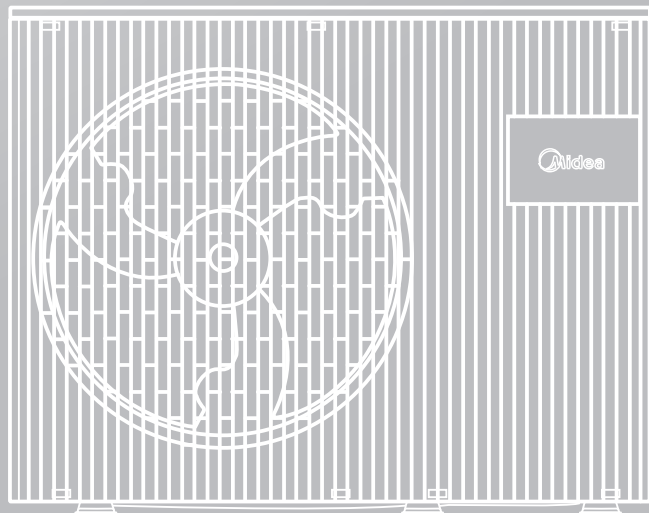


TECHNICAL DATA MANUAL

ATW Heat Pump



IMPORTANT NOTE:

Thank you very much for purchasing our product,
Before using your unit , please read this manual carefully and keep it for future reference.

Model		For medium - temperature application											
Outdoor unit	Indoor unit	Energy efficiency class	Indoor unit sound power	Outdoor unit sound power	Average climate			Colder climate			Warmer climate		
					Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption	Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption	Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption
		-	dB	dB	kW	%	kWh	kW	%	kWh	kW	%	kWh
MHA-V12WD2N8-E	HB-A160CGN8-E	A+++	43	59	12.0	153.7	6 330	11.0	126.3	8 387	13.1	171.1	4 022
MHA-V12WD2N8-E	HB-A160CD**GN8-E	A+++	43	59	12.0	153.7	6 330	11.0	126.3	8 387	13.1	171.1	4 022
MHA-V14WD2N8-E	HB-A160CGN8-E	A+++	43	60	13.8	152.2	7 350	12.0	128.0	9 034	14.1	171.4	4 321
MHA-V14WD2N8-E	HB-A160CD**GN8-E	A+++	43	60	13.8	152.2	7 350	12.0	128.0	9 034	14.1	171.4	4 321
MHA-V16WD2N8-E	HB-A160CGN8-E	A+++	43	60	15.0	151.0	8 049	13.0	130.9	9 573	14.1	171.4	4 321
MHA-V16WD2N8-E	HB-A160CD**GN8-E	A+++	43	60	15.0	151.0	8 049	13.0	130.9	9 573	14.1	171.4	4 321
MHA-V12WD2RN8-E	HB-A160CGN8-E	A+++	43	59	12.0	153.7	6 330	11.0	126.3	8 387	13.1	171.1	4 022
MHA-V12WD2RN8-E	HB-A160CD**GN8-E	A+++	43	59	12.0	153.7	6 330	11.0	126.3	8 387	13.1	171.1	4 022
MHA-V14WD2RN8-E	HB-A160CGN8-E	A+++	43	60	13.8	152.2	7 350	12.0	128.0	9 034	14.1	171.4	4 321
MHA-V14WD2RN8-E	HB-A160CD**GN8-E	A+++	43	60	13.8	152.2	7 350	12.0	128.0	9 034	14.1	171.4	4 321
MHA-V16WD2RN8-E	HB-A160CGN8-E	A+++	43	60	15.0	151.0	8 049	13.0	130.9	9 573	14.1	171.4	4 321
MHA-V16WD2RN8-E	HB-A160CD**GN8-E	A+++	43	60	15.0	151.0	8 049	13.0	130.9	9 573	14.1	171.4	4 321

Unit type explanation:

- 1.HB-A160CGN8-E, without back-up heater,
- 2.HB-A160CD30GN8-E, with 3kW back-up heater and 1-Phase power source
- 3.HB-A160CDS60GN8-E, with 6kW back-up heater and 3-Phase power source
- 4.HB-A160CDS90GN8-E, with 9kW back-up heater and 3-Phase power source

Model		For low - temperature application											
Outdoor unit	Indoor unit	Energy efficiency class	Indoor unit sound power	Outdoor unit sound power	Average climate			Colder climate			Warmer climate		
					Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption	Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption	Rated heat output	Seasonal space heating energy efficiency	For space heating, annual energy consumption
		-	dB	dB	kW	%	kWh	kW	%	kWh	kW	%	kWh
MHA-V12WD2N8-E	HB-A160CGN8-E	A+++	43	59	12.0	204.6	4 777	12.0	179.7	6 475	12.4	253.4	2 584
MHA-V12WD2N8-E	HB-A160CD**GN8-E	A+++	43	59	12.0	204.6	4 777	12.0	179.7	6 475	12.4	253.4	2 584
MHA-V14WD2N8-E	HB-A160CGN8-E	A+++	43	60	13.8	199.4	5 633	14.0	179.4	7 570	13.2	257.4	2 709
MHA-V14WD2N8-E	HB-A160CD**GN8-E	A+++	43	60	13.8	199.4	5 633	14.0	179.4	7 570	13.2	257.4	2 709
MHA-V16WD2N8-E	HB-A160CGN8-E	A+++	43	60	15.5	194.0	6 503	15.5	179.1	8 393	14.1	257.3	2 895
MHA-V16WD2N8-E	HB-A160CD**GN8-E	A+++	43	60	15.5	194.0	6 503	15.5	179.1	8 393	14.1	257.3	2 895
MHA-V12WD2RN8-E	HB-A160CGN8-E	A+++	43	59	12.0	204.6	4 777	12.0	179.7	6 475	12.4	253.4	2 584
MHA-V12WD2RN8-E	HB-A160CD**GN8-E	A+++	43	59	12.0	204.6	4 777	12.0	179.7	6 475	12.4	253.4	2 584
MHA-V14WD2RN8-E	HB-A160CGN8-E	A+++	43	60	13.8	199.4	5 633	14.0	179.4	7 570	13.2	257.4	2 709
MHA-V14WD2RN8-E	HB-A160CD**GN8-E	A+++	43	60	13.8	199.4	5 633	14.0	179.4	7 570	13.2	257.4	2 709
MHA-V16WD2RN8-E	HB-A160CGN8-E	A+++	43	60	15.5	194.0	6 503	15.5	179.1	8 393	14.1	257.3	2 895
MHA-V16WD2RN8-E	HB-A160CD**GN8-E	A+++	43	60	15.5	194.0	6 503	15.5	179.1	8 393	14.1	257.3	2 895

Unit type explanation:

- 1.HB-A160CGN8-E, without back-up heater,
- 2.HB-A160CD30GN8-E, with 3 kW back-up heater and 1-Phase power source
- 3.HB-A160CDS60GN8-E, with 6 kW back-up heater and 3-Phase power source
- 4.HB-A160CDS90GN8-E, with 9 kW back-up heater and 3-Phase power source

