP T <sub>j</sub> = +2°C	4.86	3.79
C <sub>dh</sub>	0.90	0.90



This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = +7°C	3.62 kW	2.98 kW
COP Tj = +7°C	6.49	4.81
Cdh	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh	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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
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	0.90	0.90

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

## General Data

Power supply	3x400V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	12.10 kW	12.00 kW
El input	2.44 kW	3.87 kW
COP	4.95	3.10

## 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
$\eta_s$	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
COP Tj = -7°C	2.88	2.01
Cdh	0.90	0.90
Pdh Tj = +2°C	6.69 kW	6.52 kW
COP Tj = +2°C	4.65	3.44
Cdh	0.90	0.90
Pdh Tj = +7°C	4.44 kW	4.36 kW
COP Tj = +7°C	6.62	4.59
Cdh	0.90	0.90

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh	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
PTO	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5153 kWh	6928 kWh

## Warmer Climate

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

This information was generated by the HP KEYMARK database on 5 Mar 2021

**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	11.26 kW	12.08 kW
COP Tj = +2°C	3.59	2.31
Cdh	0.90	0.90
Pdh Tj = +7°C	7.14 kW	8.04 kW
COP Tj = +7°C	5.87	3.86
Cdh	0.90	0.90
Pdh Tj = 12°C	3.56 kW	3.75 kW
COP Tj = 12°C	7.94	5.70
Cdh	0.90	0.90
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	11.26 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
WTOL	65 °C	65 °C

This information was generated by the HP KEYMARK database on 5 Mar 2021

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	electric	electric
Supplementary Heater: PSUP	0.00 kW	0.44 kW
Annual energy consumption Qhe	2296 kWh	3780 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	160 %	118 %
Prated	11.38 kW	10.32 kW
SCOP	4.08	3.02
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = -7°C	7.05 kW	6.63 kW
COP Tj = -7°C	3.48	2.63
Cdh	0.90	0.90
Pdh Tj = +2°C	4.68 kW	4.07 kW
COP Tj = +2°C	4.96	3.60
Cdh	0.90	0.90
Pdh Tj = +7°C	3.14 kW	2.78 kW
COP Tj = +7°C	6.10	4.54
Cdh	0.90	0.90
Pdh Tj = 12°C	3.57 kW	3.33 kW
COP Tj = 12°C	7.87	6.25
Cdh	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
PTO	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	4.37 kW	6.12 kW
Annual energy consumption Q <sub>he</sub>	6871 kWh	8420 kWh
P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL<-20°C)	9.28	8.42
COP T <sub>j</sub> = -15°C (if TOL<-20°C)	2.59	1.84
C <sub>dh</sub>	0.90	0.90



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

## General Data

Power supply	3x400V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	14.50 kW	13.80 kW
El input	3.09 kW	4.60 kW
COP	4.70	3.00

## Average Climate

This information was generated by the HP KEYMARK database on 5 Mar 2021

### 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
$\eta_s$	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	0.90	0.90
Pdh Tj = +2°C	7.95 kW	6.86 kW
COP Tj = +2°C	4.52	3.43
Cdh	0.90	0.90
Pdh Tj = +7°C	5.20 kW	4.64 kW
COP Tj = +7°C	6.68	4.66
Cdh	0.90	0.90

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = 12°C	3.76 kW	3.32 kW
COP Tj = 12°C	8.52	6.13
Cdh	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
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	2.23 kW	2.91 kW
Annual energy consumption Qhe	6013 kWh	7203 kWh

## Warmer Climate

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

This information was generated by the HP KEYMARK database on 5 Mar 2021

**EN 14825**

	Low temperature	Medium temperature
$\eta_s$	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	0.90	0.90
Pdh Tj = +7°C	7.78 kW	8.83 kW
COP Tj = +7°C	5.84	3.91
Cdh	0.90	0.90
Pdh Tj = 12°C	3.75 kW	4.09 kW
COP Tj = 12°C	8.25	5.90
Cdh	0.90	0.90
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

This information was generated by the HP KEYMARK database on 5 Mar 2021

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	electric	electric
Supplementary Heater: PSUP	0.07 kW	0 kW
Annual energy consumption Qhe	2462 kWh	4092 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	160 %	119 %
Prated	12.64 kW	10.97 kW
SCOP	4.06	3.05
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = -7°C	7.97 kW	6.89 kW
COP Tj = -7°C	3.44	2.66
Cdh	0.90	0.90
Pdh Tj = +2°C	5.05 kW	4.32 kW
COP Tj = +2°C	4.92	3.66
Cdh	0.90	0.90
Pdh Tj = +7°C	3.16 kW	3.06 kW
COP Tj = +7°C	6.11	4.72
Cdh	0.90	0.90
Pdh Tj = 12°C	3.58 kW	3.33 kW
COP Tj = 12°C	7.82	6.25
Cdh	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

