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Beermaster product guide

Your guide to the flexible packaged cooling systems, designed to fully incorporate the demands of the modern cellar cooling industry.

Beer MASTER plus

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Introduction

The Beermaster Range has been the market leader in the packaged cellar cooling system market since its initial launch in 1996. We have developed the range to ensure our product is up-to-date in line with environmental requirements to reflect the current needs of the refrigeration industry.

The Beermaster Plus range from Wolseley Climate is a flexible packaged cooling system, designed to fully incorporate the demands of the modern cellar cooling industry. It is an extensive range of reliable, efficient and service friendly condensing units and evaporators that cater for cooling capacities between 3.4kW and 12.4 kW (10°C cellar temperature with 32°C ambient). In addition sound levels have been minimised throughout the range of BMO condensing units and BMIE evaporators through the introduction of a more efficient fan motor, and there are further options to reduce noise levels in cellars with adjustable speed fans as standard.

Compared to the previous range, the Beermaster Plus range uses a lower GWP refrigerant (R448a), boasts a higher COP and leads to lower operating costs, which makes it the most environmentally friendly unit we have offered.

Where our units are rated for performance, selections are shown for operating temperatures between 4 and 12°C.

Compliance

The Beermaster Plus range has gone through a stringent compliance process to ensure the product conforms to:

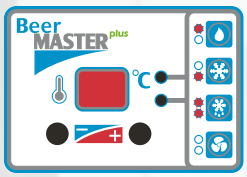
- Machinery Directive
- EMC Directive
- RoHS Directive

Condensing Units Specification

- **Housing:** Fully weatherproof, with powder coat grey gloss finish (RAL7036).
- **Service:** Maximum access for service and maintenance is gained by removing panelling.
- **Compressors:** Copeland ZS Scroll compressors are featured across the range.
- **Liquid Line:** Receiver and sight glass to ensure visual inspection of system health.
- **Controls:** Mains isolator with anti tamper cover. Compressor contactor, adjustable HP/LP switch. Fully wired with enclosed electrical assembly.

Evaporator Specification

- **Construction:** Compact steel chassis design. White, single piece of highly durable ABS front panel, incorporating fan mounting and controls.
- **Drain Tray:** Durable ABS with 3/4" BSP connection. Simple removal for cleaning. Fittings widely available to connect to speedfit, copper, polypipe etc.
- **Electronic Controller:** Mounted in a subassembly with pre-made wiring connections. Incorporates a timed off-cycle defrost regime, which automatically initiates if the optional defrost sensor is fitted. Dead band control for cooling and heating. The controller energises the liquid line solenoid valve to operate on a pump down system. No interconnecting wiring is required between the evaporator and condensing unit. System status indicated by an array of LEDs. The controller now features positive touch control buttons.



- Liquid Line: Filter drier, solenoid valve and thermostatic expansion valve included.
- **Air Heater:** 1.1kW finned air heater for single fan units. 2.2kW for 2 & 3 fan units.
- **Service:** Front panel, drain tray and end panels are fully removable providing full access to unit, without the need to release from the ceiling or wall brackets. Front mounted controller allows access without removing platework.
- **Fansets:** High efficiency EC axial fansets with variable speed options for reduced noise levels during the off cycle. Option to operate twin and three fan models on a single fan during off-cycle or heating mode to reduce energy.

Options and Accessories

- **Defrost sensor (684226):** Required for operation below 8°C.
- **Wall brackets (684222):** Universal wall brackets suitable for both condensing unit and evaporators.
- **Free Air Cooler (684185):** Draws in ambient air below 8°C when available to save energy.

Also Available

Compressor receiver sets with remote condensers for where a suitable location for a condensing unit is not available.