Product fiche 1

Heat pump space heater		Outdoor			
		Indoor	MHA-V12WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V14WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V16WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E
Indoor unit sound power (*)			43	43	43
Outdoor unit sound power (*)	Average climate low temperature application	dB	59	60	60
	Average climate medium temperature application	dB	59	60	60
Capacity of the back-up heater integrated in the unit	Psup back-up heater (optional)	[kW]	0/3/6/9	0/3/6/9	0/3/6/9
Space heating	Energy efficiency class 35°C (Low temp. app.)	-	A+++	A+++	A+++
Space heating	Energy efficiency class 55°C (Medium temp. app.)	-	A+++	A+++	A+++
Average climate (Design temperature = -10°C)					
Space heating 35°C	Prated (declared heating capacity) @ -10°C	[kW]	12.0	13.8	15.5
	Seasonal space heating efficiency (ηs)	[%]	204.6	199.4	194.0
	Annual energy consumption	[kWh]	4 777	5 633	6 503
Space heating 55°C	Prated (declared heating capacity) @ -10°C	[kW]	12.0	13.8	15.0
	Seasonal space heating efficiency (ηs)	[%]	153.7	152.2	151.0
	Annual energy consumption	[kWh]	6 330	7 350	8 049
Part load conditions space heating average climate low temperature application					
(A) condition (-7°C)	Pdh (declared heating capacity)	[kW]	10.67	12.22	13.68
	COPd (declared COP)	-	3.21	3.08	2.90
	Cdh(degradation coefficient)	-	0.99	0.99	1.00
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	6.61	7.74	8.60
	COPd (declared COP)	-	5.07	4.80	4.67
	Cdh(degradation coefficient)	-	0.98	0.99	0.99
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	5.23	5.27	5.65
	COPd (declared COP)	-	6.83	7.12	7.00
	Cdh(degradation coefficient)	-	0.97	0.97	0.97
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	5.98	5.98	6.00
	COPd (declared COP)	-	8.68	8.85	8.91
	Cdh(degradation coefficient)	-	0.97	0.96	0.96
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-10	-10	-10
	Pdh (declared heating capacity)	[kW]	11.74	13.50	15.50
	COPd (declared COP)	-	2.83	2.62	2.45
	WTOL (Heating water Operation Limit)	[°C]	65	65	65

Product fiche 1

Heat pump space heater		Outdoor	MHA-V12WD2RN8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V14WD2RN8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V16WD2RN8-E HB-A160CGN8-E HB-A160CD**GN8-E
Indoor unit sound power (*)		Indoor			
Average climate low temperature application		dB	43	43	43
Average climate medium temperature application		dB	59	60	60
Capacity of the back-up heater integrated in the unit		dB	59	60	60
Space heating	Psup back-up heater (optional)	[kW]	0/3/6/9	0/3/6/9	0/3/6/9
Space heating	Energy efficiency class 35°C (Low temp. app.)	-	A+++	A+++	A+++
Average climate (Design temperature = -10°C)	Energy efficiency class 55°C (Medium temp. app.)	-	A+++	A+++	A+++
Space heating 35°C	Prated (declared heating capacity) @ -10°C	[kW]	12.0	13.8	15.5
	Seasonal space heating efficiency (ηs)	[%]	204.6	199.4	194.0
	Annual energy consumption	[kWh]	4 777	5 633	6 503
Space heating 55°C	Prated (declared heating capacity) @ -10°C	[kW]	12.0	13.8	15.0
	Seasonal space heating efficiency (ηs)	[%]	153.7	152.2	151.0
	Annual energy consumption	[kWh]	6 330	7 350	8 049
Part load conditions space heating average climate low temperature application					
(A) condition (-7°C)	Pdh (declared heating capacity)	[kW]	10.67	12.22	13.68
	COPd (declared COP)	-	3.21	3.07	2.90
	Cdh(degradation coefficient)	-	0.99	0.99	1.00
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	6.61	7.74	8.60
	COPd (declared COP)	-	5.07	4.80	4.67
	Cdh(degradation coefficient)	-	0.98	0.99	0.99
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	5.23	5.27	5.65
	COPd (declared COP)	-	6.83	7.12	7.00
	Cdh(degradation coefficient)	-	0.97	0.97	0.97
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	5.98	5.98	6.00
	COPd (declared COP)	-	8.68	8.85	8.91
	Cdh(degradation coefficient)	-	0.97	0.96	0.96
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-10	-10	-10
	Pdh (declared heating capacity)	[kW]	11.74	13.50	15.50
	COPd (declared COP)	-	2.83	2.62	2.45
	WTOL (Heating water Operation Limit)	[°C]	65	65	65

Product fiche 2

Heat pump space heater		Outdoor			MHA-V16WD2N8-E			MHA-V14WD2N8-E			MHA-V16WD2N8-E		
		Indoor			HB-A160CGN8-E HB-A160CD**GN8-E			HB-A160CGN8-E HB-A160CD**GN8-E			HB-A160CGN8-E HB-A160CD**GN8-E		
(F) Tivalent temperature	Tblv	[°C]	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	
	Pdh (declared heating capacity)	[kW]	10.67	10.67	12.22	12.22	13.68	13.68	13.68	13.68	13.68	13.68	
Supplementary capacity at P_design	COPd (declared COP)	-	3.21	3.21	3.08	3.08	2.90	2.90	2.90	2.90	2.90	2.90	
	Psup (@Tdesignh: -10°C)	[kW]	0.26	0.26	0.30	0.30	0.00	0.00	0.00	0.00	0.00	0.00	
Part load conditions space heating average climate medium temperature application													
(A) condition (-7°C)	Pdh (declared heating capacity)	[kW]	10.86	10.86	12.51	12.51	13.62	13.62	13.62	13.62	13.62	13.62	
	COPd (declared COP)	-	2.46	2.46	2.43	2.43	2.35	2.35	2.35	2.35	2.35	2.35	
	Cdh(degradation coefficient)	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	6.91	6.91	7.69	7.69	8.24	8.24	8.24	8.24	8.24	8.24	
	COPd (declared COP)	-	3.87	3.87	3.71	3.71	3.70	3.70	3.70	3.70	3.70	3.70	
	Cdh(degradation coefficient)	-	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	4.90	4.90	4.97	4.97	5.23	5.23	5.23	5.23	5.23	5.23	
	COPd (declared COP)	-	4.97	4.97	5.22	5.22	5.24	5.24	5.24	5.24	5.24	5.24	
	Cdh(degradation coefficient)	-	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	5.81	5.81	5.83	5.83	5.84	5.84	5.84	5.84	5.84	5.84	
	COPd (declared COP)	-	6.48	6.48	6.60	6.60	6.65	6.65	6.65	6.65	6.65	6.65	
	Cdh(degradation coefficient)	-	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-10	-10	-10	-10	-10	-10	-10	-10	-10	-10	
	Pdh (declared heating capacity)	[kW]	12.00	12.00	13.22	13.22	13.22	13.22	13.22	13.22	13.22	13.22	
	COPd (declared COP)	-	1.93	1.93	2.06	2.06	2.06	2.06	2.06	2.06	2.06	2.06	
(F) Tivalent temperature	WTOL (Heating water Operation Limit)	[°C]	65	65	65	65	65	65	65	65	65	65	
	Tblv	[°C]	-7	-7	-7	-7	-7	-7	-7	-7	-7	-7	
	Pdh (declared heating capacity)	[kW]	10.86	10.86	12.51	12.51	13.62	13.62	13.62	13.62	13.62	13.62	
Supplementary capacity at P_design	COPd (declared COP)	-	2.46	2.46	2.43	2.43	2.35	2.35	2.35	2.35	2.35	2.35	
	Psup (@Tdesignh: -10°C)	[kW]	0.00	0.00	0.58	0.58	1.78	1.78	1.78	1.78	1.78	1.78	
Colder climate (Design temperature = -22°C)													
Space heating 35°C	Prated (declared heating capacity) @ -22°C	[kW]	12.0	12.0	14.0	14.0	15.5	15.5	15.5	15.5	15.5	15.5	
	Seasonal space heating efficiency (ηs)	[%]	179.7	179.7	179.4	179.4	179.1	179.1	179.1	179.1	179.1	179.1	
	Annual energy consumption	[kWh]	6 475	6 475	7 570	7 570	8 393	8 393	8 393	8 393	8 393	8 393	

