



Mammoth®
The Leader In Custom HVAC & Energy Saving



Modular Water to Water Source / Geothermal Heat Pumps (Chillers)

(Top Line Series)



Mammoth®
The Leader In Custom HVAC & Energy Saving



ISO9001

ISO14001

OHSAS18001



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Mammoth dedicates to continuous improvement of products and unit parameters are subject to change without notice.

www.mammothchina.com

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Mammoth (Shanghai) Air Conditioning Ltd.

Mammoth

Mammoth

Unit Features

Compressor

- ◆ Radial and axial double flexible design, more optimized axial floating seal design, lifting efficiency.
- ◆ R410A Refrigerant , high efficiency, long bearing life.
- ◆ Direct drive, greatly reduce with less moving parts, improve the mechanical efficiency
- ◆ Accurate load calculation, built-in seal cover design to reduce operating noise
- ◆ Built in multiple protection to ensure reliable operation of the compressor.



High efficiency heat exchanger

- ◆ Using 316 stainless steel plate.
- ◆ Compact structure, less weight and low pressure drop, high heat transfer efficiency.
- ◆ Patented design of two phase refrigerant distributor, to ensure that the refrigerant in the two-phase area evenly distributed to each flow channel.

Electronic expansion valve

- ◆ The control system automatically calculates the optimal target value and makes a quick response to the dynamic setting.
- ◆ Precise adjustment of refrigerant flow rate according to system load.
- ◆ It is reliable to ensure the high unit operating efficiency at different working condition



Green

- ◆ Utilizing new environmental friendly refrigerant R410A.
- ◆ Good heat transfer performance, no CO₂, PM2.5 emissions, no pollution to the environment.

Controller

- ◆ Touch screen.
- ◆ Utilizing multiple defensive control logic, protect system and compressor.
- ◆ Using PID control logic to control the compressor's loading and unloading, and the electronic expansion valve opening.
- ◆ Designed with even compressor wear time control to extend the compressor lifespan.
- ◆ Available with centralized group control, compatible with BMS connection.
- ◆ Unit designed various protections such as high pressure, low pressure, lack of phase, reverse phase, flow, overload, overheating, antifreeze, high load protection, etc.



Easy to operate

- ◆ Each unit is fully run tested with water at factory before shipping, only water and electrical cable are required to be connected at site
- ◆ New touch screen control, friendly man-machine interface, graphic menu management, intelligent control mode, easy to operate.
- ◆ Automatic microprocessor control, all load adjustments are performed by CPU to realize operating without human intervention.
- ◆ Provide a variety of control functions, alarm and saving information, it is easy for customer to know the unit operation status.

Rich Options

Top Line series offers numerous options to meet customer's different requirements.



Domestic hot water tank



Shower room



Fan coil unit



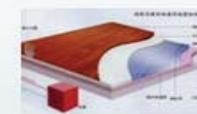
Dishwasher



Multiple applications



Solar heater



Floor heating



Washing machine

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
 MWH050 EHGJH NTNWNNNNC

Basic model segment Main feature segment Minor feature segment

Nomenclature

Basic model segment

1~3	Type		
	MWH	=	Mammoth Modular Water to Water Heat Pump (Chiller)
4~6	Model		Nominal cooling capacity (Ton)
	020	=	20
	030	=	30
	040	=	40
	050	=	50
	060	=	60
	080	=	80
	100	=	100
	120	=	120
	160	=	160

Main feature segment

7	Refrigerant		
	E	=	R410A
8	Application Types		
	C	=	Cooling Only
	S	=	Hot Water Only
	H	=	Heat Pump
9	Working Condition		
	W	=	Water Loop
	G	=	Ground Loop
	U	=	Ground Water
	C	=	Water Cool Only
10	Power Source		
	J	=	3Ph-380V/50Hz
11	Energy Efficiency		
	S	=	Standard
	H	=	High

Minor feature segment

12	Heat Recovery		
	N	=	No
	S	=	Yes
13	Operation Interface		
	T	=	Touch Screen
	B	=	Touch Button
14	Remote Control		
	N	=	No
	R	=	RS485
15	Unit Color		
	W	=	White
16	Hydraulic Module		
	N	=	No
	W	=	Yes
17	Hot water tank		
	N	=	No
	W	=	Yes
18	Damping Type		
	N	=	No
	D	=	Rubber damping pad
	P	=	Rubber damper
19	Report Witness		
	N	=	No
	C	=	Yes
20	Language		
	C	=	Chinese
	E	=	English

Standard Efficiency Water to Water Heat Pump Technical Specification (Water Loop)

Item		Model	MWH020	MWH030	MWH040	MWH050	MWH060	MWH080	MWH100	MWH120	MWH160
Cooling Capacity	kW		71	92.5	124.2	151.7	187.5	241	309.3	382	490.5
Cooling Power Input	kW		16.1	20.6	27.1	33.6	42	53.4	67.2	84	106.8
Heating Capacity	kW		102.8	133.2	177	216.3	268.5	343	436.7	542.1	692.8
Heating Power Input	kW		19.9	25.5	33.8	41.6	51.8	65.2	83.2	103.6	130.4
Load Water	Cooling	Water Flow m ³ /h	12.2	15.9	21.4	26.1	32.3	41.5	53.2	65.7	84.4
		Water Pressure Drop kPa	22	24	30	35	33	32	33	35	41
	Heating	Water Flow m ³ /h	12.2	15.9	21.4	26.1	32.3	41.5	53.2	65.7	84.4
		Water Pressure Drop kPa	22	24	30	35	33	32	33	35	41
Source Water	Cooling	Water Flow m ³ /h	15.3	19.9	26.7	32.6	40.3	51.8	66.5	82.1	105.5
		Water Pressure Drop kPa	32	33	34	40	46	46	44	51	58
	Heating	Water Flow m ³ /h	15.3	19.9	26.7	32.6	40.3	51.8	66.5	82.1	105.5
		Water Pressure Drop kPa	32	33	34	40	46	46	44	51	58
Heat Recovery (Optional)	Heating kW		85	108	145	176.5	218.3	280.5	359.8	445.1	571.2
	Water Flow m ³ /h		14.6	18.6	24.9	30.4	37.5	48.2	61.9	76.6	98.2
	Water Pressure Drop kPa		31	31	34	41	46	46	45	50	56
	Pipe Connection Size		R2"		R2 1/2"		R3"		R2 1/2"		R3"
Compressor	Type	Hermetic Scroll Compressor									
	Power Source	380V/3N ~/50Hz									
	Quantity	2							4	4	4
	Starting Method	Direct Start									
	Maximum Operating Current A	42.8	55.2	72.8	88.6	112.8	145.8	177.2	225.6	291.6	
Control Method	Digital Operating System, Automatically Microprocessor Control										
Protection	High Pressure, Low Pressure, Anti Freezing, Flow										
Pipe Connection Size		R2"		R2 1/2"		R3"		R2 1/2"		R3"	
Refrigerant Charge kg		12	14	18	22	26	30	44	52	60	
Oil Charge L		6.6	7.2	13.4	13.4	14.4	13.4	26.8	28.8	26.8	
Overall Dimensions	Length mm	1100	1100	1290	1290	1550	1550	1290	1550	1550	
	Width mm	850	850	850	850	950	950	1700	1900	1900	
	Height mm	1518	1518	1518	1518	1855	1855	1518	1855	1855	
Shipping Weight kg		475	520	660	730	785	1100	1460	1570	2200	
Operating Weight kg		490	538	680	755	815	1140	1510	1630	2280	