Quick selection guide for typical cellars

Room temperature 10°C above ground

Cellar Volume m³ Up to	Condensing Unit Model	Part Number 1ph	Part Number 3ph	Evaporator Model	Part Number	System Capacity kW
32	BMOP130-1	685160	-	BMIEP-448-37	685170	3.4
46	BMOP150-1	685161	-	BMIEP-448-48	685171	4.3
54	BMOP190-1	685162	-	BMIEP-448-48	685171	4.8
66	BMOP210-1	685163	-	BMIEP-448-48	685171	5.5
70	BMOP210-1	685163	-	BMIEP-448-69	685172	5.7
76	BMOP210-1	685163	-	BMIEP-448-89	685173	6.1
86	BMOP250-1/3	685164	685165	BMIEP-448-89	685173	6.6
128	BMOP320-1/3	685166	685167	BMIEP-448-89	685173	8.9
146	BMOP350-3	-	685168	BMIEP-448-89	675173	9.9
198	BMOP360-3	-	685169	BMIEP-448-133	685175	12.4

Room temperature 10°C below ground

Cellar Volume m³ Up to	Condensing Unit Model	Part Number 1ph	Part Number 3ph	Evaporator Model	Part Number	System Capacity kW
58	BMOP130-1	685160	-	BMIEP-448-37	685170	3.4
80	BMOP150-1	685161	-	BMIEP-448-48	685171	4.3
94	BMOP190-1	685162	-	BMIEP-448-48	685171	4.8
112	BMOP210-1	685163	-	BMIEP-448-48	685171	5.5
118	BMOP210-1	685163	-	BMIEP-448-69	685172	5.7
128	BMOP210-1	685163	-	BMIEP-448-89	685173	6.1
144	BMOP250-1/3	685164	685165	BMIEP-448-89	685173	6.6
208	BMOP320-1/3	685166	685167	BMIEP-448-89	685173	8.9
234	BMOP350-3	-	685168	BMIEP-448-89	675173	9.9
254	BMOP360-3	-	685169	BMIEP-448-133	685175	12.4

Parameters

- **Ambient temperature:** Above ground Cellars 32°C. Below ground Cellars 21°C
- **Insulation:** 1.42 w/m² - equal to an average cellar wall
- **Floor:** Concrete to earth
- **Product loading:** 16 l/m³
- **Product entering temperature:** 25°C maximum
- **Product cooling time:** 24 hours
- **Occupancy and pump load:** 6 w/m²
- **Lighting:** 10 w/m² for 10 hours per day
- **Plant running time:** Up to 19 hours / day

System performance

Single evaporator systems

Cellar Volume m³ Up to	Condensing Unit Model	Balanced Capacity in kW Air On 27°C				Balanced Capacity in Watts Air On 32°C				Balanced Capacity in kW Air On 37°C				ETL COP
		4°C	8°C	10°C	12°C	4°C	8°C	10°C	12°C	4°C	8°C	10°C	12°C	
BMOP130	BMIEP-448-37	2.9	3.3	3.5	3.7	2.8	3.2	3.4	3.6	2.6	3.0	3.2	3.4	3.7
BMOP150	BMIEP-448-48	3.7	4.2	4.5	4.7	3.5	4.0	4.3	4.5	3.4	3.8	4.1	4.3	4.2
BMOP190	BMIEP-448-48	4.1	4.7	5.0	5.3	3.9	4.5	4.8	5.1	3.7	4.2	4.5	4.8	4.1
BMOP210	BMIEP-448-48	4.7	5.3	5.7	6.0	4.5	5.2	5.5	5.8	4.4	4.9	5.2	5.6	4.1
BMOP210	BMIEP-448-69	4.9	5.5	5.9	6.3	4.7	5.4	5.7	6.1	4.5	5.1	5.4	5.8	4.0
BMOP210	BMIEP-448-89	5.2	5.9	6.3	6.7	5.0	5.7	6.1	6.5	4.8	5.5	5.8	6.2	4.1
BMOP250	BMIEP-448-89	5.7	6.5	6.9	7.4	5.5	6.2	6.6	7.1	5.2	5.9	6.3	6.7	4.0
BMOP320	BMIEP-448-89	7.7	8.8	9.3	9.9	7.4	8.4	8.9	9.4	7.0	8.0	8.4	8.9	4.3
BMOP350	BMIEP-448-89	8.6	9.7	10.3	10.9	8.2	9.3	9.9	10.4	7.8	8.8	9.4	9.9	4.6
BMOP360	BMIEP-448-133	10.9	12.3	13.0	13.8	10.4	11.7	12.4	13.2	9.9	11.1	11.8	12.5	4.5