Product fiche 2

Heat pump space heater		Outdoor		MHA-V12WD2RN8-E		MHA-V14WD2RN8-E		MHA-V16WD2RN8-E	
		Indoor		HB-A160CGN8-E HB-A160CD**GN8-E		HB-A160CGN8-E HB-A160CD**GN8-E		HB-A160CGN8-E HB-A160CD**GN8-E	
(F) Tivalent temperature	Tbiv	[°C]	-7	-7	-7	-7	-7	-7	-7
	Pdh (declared heating capacity)	[kW]	10.67	12.22	13.68	13.68	13.68	13.68	13.68
Supplementary capacity at P_design	COPd (declared COP)	-	3.21	3.07	2.90	2.90	2.90	2.90	2.90
	Psup (@Tdesignh: -10°C)	[kW]	0.26	0.30	0.00	0.00	0.00	0.00	0.00
Part load conditions space heating average climate medium temperature application									
(A) condition (-7°C)	Pdh (declared heating capacity)	[kW]	10.86	12.51	13.62	13.62	13.62	13.62	13.62
	COPd (declared COP)	-	2.46	2.43	2.35	2.35	2.35	2.35	2.35
	Cdh(degradation coefficient)	-	1.00	1.00	1.00	1.00	1.00	1.00	1.00
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	6.91	7.69	8.24	8.24	8.24	8.24	8.24
	COPd (declared COP)	-	3.87	3.71	3.70	3.70	3.70	3.70	3.70
	Cdh(degradation coefficient)	-	0.99	0.99	0.99	0.99	0.99	0.99	0.99
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	4.90	4.97	5.23	5.23	5.23	5.23	5.23
	COPd (declared COP)	-	4.97	5.22	5.24	5.24	5.24	5.24	5.24
	Cdh(degradation coefficient)	-	0.98	0.98	0.98	0.98	0.98	0.98	0.98
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	5.81	5.83	5.84	5.84	5.84	5.84	5.84
	COPd (declared COP)	-	6.48	6.60	6.65	6.65	6.65	6.65	6.65
	Cdh(degradation coefficient)	-	0.97	0.97	0.97	0.97	0.97	0.97	0.97
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-10	-10	-10	-10	-10	-10	-10
	Pdh (declared heating capacity)	[kW]	12.00	13.22	13.22	13.22	13.22	13.22	13.22
	COPd (declared COP)	-	1.93	2.06	2.06	2.06	2.06	2.06	2.06
(F) Tivalent temperature	WTOL (Heating water Operation Limit)	[°C]	65	65	65	65	65	65	65
	Tbiv	[°C]	-7	-7	-7	-7	-7	-7	-7
	Pdh (declared heating capacity)	[kW]	10.86	12.51	13.62	13.62	13.62	13.62	13.62
Supplementary capacity at P_design	COPd (declared COP)	-	2.46	2.43	2.35	2.35	2.35	2.35	2.35
	Psup (@Tdesignh: -10°C)	[kW]	0.00	0.58	1.78	1.78	1.78	1.78	1.78
Colder climate (Design temperature = -22°C)									
Space heating 35°C	Prated (declared heating capacity) @ -22°C	[kW]	12.0	14.0	15.5	15.5	15.5	15.5	15.5
	Seasonal space heating efficiency (ηs)	[%]	179.7	179.4	179.1	179.1	179.1	179.1	179.1
	Annual energy consumption	[kWh]	6 475	7 570	8 393	8 393	8 393	8 393	8 393

Product fiche 3

Heat pump space heater		Outdoor		
		MHA-V12WD2N8-E	MHA-V14WD2N8-E	MHA-V16WD2N8-E
Space heating 55°C	Prated (declared heating capacity) @ -22°C	11.0	12.0	13.0
	Seasonal space heating efficiency (ηs)	126.3	128.0	130.9
	Annual energy consumption	8 387	9 034	9 573
Part load conditions space heating colder climate low temperature application				
(A) condition (-7°C)	Pdh (declared heating capacity)	7.40	8.53	9.46
	COPd (declared COP)	3.88	3.80	3.78
	Cdh(degradation coefficient)	0.90	0.90	0.90
(B) condition (2°C)	Pdh (declared heating capacity)	4.77	5.32	5.59
	COPd (declared COP)	5.57	5.61	5.62
	Cdh(degradation coefficient)	0.90	0.90	0.90
(C) condition (7°C)	Pdh (declared heating capacity)	5.49	5.47	5.46
	COPd (declared COP)	7.02	7.06	7.12
	Cdh(degradation coefficient)	0.90	0.90	0.90
(D) condition (12°C)	Pdh (declared heating capacity)	5.64	5.62	5.67
	COPd (declared COP)	7.20	7.22	7.35
	Cdh(degradation coefficient)	0.90	0.90	0.90
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	-22	-22	-22
	Pdh (declared heating capacity)	10.76	12.49	13.64
(F) Tivalent temperature	COPd (declared COP)	2.23	2.21	2.12
	WTOL (Heating water Operation Limit)	65	65	65
Supplementary capacity at P_design	Tblv	-15	-15	-15
	Pdh (declared heating capacity)	9.92	11.53	12.61
	COPd (declared COP)	2.85	2.79	2.74
Part load conditions space heating colder climate medium temperature application				
(A) condition (-7°C)	Psup (@Tdesignh: -22°C)	1.24	1.51	1.86
	Pdh (declared heating capacity)	6.71	7.34	8.04
	COPd (declared COP)	2.83	2.91	2.91
	Cdh(degradation coefficient)	0.99	0.90	0.90