- Notes: 1. Standard unit water side design pressure is 1.0MPa, If any other request on pressure please contact us.
 2. Cooling capacity is based on 30C entering source water and 7C leaving load water;
 Heating capacity is based on 20C entering source water and 45C leaving load water;
 Heating recovery capacity is based on 7C leaving load water and 40C/45C entering/leaving domestic hot water.

Standard Efficiency Water to Water Heat Pump Technical Specification (Geotheram)

Item		Model	MWH020	MWH030	MWH040	MWH050	MWH060	MWH080	MWH100	MWH120	MWH160
Cooling Capacity	kW		76	98	132	160	199	256	327	404	520
Cooling Power Input	kW		14.6	18.8	24.4	30.6	38.1	48	61.2	76.2	96
Heating Capacity	kW		79	101	136.5	167	207	265	341	421	540
Heating Power Input	kW		19.6	24.7	33.5	40.7	51.2	64.8	81.4	102.4	129.6
Load Water	Cooling	Water Flow m ³ /h	13.1	16.9	22.7	27.5	34.2	44.0	56.2	69.5	89.4
		Water Pressure Drop kPa	23	25	31	36	34	33	34	37	43
	Heating	Water Flow m ³ /h	13.1	16.9	22.7	27.5	34.2	44.0	56.2	69.5	89.4
		Water Pressure Drop kPa	23	25	31	36	34	33	34	37	43
Source Water	Cooling	Water Flow m ³ /h	16.3	21.1	28.4	34.4	42.8	55.0	70.3	86.9	111.8
		Water Pressure Drop kPa	32	33	35	41	47	47	46	52	59
	Heating	Water Flow m ³ /h	16.3	21.1	28.4	34.4	42.8	55.0	70.3	86.9	111.8
		Water Pressure Drop kPa	32	33	35	41	47	47	46	52	59
Heat Recovery (Optional)	Heating	kW	85	108	145	176.5	218.3	280.5	359.8	445.1	571.2
	Water Flow	m ³ /h	14.6	18.6	24.9	30.4	37.5	48.2	61.9	76.6	98.2
	Water Pressure Drop	kPa	31	31	34	41	46	46	45	50	56
	Pipe Connection Size		R2"		R2 1/2"		R3"	R2 1/2"		R3"	
Compressor	Type	Hermetic Scroll Compressor									
	Power Source	380V/3N ~/50Hz									
	Quantity	2							4	4	4
	Starting Method	Direct Start									
	Maximum Operating Current A	42.8	55.2	72.8	88.6	112.8	145.8	177.2	225.6	291.6	
Control Method	Digital Operating System, Automatically Microprocessor Control										
Protection	High Pressure, Low Pressure, Anti Freezing, Flow										
Pipe Connection Size		R2"		R2 1/2"		R3"	R2 1/2"		R3"		
Refrigerant Charge	kg	12	14	18	22	26	30	44	52	60	
Oil Charge	L	6.6	7.2	13.4	13.4	14.4	13.4	26.8	28.8	26.8	
Overall Dimensions	Length mm	1100	1100	1290	1290	1550	1550	1290	1550	1550	
	Width mm	850	850	850	850	950	950	1700	1900	1900	
	Height mm	1518	1518	1518	1518	1855	1855	1518	1855	1855	
Shipping Weight	kg	475	520	660	730	785	1100	1460	1570	2200	
Operating Weight	kg	490	538	680	755	815	1140	1510	1630	2280	

- Notes: 1. Standard unit water side design pressure is 1.0MPa, If any other request on pressure please contact us.
 2. Cooling capacity is based on 25 C entering source water and 7 C leaving load water;
 Heating capacity is based on 10 C entering source water and 45 C leaving load water;
 Heating recovery capacity is based on 7 C leaving load water and 40 C/45 C entering/leaving domestic hot water.

Standard Efficiency Water to Water Heat Pump Technical Specification (Ground water)