Dual evaporator systems

Cellar Volume m³ Up to	Condensing Unit Model	Balanced Capacity in kW Air On 27°C				Balanced Capacity in Watts Air On 32°C				Balanced Capacity in kW Air On 37°C			
		4°C	8°C	10°C	12°C	4°C	8°C	10°C	12°C	4°C	8°C	10°C	12°C
BMOP210	2 x BMIE-448-37	4.9	5.6	5.9	6.3	4.7	**5.4**	5.7	6.1	4.5	**5.1**	5.5	**5.8**
BMOP250	2 x BMIE-448-37	5.4	6.1	6.5	6.9	5.1	5.8	6.2	6.6	4.9	**5.5**	5.9	**6.3**
BMOP320	2 x BMIE-448-48	7.9	8.9	9.4	10.0	7.5	8.4	8.9	9.5	7.1	**8.0**	8.5	**9.0**
BMOP350	2 x BMIE-448-48	8.7	9.8	10.4	11.1	8.3	9.3	9.9	10.5	7.9	**8.9**	9.4	**10.0**
BMOP360	2 x BMIE-448-69	10.8	12.2	12.9	13.7	10.2	11.5	12.2	12.9	9.7	**11.0**	11.6	**12.3**

Evaporator controllers MUST be linked in accordance with the instructions in the Operating Manual

Blue figures indicate a defrost sensor is required - Part number 684226
Minimum setpoint without the defrost sensor fitted is 8°C
Some systems set for 8°C require a timed off cycle defrost so will need the defrost probe fitted.

Condensing units

Electrical data

Condensing Unit Model	Compressor Data				Fan Data				Total Unit	Fuse/MCB	Minimum Cable Size*	
	Model	Supply	FLC (A)	LRA (A)	No.	Dia (mm)	Power (Watts)	FLC (A)	FLC (A)	Size*	<25m mm^2	>25m <50m mm^2
BMOP130-1	ZS09KAE-PFJ	1ph	12.5	45	1	350	130	0.97	13.5	16	1.5mm^2	2.5mm^2
BMOP150-1	ZS11KAE-PFJ	1ph	14.4	45	1	350	128	0.97	15.4	16	1.5mm^2	2.5mm^2
BMOP190-1	ZS13KAE-PFJ	1ph	15.8	54	1	350	126	0.97	16.8	20	1.5mm^2	2.5mm^2
BMOP210-1	ZS15KAE-PFJ	1ph	19.4	60	1	350	126	0.97	20.4	25	1.5mm^2	4.0mm^2
BMOP250-1	ZS19KAE-PFJ	1ph	22.6	70	1	350	126	0.97	23.6	25	2.5mm^2	4.0mm^2
BMOP250-3	ZS19KAE-TFD	3ph	9.1	28	1	350	126	0.97	9.1	16	1.5mm^2	1.5mm^2
BMOP320-1	ZS21KAE-PFJ	1ph	26.8	83	2	350	256	1.94	11.5	16	2.5mm^2	4.0mm^2
BMOP320-3	ZS21KAE-TFD	3ph	9.7	30	2	350	256	1.94	11.5	16	1.5mm^2	1.5mm^2
BMOP350-3	ZS26KAE-TFD	3ph	9.6	30	2	350	256	1.94	11.5	16	1.5mm^2	1.5mm^2
BMOP360-3	ZS33KAE-TFD	3ph	14.0	43	2	350	252	1.94	15.9	20	2.5mm^2	2.5mm^2

*These values are suggestions for guidance only. Additional site factors may need to be taken into consideration. No allowance has been made for derating and correction factors. If you are in any doubt over the fuse or cable suggestions, please consult a qualified electrician.