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	5.07 kW	6.77 kW
Annual energy consumption Q <sub>he</sub>	7667 kWh	8867 kWh
P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL<-20°C)	10.31	8.95
COP T <sub>j</sub> = -15°C (if TOL<-20°C)	2.53	1.79
C <sub>dh</sub>	0.90	0.90

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

## General Data

Power supply	3x400V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	16.00 kW	16.00 kW
El input	3.56 kW	5.52 kW
COP	4.50	2.90

## Average Climate



This information was generated by the HP KEYMARK database on 5 Mar 2021

### 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
$\eta_s$	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	0.90	0.90
Pdh Tj = +2°C	8.57 kW	7.18 kW
COP Tj = +2°C	4.41	3.34
Cdh	0.90	0.90
Pdh Tj = +7°C	5.70 kW	4.68 kW
COP Tj = +7°C	6.56	4.61
Cdh	0.90	0.90

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh	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
PTO	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	2.68 kW	2.67 kW
Annual energy consumption Qhe	6805 kWh	7896 kWh

## Warmer Climate

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

This information was generated by the HP KEYMARK database on 5 Mar 2021

**EN 14825**

	Low temperature	Medium temperature
$\eta_s$	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	13.12 kW	13.38 kW
COP Tj = +2°C	3.35	2.29
Cdh	0.90	0.90
Pdh Tj = +7°C	8.42 kW	8.86 kW
COP Tj = +7°C	5.36	3.84
Cdh	0.90	0.90
Pdh Tj = 12°C	3.88 kW	4.06 kW
COP Tj = 12°C	8.11	5.86
Cdh	0.90	0.90
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	13.12 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
WTOL	65 °C	65 °C

This information was generated by the HP KEYMARK database on 5 Mar 2021

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	electric	electric
Supplementary Heater: PSUP	0.00 kW	0.40 kW
Annual energy consumption Qhe	2786 kWh	4116 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	158 %	122 %
Prated	13.76 kW	11.79 kW
SCOP	4.02	3.12
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = -7°C	8.31 kW	7.64 kW
COP Tj = -7°C	3.37	2.65
Cdh	0.90	0.90
Pdh Tj = +2°C	5.27 kW	4.43 kW
COP Tj = +2°C	4.86	3.79
Cdh	0.90	0.90
Pdh Tj = +7°C	3.62 kW	2.98 kW
COP Tj = +7°C	6.49	4.81
Cdh	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh	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	0 W	0 W

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	4.87 kW	6.57 kW
Annual energy consumption Q <sub>he</sub>	8431 kWh	9310 kWh
P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL<-20°C)	11.22	9.62
COP T <sub>j</sub> = -15°C (if TOL<-20°C)	2.43	1.86
C <sub>dh</sub>	0.90	0.90

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

### General Data

Power supply	3x400V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	12.10 kW	11.90 kW
El input	2.44 kW	3.90 kW
COP	4.95	3.05

## Average Climate

### EN 12102-1

	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)

This information was generated by the HP KEYMARK database on 5 Mar 2021

**EN 14825**

	Low temperature	Medium temperature
$\eta_s$	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
COP Tj = -7°C	2.88	2.01
Cdh	0.90	0.90
Pdh Tj = +2°C	6.69 kW	6.52 kW
COP Tj = +2°C	4.65	3.44
Cdh	0.90	0.90
Pdh Tj = +7°C	4.44 kW	4.36 kW
COP Tj = +7°C	6.62	4.59
Cdh	0.90	0.90
Pdh Tj = 12°C	3.74 kW	3.30 kW
COP Tj = 12°C	8.47	6.05
Cdh	0.90	0.90
Pdh Tj = Tbiv	10.61 kW	10.25 kW
COP Tj = Tbiv	2.88	2.01



This information was generated by the HP KEYMARK database on 5 Mar 2021

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
PTO	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	1.26 kW	2.50 kW
Annual energy consumption Qhe	5153 kWh	6928 kWh

## Warmer Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	256 %	174 %
Prated	11.11 kW	12.51 kW
SCOP	6.53	4.42

This information was generated by the HP KEYMARK database on 5 Mar 2021

Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	11.26 kW	12.08 kW
COP Tj = +2°C	3.59	2.31
Cdh	0.90	0.90
Pdh Tj = +7°C	7.14 kW	8.04 kW
COP Tj = +7°C	5.87	3.86
Cdh	0.90	0.90
Pdh Tj = 12°C	3.56 kW	3.75 kW
COP Tj = 12°C	7.94	5.70
Cdh	0.90	0.90
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	11.26 kW	12.08 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.59	2.31
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	electric	electric