Item		Model	MWH020	MWH030	MWH040	MWH050	MWH060	MWH080	MWH100	MWH120	MWH160
Cooling Capacity	kW		77	99	133	162	201	258	330	407	525
Cooling Power Input	kW		14.3	18.5	23.9	30	37.4	47	60	74.8	94
Heating Capacity	kW		85	108	145	176.5	218.3	280.5	359.8	445.1	571.2
Heating Power Input	kW		19.7	24.8	33.6	40.8	51.3	65	81.6	102.6	130
Load Water	Cooling	Water Flow m ³ /h	13.2	17.0	22.9	27.9	34.6	44.4	56.8	70.0	90.3
		Water Pressure Drop kPa	23	25	31	36	34	33	34	37	43
	Heating	Water Flow m ³ /h	13.2	17.0	22.9	27.9	34.6	44.4	56.8	70.0	90.3
		Water Pressure Drop kPa	23	25	31	36	34	33	34	37	43
Source Water	Cooling	Water Flow m ³ /h	7.9	10.2	13.7	16.7	20.7	26.6	34.0	41.9	54.1
		Water Pressure Drop kPa	18	20	21	25	27	26	24	27	29
	Heating	Water Flow m ³ /h	7.9	10.2	13.7	16.7	20.7	26.6	34.0	41.9	54.1
		Water Pressure Drop kPa	18	20	21	25	27	26	24	27	29
Heat Recovery (Optional)	Heating	kW	85	108	145	176.5	218.3	280.5	359.8	445.1	571.2
	Water Flow	m ³ /h	14.6	18.6	24.9	30.4	37.5	48.2	61.9	76.6	98.2
	Water Pressure Drop	kPa	31	31	34	41	46	46	45	50	56
	Pipe Connection Size		R2"		R2 1/2"		R3"	R2 1/2"		R3"	
Compressor	Type	Hermetic Scroll Compressor									
	Power Source	380V/3N ~/50Hz									
	Quantity	2							4	4	4
	Starting Method	Direct Start									
	Maximum Operating Current A	42.8	55.2	72.8	88.6	112.8	145.8	177.2	225.6	291.6	
Operation Controller	Digital Operating System, Automatically Microprocessor Control										
Protection	High Pressure, Low Pressure, Anti Freezing, Flow										
Pipe Connection Size		R2"		R2 1/2"		R3"	R2 1/2"		R3"		
Refrigerant Charge	kg	12	14	18	22	26	30	44	52	60	
Oil Charge	L	6.6	7.2	13.4	13.4	14.4	13.4	26.8	28.8	26.8	
Overall Dimensions	Length mm	1100	1100	1290	1290	1550	1550	1290	1550	1550	
	Width mm	850	850	850	850	950	950	1700	1900	1900	
	Height mm	1518	1518	1518	1518	1855	1855	1518	1855	1855	
Shipping Weight	kg	475	520	660	730	785	1100	1460	1570	2200	
Operating Weight	kg	490	538	680	755	815	1140	1510	1630	2280	

- Notes: 1. Standard unit water side design pressure is 1.0MPa, If any other request on pressure please contact us.
 2. Cooling capacity is based on 18 C entering source water and 7 C leaving load water;
 Heating capacity is based on 15 C entering source water and 45 C leaving load water;
 Heating recovery capacity is based on 7 C leaving load water and 40 C/45 C entering/leaving domestic hot water.

High Efficiency Water to Water Heat Pump Technical Specification (Water Loop)

Item		Model	MWH020	MWH030	MWH040	MWH050	MWH060	MWH080	MWH100	MWH120	MWH160
Cooling Capacity	kW		77	100	133.7	164.2	202	260	328.4	404	520
Cooling Power Input	kW		14.6	19.3	25	30.7	39	49	61.4	78	98
Heating Capacity	kW		112.5	145.2	193.2	237.3	295	376.5	474.6	590	753
Heating Power Input	kW		18.5	24.5	32.2	39.5	49.6	61.6	79	99.2	123.2
Load Water	Cooling	Water Flow m ³ /h	13.2	17.2	23.0	28.2	34.7	44.7	56.5	69.5	89.4
		Water Pressure Drop kPa	24	25	32	37	35	33	37	35	33
	Heating	Water Flow m ³ /h	13.2	17.2	23.0	28.2	34.7	44.7	56.5	69.5	89.4
		Water Pressure Drop kPa	24	25	32	37	35	33	37	35	33
Source Water	Cooling	Water Flow m ³ /h	16.6	21.5	28.7	35.3	43.4	55.9	70.6	86.9	111.8
		Water Pressure Drop kPa	33	35	35	42	47	47	42	47	47
	Heating	Water Flow m ³ /h	16.6	21.5	28.7	35.3	43.4	55.9	70.6	86.9	111.8
		Water Pressure Drop kPa	33	35	35	42	47	47	42	47	47
Heat Recovery (Optional)	Heating	kW	85.5	110.7	148	181.2	225	288.8	362.4	450	577.6
	Water Flow	m ³ /h	14.7	19.0	25.5	31.2	38.7	49.7	62.3	77.4	99.3
	Water Pressure Drop	kPa	33	33	35	42	47	46	42	47	46
	Pipe Connection Size		G2		G2 ¹ / ₂		G3	G2 ¹ / ₂		G3	
Compressor	Type	Hermetic Scroll Compressor									
	Power Source	380V/3N ~/50Hz									
	Quantity	2						4	4	4	
	Starting Method	Direct Start									
	Maximum Operating Current A	42.8	55.2	72.8	88.6	112.8	145.8	177.2	225.6	291.6	
Control Method	Digital Operating System, Automatically Microprocessor Control										
Protection	High Pressure, Low Pressure, Anti Freezing, Flow										
Pipe Connection Size	G2		G2 ¹ / ₂		G3	G2 ¹ / ₂		G3			
Refrigerant Charge	kg	12	14	18	22	26	30	44	52	60	
Oil Charge	L	6.6	7.2	13.4	13.4	14.4	13.4	26.8	28.8	26.8	
Overall Dimensions	Length mm	1100	1100	1290	1290	1550	1550	1290	1550	1550	
	Width mm	850	850	850	850	950	950	1700	1900	1900	
	Height mm	1518	1518	1518	1518	1855	1855	1518	1855	1855	
Shipping Weight	kg	475	520	660	730	785	1100	1460	1570	2200	
Operating Weight	kg	490	538	680	755	815	1140	1510	1630	2280	

- Notes: 1. Standard unit water side design pressure is 1.0MPa, if any other request on pressure please contact us.
 2. Cooling capacity is based on 30C entering source water and 7 C leaving load water;
 Heating capacity is based on 20 C entering source water and 45 C leaving load water;
 Heating recovery capacity is based on 7 C leaving load water and 40 C/45 C entering/leaving domestic hot water.