Physical and Sound data

Condensing Unit Model	Nominal HP	Weight kg	Dimensions mm				Sound Pressure Levels dB(A) @ 10m		Air Volume m^3/s	
			Width	Depth	Height	Fixing Centres	Air on 20°C	Air on 32°C	Air on 20°C	Air on 32°C
BMOP130	1.3	62	1135	394	566	966 x 364	34.8	39.7	0.66	0.82
BMOP150	1.5	64	1135	394	566	966 x 364	34.8	39.7	0.62	0.78
BMOP190	1.9	65	1135	394	566	966 x 364	34.8	39.7	0.54	0.72
BMOP210	2.1	66	1135	394	566	966 x 364	35.3	39.9	0.54	0.72
BMOP250	2.5	66	1135	394	566	966 x 364	35.3	39.9	0.54	0.72
BMOP320	3.2	96	1135	394	1051	968 x 364	36.9	42.4	1.3	1.6
BMOP350	3.5	96	1135	394	1051	968 x 364	36.9	42.4	1.24	1.56
BMOP360	3.6	106	1135	394	1051	969 x 364	36.9	42.4	1.08	1.45

Sound Pressure levels measured over a single semi-reverberant plane in otherwise free field conditions.

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Evaporators

Physical data

Evaporator Model	Dimensions mm			Weight kg	Connection Sizes		
	Width	Depth	Height		Suction	Liquid	Drain
BMIEP-448-37	740	437	500	25	3/4"	3/8"	3/4" BSP
BMIEP-448-48	740	437	500	29	3/4"	3/8"	3/4" BSP
BMIEP-448-69	1163	437	500	38	3/4"	3/8"	3/4" BSP
BMIEP-448-89	1163	437	500	46	7/8"	3/8"	3/4" BSP
BMIEP-448-133	1588	437	500	62	7/8"	3/8"	3/4" BSP

Electrical data

Evaporator Model	Fan Motor				Heater		Total Unit	Fuse/MCB Size		Minimum Cable Size*	
	Number	Diameter (mm)	Power (Watts) 230V 1ph Max Speed	FLC (A)	Power (Watts) 230V 1ph	FLC (A)	FLC (A)	Motor Rated Fuse Size (A)	Motor Rated MCB Size (A)	<25m mm^2	>25m <50m mm^2
BMIEP-448-37	1	300	84	1	1100	5	5	16	16	1.5	2.5
BMIEP-448-48	1	300	88	1	1100	5	5	16	16	1.5	2.5
BMIEP-448-69	2	300	168	1	2200	10	11	20	20	1.5	2.5
BMIEP-448-89	2	300	176	1	2200	10	11	20	20	1.5	2.5
BMIEP-448-133	3	300	264	2	2200	10	12	20	20	1.5	2.5

Noise and Air movement data

Evaporator Model	ON Cycle (Cooling on)				Economy mode enabled OFF Cycle (Cooling off)				Economy mode disabled OFF Cycle (Cooling off)			
	Default Speed Setting (1600rpm)		Low Speed Setting (1400rpm)		Default Speed Setting (1200rpm)		Low Speed Setting (1000rpm)		Default Speed Setting (1200rpm)		Low Speed Setting (1000rpm)	
	SPL	Airthrow m	SPL	Airthrow m	SPL	Airthrow m	SPL	Airthrow m	SPL	Airthrow m	SPL	Airthrow m
BMIEP-448-37	52	13.2	50	12.1	45	11.6	44	11.0	45	11.6	44	11.0
BMIEP-448-48	52	12	50	11	45	10.5	44	10.0	45	10.5	44	10.0
BMIEP-448-69	55	13.8	54	12.7	45	12.1	44	11.5	49	12.1	47	11.5
BMIEP-448-89	55	12.4	54	11.3	45	10.8	44	10.3	49	10.8	47	10.3
BMIEP-448-133	57	12.7	55	11.7	45	11.1	44	10.6	51	11.1	49	10.6

