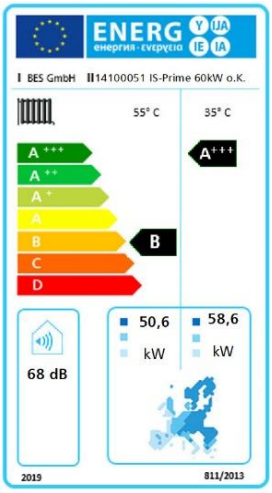
Modular Multi Source Heat Pump

IS-WP PRIME v1.8

Range of application :

- ERS-ground-storage, deep borehole and air cooler
- different sources: air, ERS, ground, water
- performance from 60kW to 480kW
- for heating and cooling
- new construction and refurbishment



- Combination of ERS-technology with solar loading, therefore high use of regenerative energy
- External temperature based comfort control with mixer and domestic hot water control
- With external air modul the IS-WP PRIME can be used as air water heat pump
- Modular expandable, with cascading further performance rise possible
- High performance though inovative heating and cooling technology
- Application range ground in heating from -5 °C to 18 °C
- Can be used individually for different sources
- Up to 60 °C supply temperature in heating
- Long life expectancy though soft starting
- Phase sequencer monitoring integrated
- Fully hermetic compressor heat pump
- Remote monitoring via web portal
- Maintenance-friendly housing
- Extremely silent operation
- Standard motor protection
- Few space required

Seasonal energy efficiency in heating

158 %

Efficiency class A+++

IS-WP PRIME v1.8

	20 kW without cooling*** (28 kW)					20 kW active cooling*** (28 kW)					
Operating point	Heating capacity*	Power consumption (kW)	Current consumption in A	Coefficient of performance (COP/EER)	Refrigeration capacity (kW)	Heating capacity*	Power consumption (kW)	Current in A	Coefficient of performance	Refrigeration capacity (kW)	Cooling capacity (kW)
B0 / W35	19,6	4,2	8,9	4,7	15,4	19,3	4,2	9,1	4,6	15,1	-
B0 / W55	18,0	6,0	12,0	3,0	12,0	17,8	6,1	12,2	2,9	11,7	-
B10 / W35	28,2	4,3	9,0	6,6	23,9	27,9	4,4	9,2	6,3	23,5	-
B10 / W55	25,1	6,8	12,2	3,7	18,3	24,8	6,9	12,4	3,6	17,9	-
B30 / W10						-	4,1	8,9	5,1	-	21,0
B30 / W12						-	4,1	8,9	5,6	-	22,8
B30 / W15						-	4,1	9,0	6,2	-	25,5

Efficiency**

Clime	ηs (%)** 35 °C	ηs (%)** 55 °C	Efficiency class 35	Efficiency class 55	Sound power in dB/(A) (interior)	ηs (%)** 35 °C	ηs (%)** 55 °C	Efficiency class 35	Efficiency class 55	Sound power in dB/(A) (interior)
cold	146%	91 %	A++	A	62 dB/A	143 %	90 %	A++	A	62 dB/A

	30 kW without cooling*** (35 kW)					30 kW active cooling*** (35 kW)					
Operating point	Heating capacity*	Power consumption (kW)	Current consumption in A	Coefficient of performance (COP/EER)	Refrigeration capacity (kW)	Heating capacity*	Power consumption (kW)	Current in A	Coefficient of performance (COP/EER)	Refrigeration capacity (kW)	Cooling capacity (kW)
B0 / W35	25,3	5,6	11,5	4,6	19,7	25,0	5,7	11,8	4,4	19,4	-
B0 / W55	22,1	7,7	13,5	2,9	14,4	21,9	7,9	13,8	2,8	14,0	-
B10 / W35	36,0	5,7	11,6	6,3	30,3	35,6	5,8	11,9	6,1	29,8	-
B10 / W55	31,7	8,7	15,3	3,6	23,0	31,4	8,9	15,6	3,5	22,5	-
B30 / W10						-	5,5	11,5	4,9	-	26,8
B30 / W12						-	5,5	11,5	5,3	-	28,9
B30 / W15						-	5,6	11,6	5,8	-	32,4