High Efficiency Water to Water Heat Pump Technical Specification (Geothermal)

Item		Model	MWH020	MWH030	MWH040	MWH050	MWH060	MWH080	MWH100	MWH120	MWH160
Cooling Capacity	kW		81	105	140.8	172.8	215	273	345.6	430	546
Cooling Power Input	kW		13.5	17.9	23	28.4	36.3	45	56.8	72.6	90
Heating Capacity	kW		88.2	114.3	152.6	186.7	235	296.8	373.4	470	593.6
Heating Power Input	kW		17.7	23.2	30.8	37.6	47.4	60.2	75.2	94.8	120.4
Load Water	Cooling	Water Flow m ³ /h	13.9	18.1	24.2	29.7	37.0	47.0	59.4	74.0	93.9
		Water Pressure Drop kPa	25	25	33	38	36	34	38	36	38
	Heating	Water Flow m ³ /h	13.9	18.1	24.2	29.7	37.0	47.0	59.4	74.0	93.9
		Water Pressure Drop kPa	25	25	33	38	36	34	38	36	38
Source Water	Cooling	Water Flow m ³ /h	17.4	22.6	30.3	37.2	46.2	58.7	74.3	92.5	117.4
		Water Pressure Drop kPa	34	36	36	44	48	48	44	48	48
	Heating	Water Flow m ³ /h	17.4	22.6	30.3	37.2	46.2	58.7	74.3	92.5	117.4
		Water Pressure Drop kPa	34	36	36	44	48	48	44	48	48
Heat Recovery (Optional)	Heating	kW	85.5	110.7	148	181.2	225	288.8	362.4	450	577.6
	Water Flow	m ³ /h	14.7	19.0	25.5	31.2	38.7	49.7	62.3	77.4	99.3
	Water Pressure Drop	kPa	33	33	35	42	47	46	42	47	46
	Pipe Connection Size		G2		G2 ¹ / ₂		G3	G2 ¹ / ₂		G3	
Compressor	Type	Hermetic Scroll Compressor									
	Power Source	380V/3N ~/50Hz									
	Quantity	2						4	4	4	
	Starting Method	Direct Start									
	Maximum Operating Current A	42.8	55.2	72.8	88.6	112.8	145.8	177.2	225.6	291.6	
Control Method	Digital Operating System, Automatically Microprocessor Control										
Protection	High Pressure, Low Pressure, Anti Freezing, Flow										
Pipe Connection Size	G2		G2 ¹ / ₂		G3	G2 ¹ / ₂		G3			
Refrigerant Charge	kg	12	14	18	22	26	30	44	52	60	
Oil Charge	L	6.6	7.2	13.4	13.4	14.4	13.4	26.8	28.8	26.8	
Overall Dimensions	Length mm	1100	1100	1290	1290	1550	1550	1290	1550	1550	
	Width mm	850	850	850	850	950	950	1700	1900	1900	
	Height mm	1518	1518	1518	1518	1855	1855	1518	1855	1855	
Shipping Weight	kg	475	520	660	730	785	1100	1460	1570	2200	
Operating Weight	kg	490	538	680	755	815	1140	1510	1630	2280	

- Notes: 1. Standard unit water side design pressure is 1.0MPa, if any other request on pressure please contact us.
 2. Cooling capacity is based on 25 C entering source water and 7 C leaving load water;
 Heating capacity is based on 10 C entering source water and 45 C leaving load water;
 Heating recovery capacity is based on 7 C leaving load water and 40 C/45 C entering/leaving domestic hot water.

High Efficiency Water to Water Heat Pump Technical Specification (Ground water)

Item		Model	MWH020	MWH030	MWH040	MWH050	MWH060	MWH080	MWH100	MWH120	MWH160
Cooling Capacity	kW		82.5	107	143.5	176.4	216	278.7	352.8	432	557.4
Cooling Power Input	kW		13	17.2	22.1	27.4	35	42.8	54.8	70	85.6
Heating Capacity	kW		91.2	118	157.7	193	239	306.4	386	478	612.8
Heating Power Input	kW		17.8	23.3	30.9	37.7	47.5	60.3	75.4	95	120.6
Load Water	Cooling	Water Flow m ³ /h	14.2	18.4	24.7	30.3	37.2	47.9	60.7	74.3	95.9
		Water Pressure Drop kPa	25	25	34	38	37	35	38	37	35
	Heating	Water Flow m ³ /h	14.2	18.4	24.7	30.3	37.2	47.9	60.7	74.3	95.9
		Water Pressure Drop kPa	25	25	34	38	37	35	38	37	35
Source Water	Cooling	Water Flow m ³ /h	8.5	11.0	14.8	18.2	22.2	28.7	36.3	44.5	57.4
		Water Pressure Drop kPa	19	21	22	26	28	27	26	28	27
	Heating	Water Flow m ³ /h	8.5	11.0	14.8	18.2	22.2	28.7	36.3	44.5	57.4
		Water Pressure Drop kPa	19	21	22	26	28	27	26	28	27
Heat Recovery (Optional)	Heating	kW	85.5	110.7	148	181.2	225	288.8	362.4	450	577.6
		Water Flow m ³ /h	14.7	19.0	25.5	31.2	38.7	49.7	62.3	77.4	99.3
	Water Pressure Drop kPa		33	33	35	42	47	46	42	47	46
		Pipe Connection Size		G2		G2 1/2		G3	G2 1/2		G3
Compressor	Type	Hermetic Scroll Compressor									
	Power Source	380V/3N ~~/50Hz									
	Quantity	2									
	Starting Method	Direct Start									
	Maximum Operating Current A	42.8	55.2	72.8	88.6	112.8	145.8	177.2	225.6	291.6	
	Control Method	Digital Operating System, Automatically Microprocessor Control									
Protection	High Pressure, Low Pressure, Anti Freezing, Flow										
Pipe Connection Size	G2		G2 1/2		G3	G2 1/2		G3			
Refrigerant Charge	kg	12	14	18	22	26	30	44	52	60	
Oil Charge	L	6.6	7.2	13.4	13.4	14.4	13.4	26.8	28.8	26.8	
Overall Dimensions	Length mm	1100	1100	1290	1290	1550	1550	1290	1550	1550	
	Width mm	850	850	850	850	950	950	1700	1900	1900	
	Height mm	1518	1518	1518	1518	1855	1855	1518	1855	1855	
Shipping Weight	kg	475	520	660	730	785	1100	1460	1570	2200	
Operating Weight	kg	490	538	680	755	815	1140	1510	1630	2280	

Notes: 1. Standard unit water side design pressure is 1.0MPa, If any other request on pressure please contact us.
 2. Cooling capacity is based on 18 C entering source water and 7 C leaving load water;
 Heating capacity is based on 15 C entering source water and 45 C leaving load water;
 Heating recovery capacity is based on 7 C leaving load water and 40 C/45 C entering/leaving domestic hot water.