Product fiche 3

Heat pump space heater		Outdoor			MHA-V12WD2RN8-E			MHA-V14WD2RN8-E			MHA-V16WD2RN8-E		
		Indoor			HB-A160CGN8-E HB-A160CD**GN8-E			HB-A160CGN8-E HB-A160CD**GN8-E			HB-A160CGN8-E HB-A160CD**GN8-E		
Space heating 55°C	Prated (declared heating capacity) @ -22°C	[kW]	11.0	12.0	13.0								
	Seasonal space heating efficiency (ηs)	[%]	126.3	128.0	130.9								
	Annual energy consumption	[kWh]	8 387	9 034	9 573								
Part load conditions space heating colder climate low temperature application													
(A) condition (-7°C)	Pdh (declared heating capacity)	[kW]	7.40	8.53	9.46								
	COPd (declared COP)	-	3.88	3.80	3.78								
	Cdh(degradation coefficient)	-	0.90	0.90	0.90								
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	4.77	5.32	5.59								
	COPd (declared COP)	-	5.57	5.61	5.62								
	Cdh(degradation coefficient)	-	0.90	0.90	0.90								
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	5.49	5.47	5.46								
	COPd (declared COP)	-	7.02	7.06	7.12								
	Cdh(degradation coefficient)	-	0.90	0.90	0.90								
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	5.64	5.62	5.67								
	COPd (declared COP)	-	7.20	7.22	7.35								
	Cdh(degradation coefficient)	-	0.90	0.90	0.90								
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-22	-22	-22								
	Pdh (declared heating capacity)	[kW]	10.76	12.49	13.64								
	COPd (declared COP)	-	2.23	2.21	2.12								
(F) Tivalent temperature	WTOL (Heating water Operation Limit)	[°C]	65	65	65								
	Tblv	[°C]	-15	-15	-15								
	Pdh (declared heating capacity)	[kW]	9.92	11.53	12.61								
Supplementary capacity at P_design	COPd (declared COP)	-	2.85	2.79	2.74								
	Psup (@Tdesign: -22°C)	[kW]	1.24	1.51	1.86								
Part load conditions space heating colder climate medium temperature application													
(A) condition (-7°C)	Pdh (declared heating capacity)	[kW]	6.71	7.34	8.04								
	COPd (declared COP)	-	2.83	2.91	2.91								
	Cdh(degradation coefficient)	-	0.99	0.90	0.90								

Product fiche 4

Heat pump space heater		Outdoor		MHA-V12WD2N8-E		MHA-V14WD2N8-E		MHA-V16WD2N8-E	
		Indoor		HB-A160CGN8-E HB-A160CD**GN8-E		HB-A160CGN8-E HB-A160CD**GN8-E		HB-A160CGN8-E HB-A160CD**GN8-E	
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	4.21	4.53	4.82				
	COPd (declared COP)	-	3.73	3.87	3.99				
	Cdh(degradation coefficient)	-	0.98	0.90	0.90				
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	5.03	5.07	5.09				
	COPd (declared COP)	-	5.03	5.11	5.18				
	Cdh(degradation coefficient)	-	0.98	0.90	0.90				
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	6.05	6.07	6.08				
	COPd (declared COP)	-	6.59	6.66	6.68				
	Cdh(degradation coefficient)	-	0.97	0.90	0.90				
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	[°C]	-22	-22	-22				
	Pdh (declared heating capacity)	[kW]	8.48	10.13	11.12				
	COPd (declared COP)	-	1.28	1.37	1.43				
(F) Tivalent temperature	WTOL (Heating water Operation Limit)	[°C]	65	65	65				
	Tblv	[°C]	-15	-15	-15				
	Pdh (declared heating capacity)	[kW]	9.11	9.95	10.80				
Supplementary capacity at P_design	COPd (declared COP)	-	1.98	1.90	1.98				
	Psup (@Tdesignh: -22°C)	[kW]	2.52	1.87	1.89				
Warmer climate (Design temperature = 2°C)									
Space heating 35°C	Prated (declared heating capacity) @ 2°C	[kW]	12.4	13.2	14.1				
	Seasonal space heating efficiency (ηs)	[%]	253.4	257.4	257.3				
	Annual energy consumption	[kWh]	2 584	2 709	2 895				
Space heating 55°C	Prated (declared heating capacity) @ 2°C	[kW]	13.1	14.1	14.1				
	Seasonal space heating efficiency (ηs)	[%]	171.1	171.4	171.4				
	Annual energy consumption	[kWh]	4 022	4 321	4 321				
Part load conditions space heating warmer climate low temperature application									
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	12.40	13.20	14.10				
	COPd (declared COP)	-	3.36	3.34	3.28				
	Cdh(degradation coefficient)	-	0.99	0.99	0.99				
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	7.82	8.42	8.91				
	COPd (declared COP)	-	5.75	5.89	5.81				
	Cdh(degradation coefficient)	-	0.98	0.98	0.98				

Product fiche 4

Heat pump space heater

		Outdoor			
		MHA-V12WD2RN8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V14WD2RN8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V16WD2RN8-E HB-A160CGN8-E HB-A160CD**GN8-E	
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	4.21	4.53	4.82
	COPd (declared COP)	-	3.73	3.87	3.99
(C) condition (7°C)	Cdh(degradation coefficient)	-	0.98	0.90	0.90
	Pdh (declared heating capacity)	[kW]	5.03	5.07	5.09
	COPd (declared COP)	-	5.03	5.11	5.18
	Cdh(degradation coefficient)	-	0.98	0.90	0.90
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	6.05	6.07	6.08
	COPd (declared COP)	-	6.59	6.66	6.68
	Cdh(degradation coefficient)	-	0.97	0.90	0.90
	Tol (temperature operating limit)	[°C]	-22	-22	-22
(E) Tol (temperature operating limit)	Pdh (declared heating capacity)	[kW]	8.48	10.13	11.12
	COPd (declared COP)	-	1.28	1.37	1.43
	WTOL (Heating water Operation Limit)	[°C]	65	65	65
	Tblv	[°C]	-15	-15	-15
(F) Tbilvalent temperature	Pdh (declared heating capacity)	[kW]	9.11	9.95	10.80
	COPd (declared COP)	-	1.98	1.90	1.98
Supplementary capacity at P_design	Psup (@Tdesign: -22°C)	[kW]	2.52	1.87	1.89
Warmer climate (Design temperature = 2°C)					
Space heating 35°C	Prated (declared heating capacity) @ 2°C	[kW]	12.4	13.2	14.1
	Seasonal space heating efficiency (ηs)	[%]	253.4	257.4	257.3
	Annual energy consumption	[kWh]	2 584	2 709	2 895
Space heating 55°C	Prated (declared heating capacity) @ 2°C	[kW]	13.1	14.1	14.1
	Seasonal space heating efficiency (ηs)	[%]	171.1	171.4	171.4
	Annual energy consumption	[kWh]	4 022	4 321	4 321
Part load conditions space heating warmer climate low temperature application					
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	12.40	13.20	14.10
	COPd (declared COP)	-	3.36	3.34	3.28
	Cdh(degradation coefficient)	-	0.99	0.99	0.99
(C) condition (7°C)	Pdh (declared heating capacity)	[kW]	7.82	8.42	8.91
	COPd (declared COP)	-	5.75	5.89	5.81
	Cdh(degradation coefficient)	-	0.98	0.98	0.98