SPL Sound Pressure level db(A) @ 3m measured over a single semi-reverberant plane in otherwise free field conditions.
Airthrow at ceiling level with terminal velocity 0.25m/s

Notes
Economy Mode is set by default: Only 1 fan is left running when cooling is off (Off cycle). All fans run at all times if disabled.*
Fan speed is reduced during the off cycle.
Default fan speeds are 1600rpm when cooling is on, 1200rpm when cooling is off
To reduce noise levels, fans can be set to Low Speed mode, running at 1400rpm (On Cycle) and 1000rpm (Off Cycle).

*Economy mode should be disabled if the timed off cycle defrost regime is in operation.

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Pipework

Pipework and system charges

Condensing Unit			Evaporator Unit			Cellar Temperatures 8 to 12°C								
Model	Connections		Model	Connections		10m Pipe Run			20m Pipe Run			30m Pipe Run		
	Suction	Liquid		Suction	Liquid	Suction	Liquid	kg	Suction	Liquid	kg	Suction	Liquid	kg
BMOP130	3/4"	3/8"	BMIEP-448-37	3/4"	3/8"	5/8"	3/8"	2.1	5/8"	3/8"	2.7	3/4"	3/8"	3.3
BMOP150	3/4"	3/8"	BMIEP-448-48	3/4"	3/8"	5/8"	3/8"	2.9	3/4"	3/8"	3.5	3/4"	3/8"	4.1
BMOP190	3/4"	3/8"	BMIEP-448-48	3/4"	3/8"	5/8"	3/8"	3.0	3/4"	3/8"	3.6	3/4"	3/8"	4.2
BMOP210	7/8"	1/2"	BMIEP-448-48	3/4"	3/8"	5/8"	3/8"	3.0	3/4"	3/8"	3.6	7/8"	3/8"	4.3
BMOP210	7/8"	1/2"	BMIEP-448-69	3/4"	3/8"	5/8"	3/8"	2.9	3/4"	3/8"	3.5	7/8"	3/8"	4.2
BMOP210	7/8"	1/2"	BMIEP-448-89	7/8"	3/8"	3/4"	3/8"	3.8	3/4"	3/8"	4.4	7/8"	1/2"	6.4
BMOP250	7/8"	1/2"	BMIEP-448-89	7/8"	3/8"	3/4"	3/8"	3.8	3/4"	3/8"	4.4	7/8"	1/2"	6.4
BMOP320	7/8"	1/2"	BMIEP-448-89	7/8"	3/8"	3/4"	3/8"	4.0	7/8"	1/2"	5.5	1.1/8"	1/2"	6.8
BMOP350	7/8"	1/2"	BMIEP-448-89	7/8"	3/8"	7/8"	3/8"	4.2	7/8"	1/2"	5.7	1.1/8"	1/2"	7.0
BMOP360	7/8"	1/2"	BMIEP-448-133	1.1/8"	3/8"	7/8"	1/2"	5.6	1.1/8"	1/2"	6.7	1.1/8"	1/2"	7.9

Pipework should be selected based on the total equivalent run length after allowing for fittings and bends
For equivalent lengths between those shown above, round up to the higher length
R448a system charges approximate and for guidance only. Refrigerant should be added in accordance with normal practise until the liquid sight glass is clear and correct operating pressures evaporator / superheat are achieved
Maximum System PED category assessment CAT I

Accessories

Universal brackets

The Beermaster universal support bracket incorporates an innovative design allowing one solution for both condensing units and evaporators.

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Free Air Cooler

To reduce energy consumption, the Free Cooler can be used when there is an outside wall available. It draws in ambient air when the temperature is at 8°C or below. It comprises a fan, filter, damper, connection spigot, and temperature probes for outside air and cellar temperature. When connected to the dedicated terminals on the evaporator the integrated control strategy ensures that priority is given to free cooling over refrigeration.

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Scan the QR code for product support and technical information on this range.

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