Standard Efficiency Water to Water Heat Pump Technical Specification (Cooling Only)

Item		Model	MWH020	MWH030	MWH040	MWH050	MWH060	MWH080	MWH100	MWH120	MWH160
Cooling Capacity	kW		71	92.5	124.2	151.7	187.5	241	309.3	382	490.5
Cooling Power Input	kW		16.1	20.6	27.1	33.6	42	53.4	67.2	84	106.8
Load Water	Water Flow m ³ /h		12.2	15.9	21.4	26.1	32.3	41.5	53.2	65.7	84.4
	Water Pressure Drop kPa		22	24	30	35	33	32	33	35	41
Source Water	Water Flow m ³ /h		15.3	19.9	26.7	32.6	40.3	51.8	66.5	82.1	105.5
	Water Pressure Drop kPa		32	33	34	40	46	46	44	51	58
Heat Recovery (Optional)	Heating kW		85	108	145	176.5	218.3	280.5	359.8	445.1	571.2
	Water Flow m ³ /h		14.6	18.6	24.9	30.4	37.5	48.2	61.9	76.6	98.2
	Water Pressure Drop kPa		31	31	34	41	46	46	45	50	56
Pipe Connection Size		R2"		R2 1/2"			R3"	R2 1/2"		R3"	
Compressor	Type	Hermetic Scroll Compressor									
	Power Source	380V/3N ~~/50Hz									
	Quantity	2									
	Starting Method	Direct Start									
Maximum Operating Current A		42.8	55.2	72.8	88.6	112.8	145.8	177.2	225.6	291.6	
Control Method	Digital Operating System, Automatically Microprocessor Control										
Protection	High Pressure, Low Pressure, Anti Freezing, Flow										
Pipe Connection Size	R2"		R2 1/2"			R3"	R2 1/2"		R3"		
Refrigerant Charge	kg	12	14	18	22	26	30	44	52	60	
Oil Charge	L	6.6	7.2	13.4	13.4	14.4	13.4	26.8	28.8	26.8	
Overall Dimensions	Length mm	1100	1100	1290	1290	1550	1550	1290	1550	1550	
	Width mm	850	850	850	850	950	950	1700	1900	1900	
	Height mm	1518	1518	1518	1518	1855	1855	1518	1855	1855	
Shipping Weight	kg	475	520	660	730	785	1100	1460	1570	2200	
Operating Weight	kg	490	538	680	755	815	1140	1510	1630	2280	

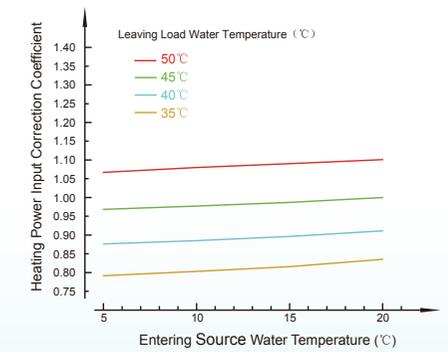
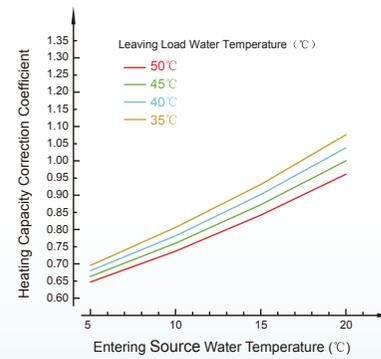
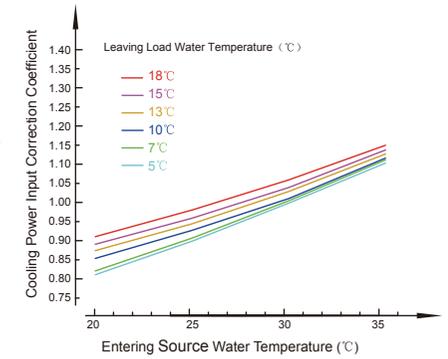
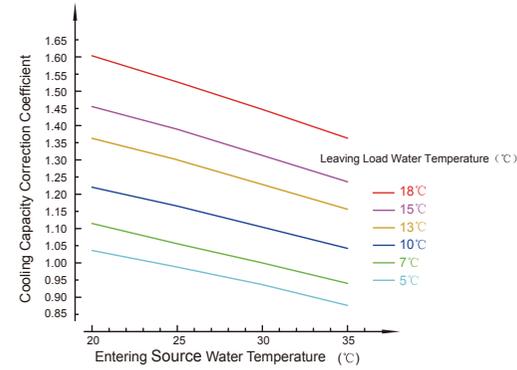
Notes: 1. Standard unit water side design pressure is 1.0MPa, If any other request on pressure please contact us.
 2. Cooling capacity is based on 30 C entering source water and 7 C leaving load water;
 Heating recovery capacity is based on 7 C leaving load water and 40 C/45 C entering/leaving domestic hot water;

High Efficiency Water to Water Heat Pump Technical Specification (Cooling Only)

Item		Model	MWH020	MWH030	MWH040	MWH050	MWH060	MWH080	MWH100	MWH120	MWH160	
Cooling Capacity		kW	77	100	133.7	164.2	202	260	328.4	404	520	
Cooling Power Input		kW	14.6	19.3	25	30.7	39	49	61.4	78	98	
Load Water	Water Flow	m ³ /h	13.2	17.2	23.0	28.2	34.7	44.7	56.5	69.5	89.4	
	Water Pressure Drop	kPa	24	25	32	37	35	33	37	35	33	
Source Water	Water Flow	m ³ /h	16.6	21.5	28.7	35.3	43.4	55.9	70.6	86.9	111.8	
	Water Pressure Drop	kPa	33	35	42	47	47	42	47	47	47	
Heat Recovery (Optional)	Heating	kW	85.5	110.7	148	181.2	225	288.8	362.4	450	577.6	
	Water Flow	m ³ /h	14.7	19.0	25.5	31.2	38.7	49.7	62.3	77.4	99.3	
Pipe Connection Size			G2			G2 ¹ / ₂		G3		G2 ¹ / ₂		G3
Compressor	Type	Hermetic Scroll Compressor										
	Power Source	380V/3N ~/50Hz										
	Quantity	2			4			4		4		
	Starting Method	Direct Start										
Maximum Operating Current A			42.8	55.2	72.8	88.6	112.8	145.8	177.2	225.6	291.6	
Control Method		Digital Operating System, Automatically Microprocessor Control										
Protection		High Pressure, Low Pressure, Anti Freezing, Flow										
Pipe Connection Size			G2		G2 ¹ / ₂		G3	G2 ¹ / ₂		G3		
Refrigerant Charge		kg	12	14	18	22	26	30	44	52	60	
Oil Charge		L	6.6	7.2	13.4	13.4	14.4	13.4	26.8	28.8	26.8	
Overall Dimensions	Length	mm	1100	1100	1290	1290	1550	1550	1290	1550	1550	
	Width	mm	850	850	850	850	950	950	1700	1900	1900	
	Height	mm	1518	1518	1518	1518	1855	1855	1518	1855	1855	
Shipping Weight		kg	475	520	660	730	785	1100	1460	1570	2200	
Operating Weight		kg	490	538	680	755	815	1140	1510	1630	2280	