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: PSUP	0.00 kW	0.44 kW
Annual energy consumption Q <sub>he</sub>	2296 kWh	3780 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	160 %	118 %
Prated	11.38 kW	10.32 kW
SCOP	4.08	3.02
T <sub>biv</sub>	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	7.05 kW	6.63 kW
COP T <sub>j</sub> = -7°C	3.48	2.63
C <sub>dh</sub>	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +2°C	4.68 kW	4.07 kW
COP T <sub>j</sub> = +2°C	4.96	3.60
C <sub>dh</sub>	0.90	0.90

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = +7°C	3.14 kW	2.78 kW
COP Tj = +7°C	6.10	4.54
Cdh	0.90	0.90
Pdh Tj = 12°C	3.57 kW	3.33 kW
COP Tj = 12°C	7.87	6.25
Cdh	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
PTO	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
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	0.90	0.90

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

### General Data

Power supply	3x400V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	14.50 kW	13.80 kW
El input	3.15 kW	4.68 kW
COP	4.60	2.95

## Average Climate

### EN 12102-1

	Low temperature	Medium temperature
Sound power level outdoor	65 dB(A)	65 dB(A)

This information was generated by the HP KEYMARK database on 5 Mar 2021

**EN 14825**

	Low temperature	Medium temperature
$\eta_s$	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	0.90	0.90
Pdh Tj = +2°C	7.95 kW	6.86 kW
COP Tj = +2°C	4.52	3.43
Cdh	0.90	0.90
Pdh Tj = +7°C	5.20 kW	4.64 kW
COP Tj = +7°C	6.68	4.66
Cdh	0.90	0.90
Pdh Tj = 12°C	3.76 kW	3.32 kW
COP Tj = 12°C	8.52	6.13
Cdh	0.90	0.90
Pdh Tj = Tbiv	12.14 kW	10.69 kW
COP Tj = Tbiv	2.79	2.01

This information was generated by the HP KEYMARK database on 5 Mar 2021

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

## Warmer Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	260 %	176 %
Prated	12.11 kW	13.74 kW
SCOP	6.63	4.48

This information was generated by the HP KEYMARK database on 5 Mar 2021

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	0.90	0.90
Pdh Tj = +7°C	7.78 kW	8.83 kW
COP Tj = +7°C	5.84	3.91
Cdh	0.90	0.90
Pdh Tj = 12°C	3.75 kW	4.09 kW
COP Tj = 12°C	8.25	5.90
Cdh	0.90	0.90
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	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	electric	electric



This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: PSUP	0.07 kW	0 kW
Annual energy consumption Q <sub>he</sub>	2462 kWh	4092 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	160 %	119 %
Prated	12.64 kW	10.97 kW
SCOP	4.06	3.05
T <sub>biv</sub>	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	7.97 kW	6.89 kW
COP T <sub>j</sub> = -7°C	3.44	2.66
C <sub>dh</sub>	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +2°C	5.05 kW	4.32 kW
COP T <sub>j</sub> = +2°C	4.92	3.66
C <sub>dh</sub>	0.90	0.90

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = +7°C	3.16 kW	3.06 kW
COP Tj = +7°C	6.11	4.72
Cdh	0.90	0.90
Pdh Tj = 12°C	3.58 kW	3.33 kW
COP Tj = 12°C	7.82	6.25
Cdh	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	electric	electric
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	0.90	0.90

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

## General Data

Power supply	3x400V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	15.90 kW	16.00 kW
El input	3.53 kW	5.61 kW
COP	4.50	2.85

## Average Climate

### EN 12102-1

	Low temperature	Medium temperature
Sound power level outdoor	68 dB(A)	68 dB(A)

This information was generated by the HP KEYMARK database on 5 Mar 2021

**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	0.90	0.90
Pdh Tj = +2°C	8.57 kW	7.18 kW
COP Tj = +2°C	4.41	3.34
Cdh	0.90	0.90
Pdh Tj = +7°C	5.70 kW	4.68 kW
COP Tj = +7°C	6.56	4.61
Cdh	0.90	0.90
Pdh Tj = 12°C	3.78 kW	3.32 kW
COP Tj = 12°C	8.51	6.07
Cdh	0.90	0.90
Pdh Tj = Tbiv	13.45 kW	11.52 kW
COP Tj = Tbiv	2.72	1.99

This information was generated by the HP KEYMARK database on 5 Mar 2021

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
PTO	30 W	30 W
PSB	20 W	20 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	2.68 kW	2.67 kW
Annual energy consumption Qhe	6805 kWh	7896 kWh