Product fiche 5

Heat pump space heater		Outdoor			
		MHA-V12WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V14WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V16WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	5.62	5.63	5.64
	COPd (declared COP)	-	7.98	8.04	8.14
(E) Tol (temperature operating limit)	Cdh(egradation coefficient)	-	0.97	0.97	0.97
	Tol (temperature operating limit)	[°C]	2	2	2
(F) Tivalent temperature	Pdh (declared heating capacity)	[kW]	12.40	13.20	14.10
	COPd (declared COP)	-	3.36	3.34	3.28
Supplementary capacity at P_design	WTOL (Heating water Operation Limit)	[°C]	65	65	65
	Tblv	[°C]	2	2	2
Part load conditions space heating warmer climate medium temperature application	Pdh (declared heating capacity)	[kW]	12.40	13.20	14.10
	COPd (declared COP)	-	3.36	3.34	3.28
(B) condition (2°C)	Psup (@Tdesign: 2°C)	[kW]	0.00	0.00	0.00
	Pdh (declared heating capacity)	[kW]	13.10	14.07	14.07
(C) condition (7°C)	COPd (declared COP)	-	2.35	2.23	2.23
	Cdh(egradation coefficient)	-	1.00	1.00	1.00
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	8.20	8.91	8.91
	COPd (declared COP)	-	3.80	3.79	3.79
(E) Tol (temperature operating limit)	Cdh(egradation coefficient)	-	0.99	0.99	0.99
	Tol (temperature operating limit)	[°C]	5.12	5.14	5.14
(F) Tivalent temperature	Pdh (declared heating capacity)	[kW]	5.48	5.55	5.55
	COPd (declared COP)	-	0.97	0.97	0.97
Supplementary capacity at P_design	Cdh(egradation coefficient)	-	2	2	2
	Tol (temperature operating limit)	[°C]	13.10	14.07	14.07
(B) condition (2°C)	Pdh (declared heating capacity)	[kW]	2.35	2.23	2.23
	COPd (declared COP)	-	65	65	65
(C) condition (7°C)	WTOL (Heating water Operation Limit)	[°C]	2	2	2
	Tblv	[°C]	13.10	14.07	14.07
(D) condition (12°C)	Pdh (declared heating capacity)	[kW]	13.10	14.07	14.07
	COPd (declared COP)	-	2.35	2.23	2.23
(E) Tol (temperature operating limit)	WTOL (Heating water Operation Limit)	[°C]	65	65	65
	Tol (temperature operating limit)	[°C]	2	2	2
(F) Tivalent temperature	Pdh (declared heating capacity)	[kW]	13.10	14.07	14.07
	COPd (declared COP)	-	2.35	2.23	2.23
Supplementary capacity at P_design	WTOL (Heating water Operation Limit)	[°C]	65	65	65
	Tol (temperature operating limit)	[°C]	2	2	2

Product fiche 5

Heat pump space heater		Outdoor		
		MHA-V12WD2RN8-E	MHA-V14WD2RN8-E	MHA-V16WD2RN8-E
(D) condition (12°C)	Pdh (declared heating capacity)	5.62	5.63	5.64
	COPd (declared COP)	7.98	8.04	8.14
	Cdh(degradation coefficient)	0.97	0.97	0.97
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	2	2	2
	Pdh (declared heating capacity)	12.40	13.20	14.10
	COPd (declared COP)	3.36	3.34	3.28
(F) Tivalent temperature	WTOL (Heating water Operation Limit)	65	65	65
	Tblv	2	2	2
	Pdh (declared heating capacity)	12.40	13.20	14.10
Supplementary capacity at P_design	COPd (declared COP)	3.36	3.34	3.28
	Psup (@Tdesignh: 2°C)	0.00	0.00	0.00
Part load conditions space heating warmer climate medium temperature application				
(B) condition (2°C)	Pdh (declared heating capacity)	13.10	14.07	14.07
	COPd (declared COP)	2.35	2.23	2.23
	Cdh(degradation coefficient)	1.00	1.00	1.00
(C) condition (7°C)	Pdh (declared heating capacity)	8.20	8.91	8.91
	COPd (declared COP)	3.80	3.79	3.79
	Cdh(degradation coefficient)	0.99	0.99	0.99
(D) condition (12°C)	Pdh (declared heating capacity)	5.12	5.14	5.14
	COPd (declared COP)	5.48	5.55	5.55
	Cdh(degradation coefficient)	0.97	0.97	0.97
(E) Tol (temperature operating limit)	Tol (temperature operating limit)	2	2	2
	Pdh (declared heating capacity)	13.10	14.07	14.07
	COPd (declared COP)	2.35	2.23	2.23
(F) Tivalent temperature	WTOL (Heating water Operation Limit)	65	65	65
	Tblv	2	2	2
	Pdh (declared heating capacity)	13.10	14.07	14.07
Supplementary capacity at P_design	COPd (declared COP)	2.35	2.23	2.23
	Psup (@Tdesignh: 2°C)	0.00	0.03	0.03

Product fiche 6

Heat pump space heater

		Outdoor		
		MHA-V12WD2N8-E	MHA-V14WD2N8-E	MHA-V16WD2N8-E
Product description	Air-to-water heat pump	Y	Y	Y
	Water-to-water heat pump	N	N	N
	Brine-to-water heat pump	N	N	N
	Low-temperature heat pump	N	N	N
	Equipped with a supplementary heater	Y	Y	Y
	Heat pump combination heater	Y	Y	Y
	Rated airflow (outdoor)	4780	4780	4780
	Rated water/brine flow (outdoor H/E)	/	/	/
	Capacity control	inverter	inverter	inverter
	P _{off} (Power consumption Off mode)	0.014	0.014	0.014
P _{to} (Power consumption Thermostat off mode)	0.024	0.024	0.024	
P _{sb} (Power consumption Standby mode)	0.014	0.014	0.014	
P _{CK} (Power crankcase heater mode)	0.000	0.000	0.000	
Q _{elec} (Daily electricity consumption)	/	/	/	
Q _{fuel} (Daily fuel consumption)	/	/	/	
Air to water unit				
Brine/water to water unit				
Other				

Note :

Product fiche data according to energy label directive 2010/30/EC regulation (EU) 811/2013.

(*) Sound power measured according to the EN12102 under conditions of the EN14825.

Details and precautions on installation, maintenance and assembly can be found in the installation and or operation manuals.

Product fiche 6

Heat pump space heater		Outdoor	MHA-V12WD2RN8-E	MHA-V14WD2RN8-E	MHA-V16WD2RN8-E
		Indoor	HB-A160CGN8-E HB-A160CD**GN8-E	HB-A160CGN8-E HB-A160CD**GN8-E	HB-A160CGN8-E HB-A160CD**GN8-E
Product description	Air-to-water heat pump	Y/N	Y	Y	Y
	Water-to-water heat pump	Y/N	N	N	N
	Brine-to-water heat pump	Y/N	N	N	N
	Low-temperature heat pump	Y/N	N	N	N
	Equipped with a supplementary heater	Y/N	Y	Y	Y
	Heat pump combination heater	Y/N	Y	Y	Y
	Rated airflow (outdoor)	[m³/h]	4780	4780	4780
	Rated water/brine flow (outdoor H/E)		/	/	/
Air to water unit	Capacity control	-	inverter	inverter	inverter
	Poff (Power consumption Off mode)	[kW]	0.014	0.014	0.014
	Pto (Power consumption Thermostat off mode)	[kW]	0.024	0.024	0.024
	Psb (Power consumption Standby mode)	[kW]	0.014	0.014	0.014
	PCK (Power crankcase heater model)	[kW]	0.000	0.000	0.000
	Qelec (Daily electricity consumption)	[kWh]	/	/	/
	Qfuel (Daily fuel consumption)	[kWh]	/	/	/

Note :

Product fiche data according to energy label directive 2010/30/EC regulation (EU) 811/2013.

Sound power measured according to the EN12102 under conditions of the EN14825.

Details and precautions on installation, maintenance and assembly can be found in the installation and or operation manuals.