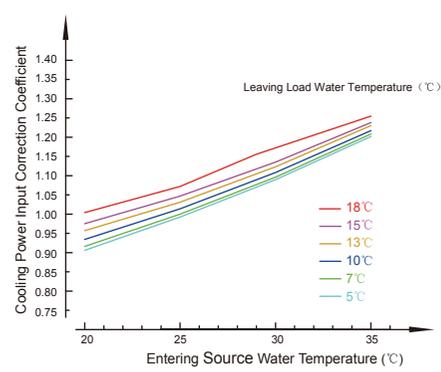
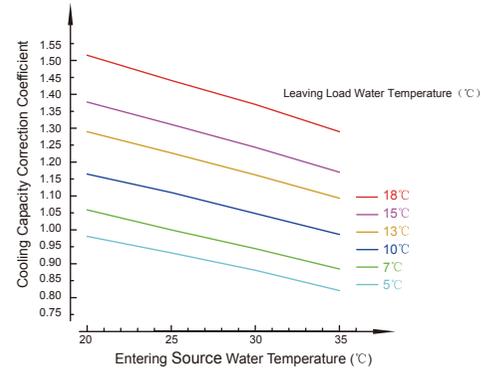
- Notes: 1. Standard unit water side design pressure is 1.0MPa, If any other request on pressure please contact us.
 2. Cooling capacity is based on 30 °C entering source water and 7 °C leaving load water;
 Heating recovery capacity is based on 7 °C leaving load water and 40 °C/45 °C entering/leaving domestic hot water;

Water Loop/Cooling Only Correction Table

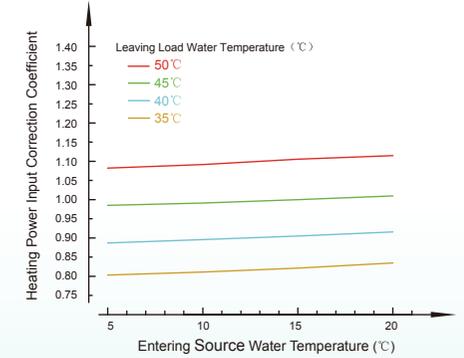
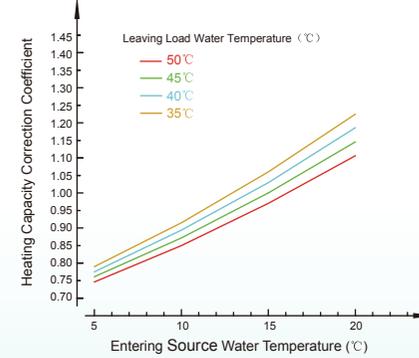
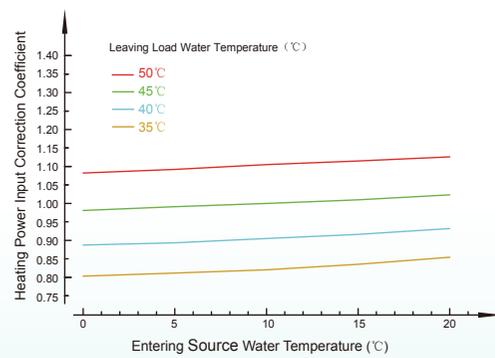
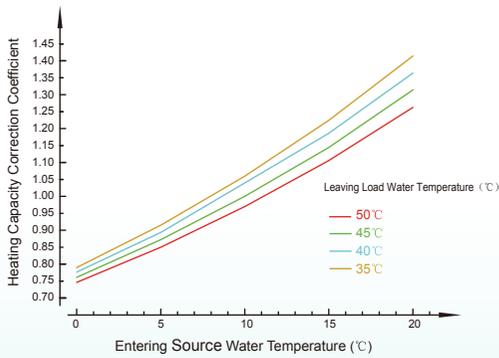
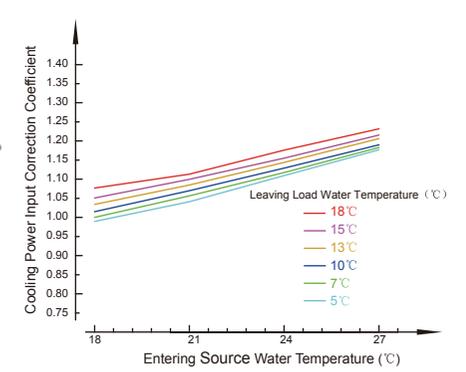
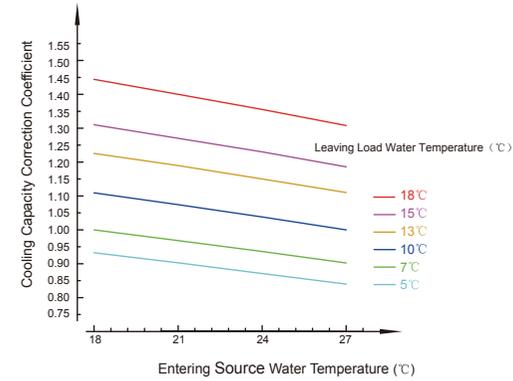


- Notes:
 1. Graph data are for reference only, variable condition parameters will be slightly different for different model;
 2. The unit operation range should be considered when correction is calculated for different working condition, see page 16, table of Operation Limits.

Geothermal Condition Correction Table



Ground Water Condition Correction Table



Notes:

1. Graph data are for reference only, variable condition parameters will be slightly different for different model;
2. The unit operation range should be considered when correction is calculated for different working condition, see page 16, table of Operation Limits.