## Warmer Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	248 %	176 %
Prated	13.09 kW	13.78 kW
SCOP	6.33	4.47

This information was generated by the HP KEYMARK database on 5 Mar 2021

Tbiv	7 °C	7 °C
TOL	2 °C	2 °C
Pdh Tj = +2°C	13.12 kW	13.38 kW
COP Tj = +2°C	3.35	2.29
Cdh	0.90	0.90
Pdh Tj = +7°C	8.42 kW	8.86 kW
COP Tj = +7°C	5.36	3.84
Cdh	0.90	0.90
Pdh Tj = 12°C	3.88 kW	4.06 kW
COP Tj = 12°C	8.11	5.86
Cdh	0.90	0.90
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	13.12 kW	13.38 kW
COP Tj = TOL or COP Tj = Tdesignh if TOL < Tdesignh	3.35	2.29
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	electric	electric

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: PSUP	0.00 kW	0.40 kW
Annual energy consumption Q <sub>he</sub>	2786 kWh	4116 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	158 %	122 %
Prated	13.76 kW	11.79 kW
SCOP	4.02	3.12
T <sub>biv</sub>	-15 °C	-15 °C
TOL	-22 °C	-22 °C
P <sub>dh</sub> T <sub>j</sub> = -7°C	8.31 kW	7.64 kW
COP T <sub>j</sub> = -7°C	3.37	2.65
C <sub>dh</sub>	0.90	0.90
P <sub>dh</sub> T <sub>j</sub> = +2°C	5.27 kW	4.43 kW
COP T <sub>j</sub> = +2°C	4.86	3.79
C <sub>dh</sub>	0.90	0.90

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = +7°C	3.62 kW	2.98 kW
COP Tj = +7°C	6.49	4.81
Cdh	0.90	0.90
Pdh Tj = 12°C	3.35 kW	3.43 kW
COP Tj = 12°C	7.40	6.29
Cdh	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	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
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	0.90	0.90



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

## General Data

Power supply	1x230V 50Hz
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## Heating

### EN 14511-4

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

### EN 14511-2

	Low temperature	Medium temperature
Heat output	14.50 kW	13.80 kW
El input	3.09 kW	4.60 kW
COP	4.70	3.00

## 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
$\eta_s$	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	0.90	0.90
Pdh Tj = +2°C	7.95 kW	6.86 kW
COP Tj = +2°C	4.52	3.43
Cdh	0.90	0.90
Pdh Tj = +7°C	5.20 kW	4.64 kW
COP Tj = +7°C	6.68	4.66
Cdh	0.90	0.90

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = 12°C	3.76 kW	3.32 kW
COP Tj = 12°C	8.52	6.13
Cdh	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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W
Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	2.23 kW	2.91 kW
Annual energy consumption Qhe	6012 kWh	7202 kWh

## Warmer Climate

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

This information was generated by the HP KEYMARK database on 5 Mar 2021

**EN 14825**

	Low temperature	Medium temperature
$\eta_s$	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	0.90	0.90
Pdh Tj = +7°C	7.78 kW	8.83 kW
COP Tj = +7°C	5.84	3.91
Cdh	0.90	0.90
Pdh Tj = 12°C	3.75 kW	4.09 kW
COP Tj = 12°C	8.25	5.90
Cdh	0.90	0.90
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

This information was generated by the HP KEYMARK database on 5 Mar 2021

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	electric	electric
Supplementary Heater: PSUP	0.07 kW	0.69 kW
Annual energy consumption Qhe	2457 kWh	4088 kWh

## Colder Climate

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

<b>EN 14825</b>		
	<b>Low temperature</b>	<b>Medium temperature</b>
$\eta_s$	160 %	119 %
Prated	12.64 kW	10.97 kW
SCOP	4.07	3.05
Tbiv	-15 °C	-15 °C
TOL	-22 °C	-22 °C

This information was generated by the HP KEYMARK database on 5 Mar 2021

Pdh Tj = -7°C	7.97 kW	6.89 kW
COP Tj = -7°C	3.44	2.66
Cdh	0.90	0.90
Pdh Tj = +2°C	5.05 kW	4.32 kW
COP Tj = +2°C	4.92	3.66
Cdh	0.90	0.90
Pdh Tj = +7°C	3.16 kW	3.06 kW
COP Tj = +7°C	6.11	4.72
Cdh	0.90	0.90
Pdh Tj = 12°C	3.58 kW	3.33 kW
COP Tj = 12°C	7.82	6.25
Cdh	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
PTO	24 W	24 W
PSB	14 W	14 W
PCK	0 W	0 W

This information was generated by the HP KEYMARK database on 5 Mar 2021

Supplementary Heater: Type of energy input	electric	electric
Supplementary Heater: PSUP	5.07 kW	6.77 kW
Annual energy consumption Q <sub>he</sub>	7667 kWh	8866 kWh
P <sub>dh</sub> T <sub>j</sub> = -15°C (if TOL<-20°C)	10.31	8.95
COP T <sub>j</sub> = -15°C (if TOL<-20°C)	2.53	1.79
C <sub>dh</sub>	0.90	0.90