Product fiche 7

Heat pump space cooling		Outdoor			
		MHA-V12WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V14WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V16WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	
Indoor unit sound power (*)		Indoor	43	43	43
Average climate low temperature application		dB	59	60	60
Average climate medium temperature application		dB	59	60	60
Prated (declared cooling capacity) @ 35°C		[kW]	10.0	10.0	10.0
Seasonal space cooling efficiency (ηs)		[%]	212.9	212.9	212.9
Annual energy consumption		[kWh]	1 112	1 112	1 112
Prated (declared cooling capacity) @ 35°C		[kW]	10.0	10.0	10.0
Seasonal space cooling efficiency (ηs)		[%]	257.2	257.2	257.2
Annual energy consumption		[kWh]	922	922	922
Part load conditions space cooling : low temperature application@7°C					
(A) condition (35°C)		[kW]	10.15	10.15	10.15
EERd (declared EER)		-	3.07	3.07	3.07
Cdc(degradation coefficient)		-	1.00	1.00	1.00
(B) condition (30°C)		[kW]	7.38	7.38	7.38
EERd (declared EER)		-	4.41	4.41	4.41
Cdc(degradation coefficient)		-	1.00	1.00	1.00
(C) condition (25°C)		[kW]	4.85	4.85	4.85
EERd (declared EER)		-	6.10	6.10	6.10
Cdc(degradation coefficient)		-	0.99	0.99	0.99
(D) condition (20°C)		[kW]	4.91	4.91	4.91
EERd (declared EER)		-	7.71	7.71	7.71
Cdc(degradation coefficient)		-	0.99	0.99	0.99

Product fiche 7

Heat pump space cooling		Outdoor		MHA-V12WD2RN8-E		MHA-V14WD2RN8-E		MHA-V16WD2RN8-E	
		Indoor		HB-A160CGN8-E	HB-A160CD**GN8-E	HB-A160CGN8-E	HB-A160CD**GN8-E	HB-A160CGN8-E	HB-A160CD**GN8-E
Indoor unit sound power (*)			dB	43		43		43	
Outdoor unit sound power (*)			dB	59		60		60	
Average climate low temperature application			dB	59		60		60	
Average climate medium temperature application			dB	59		60		60	
Space cooling 7°C			[kW]	10.0		10.0		10.0	
Prated (declared cooling capacity) @ 35°C			[%]	212.9		212.9		212.9	
Seasonal space cooling efficiency (ηs)			[kWh]	1 112		1 112		1 112	
Annual energy consumption			[kW]	10.0		10.0		10.0	
Space cooling 18°C			[%]	257.2		257.2		257.2	
Prated (declared cooling capacity) @ 35°C			[kWh]	922		922		922	
Seasonal space cooling efficiency (ηs)									
Annual energy consumption									
Part load conditions space cooling : low temperature application@7°C									
(A) condition (35°C)		Pdc (declared cooling capacity)	[kW]	10.15		10.15		10.15	
		EERd (declared EER)	-	3.07		3.07		3.07	
		Cdc(degradation coefficient)	-	1.00		1.00		1.00	
(B) condition (30°C)		Pdc (declared cooling capacity)	[kW]	7.38		7.38		7.38	
		EERd (declared EER)	-	4.41		4.41		4.41	
		Cdc(degradation coefficient)	-	1.00		1.00		1.00	
(C) condition (25°C)		Pdc (declared cooling capacity)	[kW]	4.85		4.85		4.85	
		EERd (declared EER)	-	6.10		6.10		6.10	
		Cdc(degradation coefficient)	-	0.99		0.99		0.99	
(D) condition (20°C)		Pdc (declared cooling capacity)	[kW]	4.91		4.91		4.91	
		EERd (declared EER)	-	7.71		7.71		7.71	
		Cdc(degradation coefficient)	-	0.99		0.99		0.99	

Product fiche 8

Heat pump space cooling

Part load conditions space cooling : medium temperature application@18°C

	Outdoor			
	MHA-V12WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V14WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V16WD2N8-E HB-A160CGN8-E HB-A160CD**GN8-E	
(A) condition (35°C)	[kW]	10.22	10.22	10.22
Pdc (declared cooling capacity)	-	4.29	4.29	4.29
EERd (declared EER)	-	1.00	1.00	1.00
Cdc(degradation coefficient)	[kW]	7.67	7.67	7.67
(B) condition (30°C)	-	4.50	4.50	4.50
Pdc (declared cooling capacity)	-	1.00	1.00	1.00
EERd (declared EER)	[kW]	5.88	5.88	5.88
Cdc(degradation coefficient)	-	8.29	8.29	8.29
(C) condition (25°C)	-	0.99	0.99	0.99
Pdc (declared cooling capacity)	[kW]	5.93	5.93	5.93
EERd (declared EER)	-	8.84	8.84	8.84
Cdc(degradation coefficient)	-	0.99	0.99	0.99
(D) condition (20°C)	-	3 900	3 900	3 900
Pdc (declared cooling capacity)	[kW]	/	/	/
EERd (declared EER)	-	inverter	inverter	inverter
Cdc(degradation coefficient)	-	0.014	0.014	0.014
Pto (Power consumption Thermostat off mode)	[kW]	0.008	0.008	0.008
Psb (Power consumption Standby mode)	[kW]	0.014	0.014	0.014
PCK (Power crankcase heater model)	[kW]	0.000	0.000	0.000
Qelec (Daily electricity consumption)	[kWh/h]	/	/	/
Qfuel (Daily fuel consumption)	[kWh/h]	/	/	/
Air to water unit	[m³/h]	3 900	3 900	3 900
Brine/water to water unit		/	/	/
Rated water/brine flow (outdoor H/E)		inverter	inverter	inverter
Capacity control		0.014	0.014	0.014
Poff (Power consumption Off mode)	[kW]	0.008	0.008	0.008
Pto (Power consumption Thermostat off mode)	[kW]	0.014	0.014	0.014
Psb (Power consumption Standby mode)	[kW]	0.000	0.000	0.000
PCK (Power crankcase heater model)	[kW]	/	/	/
Qelec (Daily electricity consumption)	[kWh/h]	/	/	/
Qfuel (Daily fuel consumption)	[kWh/h]	/	/	/

Note :

Product fiche data according to energy label directive 2010/30/EC regulation (EU) 811/2013.

(*)Sound power measured according to the EN12102 under conditions of the EN14825.

Details and precautions on installation, maintenance and assembly can be found in the installation and or operation manuals.

Product fiche 8

Heat pump space cooling

		Outdoor			
		MHA-V12WD2RN8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V14WD2RN8-E HB-A160CGN8-E HB-A160CD**GN8-E	MHA-V16WD2RN8-E HB-A160CGN8-E HB-A160CD**GN8-E	
Part load conditions space cooling : medium temperature application@18°C					
(A) condition (35°C)	Pdc (declared cooling capacity)	[kW]	10.22	10.22	10.22
	EERd (declared EER)	-	4.29	4.29	4.29
	Cdc(degradation coefficient)	-	1.00	1.00	1.00
(B) condition (30°C)	Pdc (declared cooling capacity)	[kW]	7.67	7.67	7.67
	EERd (declared EER)	-	4.50	4.50	4.50
	Cdc(degradation coefficient)	-	1.00	1.00	1.00
(C) condition (25°C)	Pdc (declared cooling capacity)	[kW]	5.88	5.88	5.88
	EERd (declared EER)	-	8.29	8.29	8.29
	Cdc(degradation coefficient)	-	0.99	0.99	0.99
(D) condition (20°C)	Pdc (declared cooling capacity)	[kW]	5.93	5.93	5.93
	EERd (declared EER)	-	8.84	8.84	8.84
	Cdc(degradation coefficient)	-	0.99	0.99	0.99
Air to water unit	Rated airflow (outdoor)	[m ³ /h]	3 900	3 900	3 900
Brine/water to water unit	Rated water/brine flow (outdoor H/E)		/	/	/
Other	Capacity control	-	inverter	inverter	inverter
	Poff (Power consumption Off mode)	[kW]	0.014	0.014	0.014
	Pto (Power consumption Thermostat off mode)	[kW]	0.008	0.008	0.008
	Psb (Power consumption Standby mode)	[kW]	0.014	0.014	0.014
	PCK (Power crankcase heater model)	[kW]	0.000	0.000	0.000
	Qelec (Daily electricity consumption)	[kWh]	/	/	/
	Qfuel (Daily fuel consumption)	[kWh]	/	/	/

Note :

Product fiche data according to energy label directive 2010/30/EC regulation (EU) 811/2013.