Notes:

1. Graph data are for reference only, variable condition parameters will be slightly different for different model;
2. The unit operation range should be considered when correction is calculated for different working condition, see page 16, table of Operation Limits.

Antifreeze Correction Factors

Eolubility of ethylene glycol	5%	10%	15%	20%	25%	30%	35%	40%
Ethylene glycol freezing point temperature °C	-1.4	-3.2	-5.4	-7.8	-10.7	-14.1	-17.9	-22.3
Cooling Catacity	0.985	0.965	0.945	0.924	0.903	0.881	0.859	0.837
Heating Capacity	0.978	0.957	0.934	0.912	0.895	0.871	0.843	0.822

Operation Limits

Item \ Model	Cooling	Heating	Domestic hot water
Load side temperature range	Leaving water 5~25°C	Leaving water 20~55°C	Max 55°C
Source side temperature range	Entering water 18~40°C	Entering water 0~30°C	Entering water 0~30°C

- When entering source water is lower than 20°C in cooling mode, use bypass valve to reduce source water flow and to keep leaving source water temperature higher than 25°C.
- When entering source water is ≤2°C, please add th antifreeze into loop water system to protect the system from freezing
- When leaving load water is ≥55°C, please ensure the entering source water is ≥7°C based at rated water flow.
- If unit is outdoor installed, optional electrical heating device should be used to protect the unit from freezing.
- All temperature data above are based on rated water flow.

Water Quality Requirements

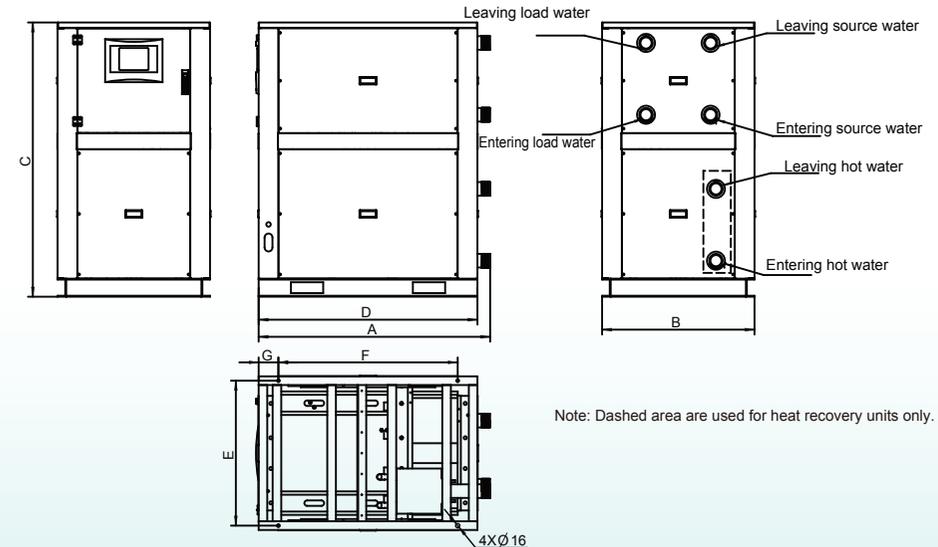
(The circulating water should comply with water quality requirements described in below table.)

Item	Unit	Requirement
PH		7.5-9.0
Turbidity	NTU	≤10
Conductivity(25°C)	μs/cm	≤1600
Cl	mg/L	≤250
Fe	mg/L	≤1
CaCO3	mg/L	≤300
DO	mg/L	≤0.1
Alkalinity(CaCO3)	mg/L	≤200
Phosphates(P)	mg/L	≤1
Organophosphor	mg/L	≤0.5

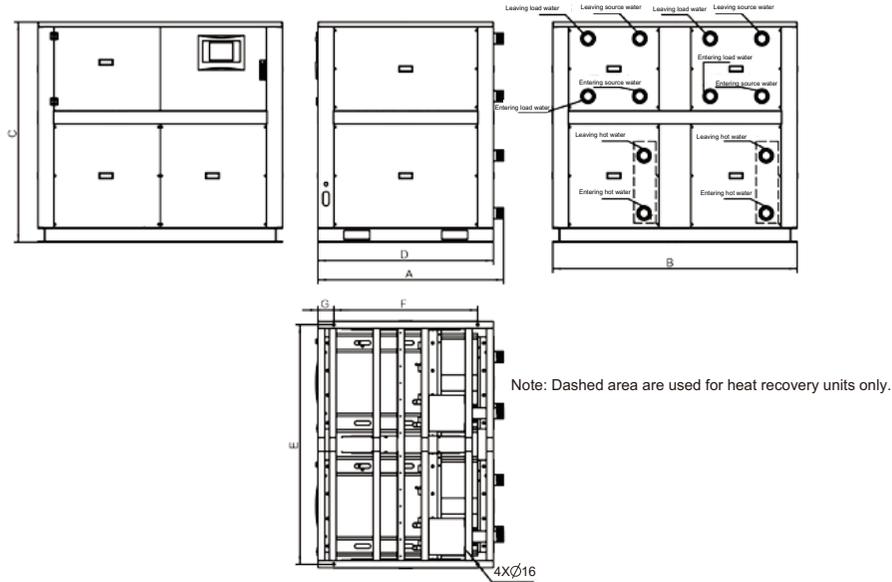
Dimensions

Model	A	B	C	D	E	F	G	Standard Efficiency			High Efficiency		
								Load water	Source water	Hot water	Load water	Source water	Hot water
MWH020	1100	850	1518	1030	802	810	110	R2"	R2"	R2"	G2	G2	G2
MWH030	1100	850	1518	1030	802	810	110	R2"	R2"	R2"	G2	G2	G2
MWH040	1290	850	1518	1220	802	1000	110	R2 1/2"	R2 1/2"	R2 1/2"	G2 1/2"	G2 1/2"	G2 1/2"
MWH050	1290	850	1518	1220	802	1000	110	R2 1/2"	R2 1/2"	R2 1/2"	G2 1/2"	G2 1/2"	G2 1/2"
MWH060	1550	950	1855	1450	902	1230	110	R2 1/2"	R2 1/2"	R2 1/2"	G2 1/2"	G2 1/2"	G2 1/2"
MWH080	1550	950	1855	1450	902	1230	110	R3"	R3"	R3"	G3	G3	G3
MWH100	1290	1700	1518	1220	1652	1100	110	R2 1/2"	R2 1/2"	R2 1/2"	G2 1/2"	G2 1/2"	G2 1/2"
MWH120	1550	1900	1855	1450	1852	1230	110	R2 1/2"	R2 1/2"	R2 1/2"	G2 1/2"	G2 1/2"	G2 1/2"
MWH160	1550	1900	1855	1450	1852	1230	110	R3"	R3"	R3"	G3	G3	G3