Efficiency**

Clime	ηs (%)** 35 °C	ηs (%)** 55 °C	Efficiency class 35	Efficiency class 55	Sound power in dB/(A) (interior)	ηs (%)** 35 °C	ηs (%)** 55 °C	Efficiency class 35	Efficiency class 55	Sound power in dB/(A) (interior)
cold	153%	89 %	A+++	B	63 dB(A)	148 %	89 %	A++	B	63 dB(A)

	40 kW without cooling*** (58kW)					40 kW active cooling*** (58kW)					
Operating point	Heating capacity*	Power consumption (kW)	Current consumption in A	Coefficient of performance (COP/EER)	Refrigeration capacity (kW)	Heating capacity*	Power consumption (kW)	Current in A	Coefficient of performance (COP/EER)	Refrigeration capacity (kW)	Cooling capacity (kW)
B0 / W35	44,3	9,4	21,6	4,7	34,9	43,9	9,7	22,0	4,5	34,2	-
B0 / W55	39,6	13,7	26,0	2,9	25,9	39,2	14,0	26,5	2,8	25,2	-
B10 / W35	63,4	9,8	21,8	6,5	53,6	62,8	10,0	22,3	6,3	52,8	-
B10 / W55	56,2	14,9	27,6	3,8	41,3	55,6	15,2	28,2	3,7	40,4	-
B30 / W10						-	9,8	22,1	4,7	-	46,2
B30 / W12						-	9,9	22,2	5,0	-	49,9
B30 / W15						-	10,0	22,3	5,6	-	55,7

Efficiency**

Clime	ηs (%)** 35 °C	ηs (%)** 55 °C	Efficiency class 35	Efficiency class 55	Sound power in dB/(A) (interior)	ηs (%)** 35 °C	ηs (%)** 55 °C	Efficiency class 35	Efficiency class 55	Sound power in dB/(A) (interior)
cold	144%	88 %	A++	B	67 dB/A	138 %	86 %	A++	B	67 dB/A

	60 kW without cooling*** (80 kW)					60 kW active cooling*** (80 kW)					
Operating point	Heating capacity*	Power consumption (kW)	Current consumption in A	Coefficient of performance (COP/EER)	Refrigeration capacity (kW)	Heating capacity*	Power consumption (kW)	Current in A	Coefficient of performance (COP/EER)	Refrigeration capacity (kW)	Cooling capacity (kW)
B0 / W35	58,6	12,3	22,8	4,8	46,3	58,0	12,6	23,2	4,6	45,4	-
B0 / W55	50,6	18,3	29,8	2,8	32,3	50,1	18,7	30,4	2,7	31,4	-
B10 / W35	82,7	12,4	23,1	6,7	70,3	81,9	12,6	23,5	6,5	69,3	-
B10 / W55	73,0	20,9	33,7	3,5	52,1	72,3	21,3	34,4	3,4	51,0	-
B30 / W10						-	12,7	23,4	4,8	-	60,8
B30 / W12						-	12,7	23,5	5,2	-	65,5
B30 / W15						-	12,6	23,6	5,8	-	73,0

Efficiency**

Clime	ηs (%)** 35 °C	ηs (%)** 55 °C	Efficiency class 35	Efficiency class 55	Sound power in dB/(A) (interior)	ηs (%)** 35 °C	ηs (%)** 55 °C	Efficiency class 35	Efficiency class 55	Sound power in dB/(A) (interior)
cold	158%	89 %	A+++	B	68 dB(A)	153 %	88 %	A+++	B	68 dB(A)

* all output specifications in accordance with DIN 14 511 (GW: B0°C/W35°C, WW: W10°C/W35°C)

** seasonal enegy efficiency in heating with ground/water *** with water/water heat pump apply the data in parentheses

	20 kW w/o C.	20 kW a.C.	30 kW w/o C.	30 kW a.C.	40 kW w/o C.	40 kW a.C.	60 kW w/o.C.	60 kW a.C.
Condenser (heating secundary)								
Type	plate heat exchanger AISI 316							
Recommended flow rate**	3,4 m³/h (4,0 m³/h)		4,4 m³/h (6,2 m³/h)		7,6 m³/h (8,6 m³/h)		10,0 m³/h (14,0 m³/h)	
Pressure loss at nominal volume**	48 mbar (82 mbar)		42 mbar (104 mbar)		55 mbar (106 mbar)		61 mbar (148 mbar)	
Max. operating pressure	30 bar							
Max. temperature	150 °C							
Connections heating	2 x 2" flat sealing							
Max. / min. supply line temperature heating**	60 °C / 5 °C (60°C /10°C)							
Max. / min. supply line temperature cooling**	40 °C / 5 °C (40°C / 10°C)							