(*)Sound power measured according to the EN12102 under conditions of the EN14825.

Details and precautions on installation, maintenance and assembly can be found in the installation and or operation manuals.

Condition(°C)	Model		Capacity (kW)	Power input (kW)	EER/COP (/)
	Outdoor unit	Indoor unit			
Ambient Temperature: 35/24 Water temperature: 12/7	MHA-V12WD2N8-E	HB-A160CGN8-E	10.0	3.322	3.01
	MHA-V14WD2N8-E	HB-A160CGN8-E	10.0	3.322	3.01
	MHA-V16WD2N8-E	HB-A160CGN8-E	10.0	3.322	3.01
	MHA-V12WD2RN8-E	HB-A160CGN8-E	10.0	3.322	3.01
	MHA-V14WD2RN8-E	HB-A160CGN8-E	10.0	3.322	3.01
	MHA-V16WD2RN8-E	HB-A160CGN8-E	10.0	3.322	3.01
Ambient Temperature: 35/24 Water temperature: 23/18	MHA-V12WD2N8-E	HB-A160CGN8-E	10.0	2.353	4.25
	MHA-V14WD2N8-E	HB-A160CGN8-E	10.0	2.353	4.25
	MHA-V16WD2N8-E	HB-A160CGN8-E	10.0	2.353	4.25
	MHA-V12WD2RN8-E	HB-A160CGN8-E	10.0	2.353	4.25
	MHA-V14WD2RN8-E	HB-A160CGN8-E	10.0	2.353	4.25
	MHA-V16WD2RN8-E	HB-A160CGN8-E	10.0	2.353	4.25
Ambient Temperature: 7/6 Water temperature: 30/35	MHA-V12WD2N8-E	HB-A160CGN8-E	12.1	2.401	5.04
	MHA-V14WD2N8-E	HB-A160CGN8-E	14.0	2.893	4.84
	MHA-V16WD2N8-E	HB-A160CGN8-E	15.5	3.362	4.61
	MHA-V12WD2RN8-E	HB-A160CGN8-E	12.1	2.401	5.04
	MHA-V14WD2RN8-E	HB-A160CGN8-E	14.0	2.893	4.84
	MHA-V16WD2RN8-E	HB-A160CGN8-E	15.5	3.362	4.61
Ambient Temperature: 2/1 Water temperature: 30/35	MHA-V12WD2N8-E	HB-A160CGN8-E	12.1	3.227	3.75
	MHA-V14WD2N8-E	HB-A160CGN8-E	14.0	3.989	3.51
	MHA-V16WD2N8-E	HB-A160CGN8-E	15.5	4.769	3.25
	MHA-V12WD2RN8-E	HB-A160CGN8-E	12.1	3.227	3.75
	MHA-V14WD2RN8-E	HB-A160CGN8-E	14.0	3.989	3.51
	MHA-V16WD2RN8-E	HB-A160CGN8-E	15.5	4.769	3.25
Ambient Temperature: -7/-8 Water temperature: 30/35	MHA-V12WD2N8-E	HB-A160CGN8-E	12.1	3.967	3.05
	MHA-V14WD2N8-E	HB-A160CGN8-E	14.0	4.930	2.84
	MHA-V16WD2N8-E	HB-A160CGN8-E	15.5	5.784	2.68
	MHA-V12WD2RN8-E	HB-A160CGN8-E	12.1	3.967	3.05
	MHA-V14WD2RN8-E	HB-A160CGN8-E	14.0	4.930	2.84
	MHA-V16WD2RN8-E	HB-A160CGN8-E	15.5	5.784	2.68
Ambient Temperature: -15/- Water temperature: 30/35	MHA-V12WD2N8-E	HB-A160CGN8-E	12.1	4.821	2.51
	MHA-V14WD2N8-E	HB-A160CGN8-E	14.0	5.714	2.45
	MHA-V16WD2N8-E	HB-A160CGN8-E	15.5	6.652	2.33
	MHA-V12WD2RN8-E	HB-A160CGN8-E	12.1	4.821	2.51
	MHA-V14WD2RN8-E	HB-A160CGN8-E	14.0	5.714	2.45
	MHA-V16WD2RN8-E	HB-A160CGN8-E	15.5	6.652	2.33

Condition(°C)	Model		Capacity (kW)	Power input (kW)	EER/COP (/)
	Outdoor unit	Indoor unit			
Ambient Temperature: 7/6 Water temperature: 40/45	MHA-V12WD2N8-E	HB-A160CGN8-E	12.1	3.176	3.81
	MHA-V14WD2N8-E	HB-A160CGN8-E	14.0	3.704	3.78
	MHA-V16WD2N8-E	HB-A160CGN8-E	15.5	4.201	3.69
	MHA-V12WD2RN8-E	HB-A160CGN8-E	12.1	3.176	3.81
	MHA-V14WD2RN8-E	HB-A160CGN8-E	14.0	3.704	3.78
	MHA-V16WD2RN8-E	HB-A160CGN8-E	15.5	4.201	3.69
Ambient Temperature: 2/1 Water temperature: 40/45	MHA-V12WD2N8-E	HB-A160CGN8-E	10.9	3.471	3.14
	MHA-V14WD2N8-E	HB-A160CGN8-E	12.1	3.954	3.06
	MHA-V16WD2N8-E	HB-A160CGN8-E	14.0	4.828	2.90
	MHA-V12WD2RN8-E	HB-A160CGN8-E	10.9	3.471	3.14
	MHA-V14WD2RN8-E	HB-A160CGN8-E	12.1	3.954	3.06
	MHA-V16WD2RN8-E	HB-A160CGN8-E	14.0	4.828	2.90
Ambient Temperature: -7/-8 Water temperature: 40/45	MHA-V12WD2N8-E	HB-A160CGN8-E	11.4	4.488	2.54
	MHA-V14WD2N8-E	HB-A160CGN8-E	11.9	4.704	2.53
	MHA-V16WD2N8-E	HB-A160CGN8-E	13.7	5.615	2.44
	MHA-V12WD2RN8-E	HB-A160CGN8-E	11.4	4.488	2.54
	MHA-V14WD2RN8-E	HB-A160CGN8-E	11.9	4.704	2.53
	MHA-V16WD2RN8-E	HB-A160CGN8-E	13.7	5.615	2.44
Ambient Temperature: 7/6 Water temperature: 47/55	MHA-V12WD2N8-E	HB-A160CGN8-E	12.1	4.020	3.01
	MHA-V14WD2N8-E	HB-A160CGN8-E	14.0	4.667	3.00
	MHA-V16WD2N8-E	HB-A160CGN8-E	15.5	5.184	2.99
	MHA-V12WD2RN8-E	HB-A160CGN8-E	12.1	4.020	3.01
	MHA-V14WD2RN8-E	HB-A160CGN8-E	14.0	4.667	3.00
	MHA-V16WD2RN8-E	HB-A160CGN8-E	15.5	5.184	2.99
Ambient Temperature: 2/1 Water temperature: 47/55	MHA-V12WD2N8-E	HB-A160CGN8-E	11.6	4.514	2.57
	MHA-V14WD2N8-E	HB-A160CGN8-E	12.3	4.824	2.55
	MHA-V16WD2N8-E	HB-A160CGN8-E	13.8	5.798	2.38
	MHA-V12WD2RN8-E	HB-A160CGN8-E	11.6	4.514	2.57
	MHA-V14WD2RN8-E	HB-A160CGN8-E	12.3	4.824	2.55
	MHA-V16WD2RN8-E	HB-A160CGN8-E	13.8	5.798	2.38
Ambient Temperature: -7/-8 Water temperature: 47/55	MHA-V12WD2N8-E	HB-A160CGN8-E	11.4	5.377	2.12
	MHA-V14WD2N8-E	HB-A160CGN8-E	11.9	5.613	2.12
	MHA-V16WD2N8-E	HB-A160CGN8-E	13.7	6.462	2.12
	MHA-V12WD2RN8-E	HB-A160CGN8-E	11.4	5.377	2.12
	MHA-V14WD2RN8-E	HB-A160CGN8-E	11.9	5.613	2.12
	MHA-V16WD2RN8-E	HB-A160CGN8-E	13.7	6.462	2.12