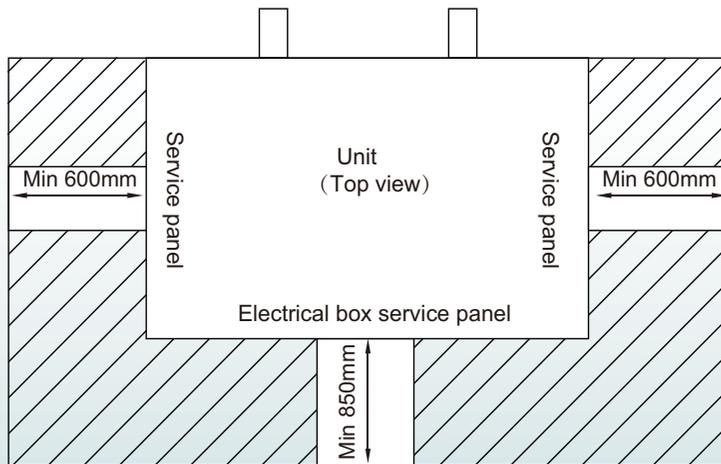
1.MWH020-MWH080



2.MWH100-160

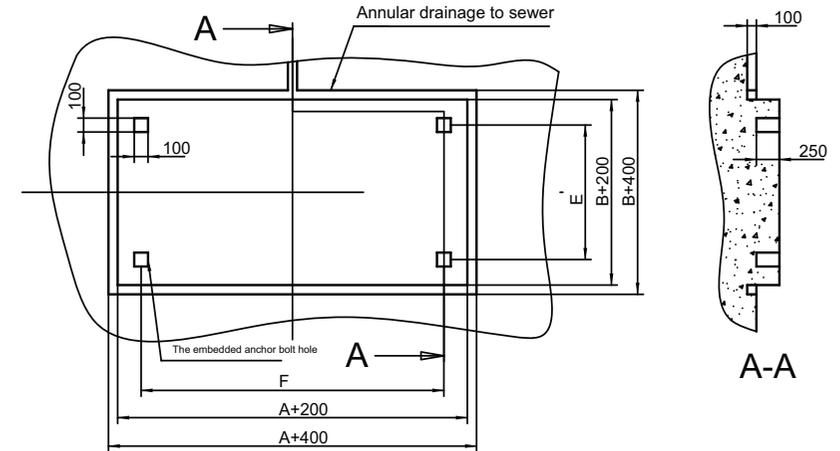


3.Service Clearance



4.Unit Footprint and Foundation

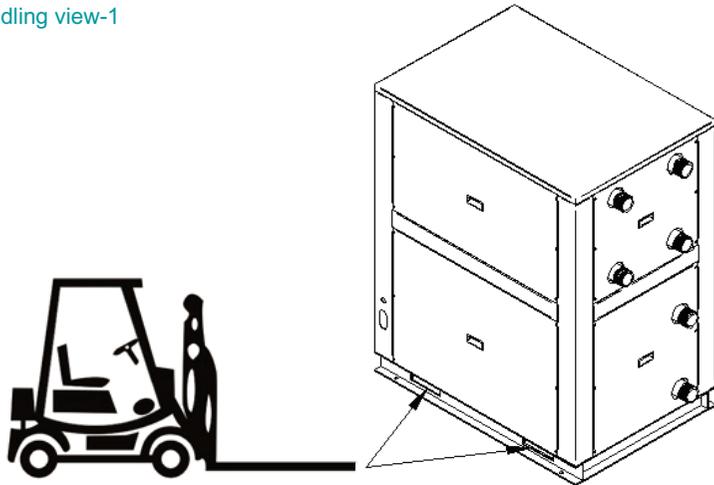
MWH020 - 160



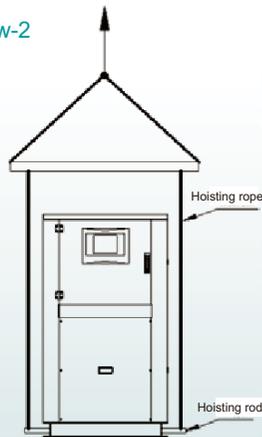
Notes:

1. The position 100x100 is the Preburied hole for M12 bolt.
2. The damping treatment is necessary.
3. Set the drainage ditch if necessary.
4. This foundation is concrete structure

1. Handling view-1



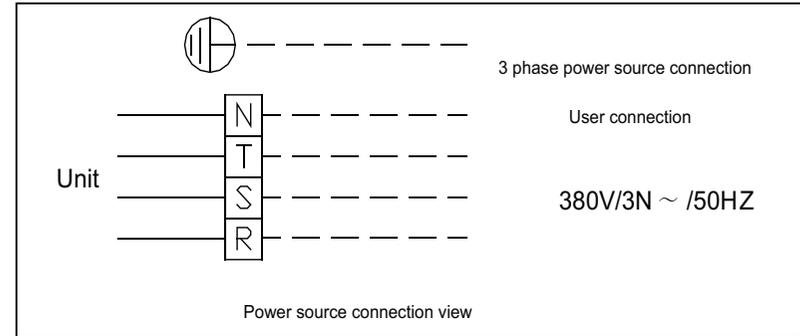
2. Handling view-2



Notes:

1. The unit handling should be performed by qualified personnel.
2. The hoisting rope and rod must be strong enough for the unit weight.
3. When hoisting and moving unit, the professional tools and equipment are necessary.
4. Please use holes in the unit designated for handling.
5. Do not tilt the unit beyond 45° at any time. All internal components are braced from the base of unit. Tilting may compromise the refrigeration piping inside unit and cause refrigerant leaks.

Site Wiring



Water System Diagram

Dashed area are used for heat recovery units only.