Evaporator (source primary)								
Type	plate heat exchanger AISI 316							
Insulation	PVC- and CFC-free							
Recommended flow rate**	4,9 m³/h (6,2 m³/h)		6,4 m³/h (9,6m³/h)		11,1 m³/h (14,3 m³/h)		14,9 m³/h (22,3 m³/h)	
Pressure loss at nominal volume**	112 mbar (135 mbar)		110 mbar (162 mbar)		148 mbar (170 mbar)		155 mbar (220 mbar)	
Max. operating pressure	30 bar							
Max. temperature	150 °C							
Connections source	2 x 2" flat sealing							
Max. / min. source inlet temperature heating**	18 °C / -5 °C (18°C / 5°C)				15 °C / -5 °C (15°C / 5°C)			
Max. / min. source inlet temperature cooling**	40 °C / -5 °C (40°C / 5°C)				40 °C / -5 °C (40°C / 5°C)			
Expansion valve	electronical							

Cooling cycle				
Insulation cooling cycle	PVC- and CFC-free			
Compressor	Scroll			
Refrigerant	R 407 C			
Filling capacity	5,5 kg	8,0 kg	10,0 kg	14,0 kg
Ester oil content (liter)	1,77	3,38	3,38	4,7

Housing/Modulbox								
Dimensions (WxDxH)	800 mm x 800 mm x 800 mm							
Weight	185 kg	190 kg	195 kg	200 kg	254 kg	260 kg	295 kg	300 kg
Material / sound insulation	Arma Sound RD 240							

Electrical date				
Nominal voltage (heat pump)	3 Ph/50 Hz/ 400V			
Compressor startup current (with soft-start)	18 A	20 A	40 A	45 A
Compressor startup current (w/o soft-start)	101 A	110 A	174 A	225 A
Max. compressor operating current	15 A	17 A	34 A	40 A
Motor overload protection	20 A	20 A	42 A	42 A
Fuse protection (compressor)	D 25 A 4-pol.	D 25 A 4-pol.	D 50 A 4-pol.	D 50 A 4-pol.
Fuse protection (controller)	B 16 A - 2-pol.			
Fuse protection (circulation pump, valves)	C 20 A - 4-pol.			
Type of protecction	IP 24			
Supply compressor	5 x 6 mm² flexibel		5 x 10 mm² flexibel	
Supply controller	3 x 2,5 mm² flexible			
Supply circulation pump, valves	5 x 4,0 mm² flexible			

Product-No.	14100021	14110021	14100026	14110026	14100041	14110041	14100051	14110051

* all output specifications in accordance with DIN 14 511 (GW: B0°C/W35°C, WW: W10°C/W35°C)
** with water/water heat pump apply the data in parentheses

	Basic housing	Extension housing	Electrical cabinet housing v1.8
Dimemsions (WxHxD)	800 mm x 2000 mm x 800 mm		800 mm x 2000 mm x 400 mm
Number of doors	1		
Weight*	137 kg	132 kg	124 kg
Material	steel sheet		
Surface	exterior powder coated, structured coating		
Colour	RAL 7016S		
Type of protecction	IP 55		
Included	1x side panel 2000 x 800 mm	--	2x side panels 2000 x 400 mm
Capacity	2 Moduls per housing		max. 8 Moduls in selectable form

Product No.	1400 0328	1400 0329	1400 0350

* w/o heat pump modul, w/o electrical components

Electrical cabinet accessories v1.8	Product No.
E-Modul 2x 20 kW or 2x 30kW	1400 0347
E-Modul 1x 40 kW or 1x 60 kW + 1x 20 kW or 1x 30 kW	1400 0348
E-Modul 2x 40 kW or 2x 60 kW	1400 0349

Accesories for heating and cooling circuits v1.8	Product No.
Up to 3 heating and cooling circuits	1400 0351
From 4 to 6 heating and cooling circuits	1400 0352

BES BuildingEnergySolutions GmbH
Robert-Koch-Str. 50 Tel.: +49 (0) 6131 25 06 17-0 E-Mail: info@bes-eu.com
D-55129 Mainz Fax: +49 (0) 6131 25 06 17-9 www.bes-eu.com