Unit type explanation:

1.HB-A160CGN8-E, without back-up heater,

2.HB-A160CD30GN8-E, with 3 kW back-up heater and 1-Phase power source

3.HB-A160CDS60GN8-E, with 6 kW back-up heater and 3-Phase power source

4.HB-A160CDS90GN8-E, with 9 kW back-up heater and 3-Phase power source

Condition(°C)	Model		Capacity (kW)	Power input (kW)	EER/COP (/)
	Outdoor unit	Indoor unit			
Ambient Temperature: 35/24 Water temperature: 12/7	MHA-V12WD2N8-E	HB-A160CD**GN8-E	10.0	3.322	3.01
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	10.0	3.322	3.01
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	10.0	3.322	3.01
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	10.0	3.322	3.01
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	10.0	3.322	3.01
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	10.0	3.322	3.01
Ambient Temperature: 35/24 Water temperature: 23/18	MHA-V12WD2N8-E	HB-A160CD**GN8-E	10.0	2.353	4.25
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	10.0	2.353	4.25
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	10.0	2.353	4.25
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	10.0	2.353	4.25
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	10.0	2.353	4.25
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	10.0	2.353	4.25
Ambient Temperature: 7/6 Water temperature: 30/35	MHA-V12WD2N8-E	HB-A160CD**GN8-E	12.1	2.401	5.04
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	14.0	2.893	4.84
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	15.5	3.362	4.61
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	12.1	2.401	5.04
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	14.0	2.893	4.84
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	15.5	3.362	4.61
Ambient Temperature: 2/1 Water temperature: 30/35	MHA-V12WD2N8-E	HB-A160CD**GN8-E	12.1	3.227	3.75
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	14.0	3.989	3.51
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	15.5	4.769	3.25
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	12.1	3.227	3.75
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	14.0	3.989	3.51
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	15.5	4.769	3.25
Ambient Temperature: -7/-8 Water temperature: 30/35	MHA-V12WD2N8-E	HB-A160CD**GN8-E	12.1	3.967	3.05
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	14.0	4.930	2.84
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	15.5	5.784	2.68
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	12.1	3.967	3.05
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	14.0	4.930	2.84
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	15.5	5.784	2.68
Ambient Temperature: -15/- Water temperature: 30/35	MHA-V12WD2N8-E	HB-A160CD**GN8-E	12.1	4.821	2.51
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	14.0	5.714	2.45
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	15.5	6.652	2.33
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	12.1	4.821	2.51
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	14.0	5.714	2.45
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	15.5	6.652	2.33

Condition(°C)	Model		Capacity (kW)	Power input (kW)	EER/COP (/)
	Outdoor unit	Indoor unit			
Ambient Temperature : 7/6 Water temperature : 40/45	MHA-V12WD2N8-E	HB-A160CD**GN8-E	12.1	3.176	3.81
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	14.0	3.704	3.78
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	15.5	4.201	3.69
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	12.1	3.176	3.81
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	14.0	3.704	3.78
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	15.5	4.201	3.69
Ambient Temperature : 2/1 Water temperature : 40/45	MHA-V12WD2N8-E	HB-A160CD**GN8-E	10.9	3.471	3.14
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	12.1	3.954	3.06
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	14.0	4.828	2.90
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	10.9	3.471	3.14
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	12.1	3.954	3.06
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	14.0	4.828	2.90
Ambient Temperature : -7/-8 Water temperature : 40/45	MHA-V12WD2N8-E	HB-A160CD**GN8-E	11.4	4.488	2.54
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	11.9	4.704	2.53
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	13.7	5.615	2.44
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	11.4	4.488	2.54
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	11.9	4.704	2.53
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	13.7	5.615	2.44
Ambient Temperature : 7/6 Water temperature : 47/55	MHA-V12WD2N8-E	HB-A160CD**GN8-E	12.1	4.020	3.01
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	14.0	4.667	3.00
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	15.5	5.184	2.99
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	12.1	4.020	3.01
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	14.0	4.667	3.00
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	15.5	5.184	2.99
Ambient Temperature : 2/1 Water temperature : 47/55	MHA-V12WD2N8-E	HB-A160CD**GN8-E	11.6	4.514	2.57
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	12.3	4.824	2.55
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	13.8	5.798	2.38
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	11.6	4.514	2.57
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	12.3	4.824	2.55
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	13.8	5.798	2.38
Ambient Temperature : -7/-8 Water temperature : 47/55	MHA-V12WD2N8-E	HB-A160CD**GN8-E	11.4	5.377	2.12
	MHA-V14WD2N8-E	HB-A160CD**GN8-E	11.9	5.613	2.12
	MHA-V16WD2N8-E	HB-A160CD**GN8-E	13.7	6.462	2.12
	MHA-V12WD2RN8-E	HB-A160CD**GN8-E	11.4	5.377	2.12
	MHA-V14WD2RN8-E	HB-A160CD**GN8-E	11.9	5.613	2.12
	MHA-V16WD2RN8-E	HB-A160CD**GN8-E	13.7	6.462	2.12

Unit type explanation:

- 1.HB-A160CGN8-E, without back-up heater,
- 2.HB-A160CD30GN8-E, with 3 kW back-up heater and 1-Phase power source
- 3.HB-A160CDS60GN8-E, with 6 kW back-up heater and 3-Phase power source
- 4.HB-A160CDS90GN8-E, with 9 kW back-up heater and 3-Phase power source

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