BoxAir 90 Inverter P

High power compact R290 propane unit for commercial and industrial use

Highly efficient air-to-water heat pump with an output up to 50 kW designed for heating and cooling large-scale objects. Ready for cascades with 100+ kW.

R290 propane refrigerant

The use of propane increases efficiency and, consequently, energy savings.

Available from APRIL 2024
Already accepting orders

Total safety

With integral R290 leak detector and automatic shut down of the unit.

High power

BoxAir 90IP offers output up to 50 kW which makes it the most powerful air-to-water unit in Master Therm range.

Cascades require less heat pump units

Higher power of BA90IP reduces a number of heat pumps needed in cascade.

A++(+) Energy efficiency | R290 refrigerant | Heating water temperature up to 75 °C | Ready for cascades from 100 to 1000 kW | Online control & 24/7 remote monitoring

MAIN HEAT PUMP BENEFITS SUMMARY

- High power: most powerful air-to-water heat pump in Master Therm range
- **Better price/performance ratio** compared to R410a BoxAir 60 Inverter
- Promp return of investment
- All-in-one unit – easy installation, no need of any indoor unit
- Integrated MasterLAN sowtware – up to 16 units can be set up and connected to control power cascades of hundreds of kW.

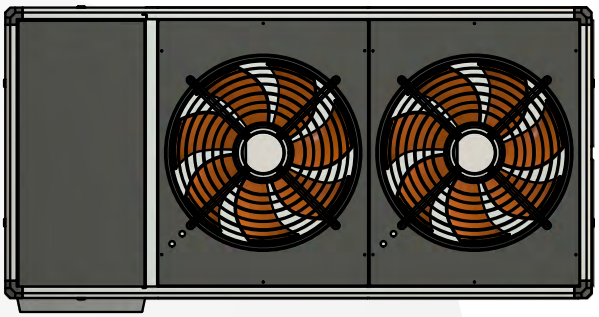
- Perfect for large-scale objects and for commercial or industrial use, e. g. office buildings, production or warehouse halls, schools, hotels, sport facilities 100–1000 kW
- Unique Master Therm software for heat pump control with online application
- 24/7 remote service monitoring and diagnostics
- **Extensive intelligent optional equipment:** internet connection (monitoring and logging), modbus/BMS, integrated MID electric meter or heat meter, communication with PV Inverter and Batteries, smart grid etc.
- Active cooling mode (optional equipment)

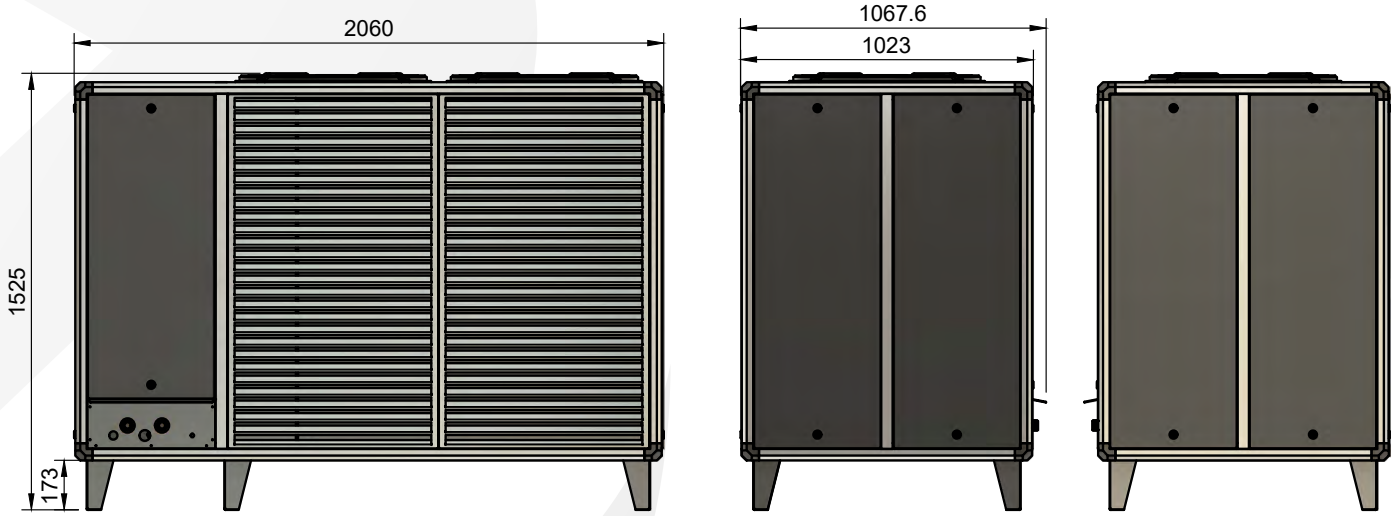
- Built-in heating side circulation pump
- Minimized noise due to ultra-quiet fans with smooth speed control

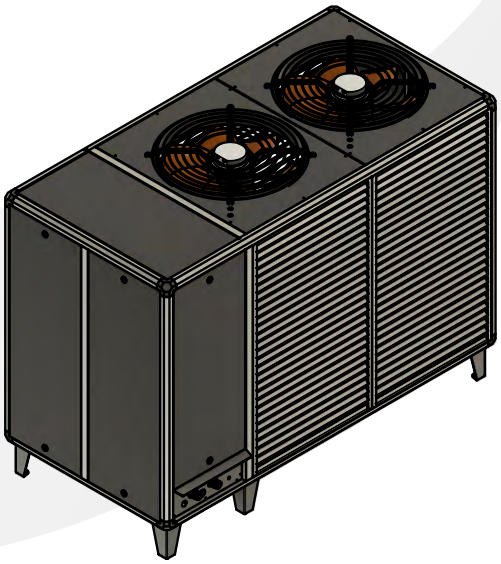
- **Max heating water temperature 75 °C**
- Anti-legionella function from compressor only
- Outdoor temperature range from -20 °C do +40 °C
- **Back-up heater 15 + 15 kW as standard**

Model	Design	Perfor-mance at A7W35	P-Design	Seasonal energy efficiency of heating at a 35 °C low temperature operation		Seasonal energy efficiency of heating at a 55 °C medium temperature operation		Maximum heating/ hot water tempera-ture	Order number (according to heating circuit control) + pricing	
		kW	kW	SCOP	Class	SCOP	Class	°C	Regulation PLUS (pCO5)	EUR
BoxAir 90 Inverter P	compact	12–50	31	4.48	A+++	3.42	A++	75	3BA90IP-1	TBA

Designed for	multiple-circuit heating systems
Main heating circuit	yes
Auxiliary heating circuit	independently 2 incl. mixing
Space temperature	in 2 zones
Hot water treatment	yes
Option	up to 6 heating circuits







MasterTherm HEAT PUMPS

TECHNICAL DATA BA90IP

Performances	rps	60	60	90	120	60	120	120	120
		A7W35	A2W35	A-7W35	A-15W35	A7W55	A7W45	A-3W45	A-3W55
Heating Capacity	kW	25.16	19.55	20.78	22.02	22.81	46.71	29.01	29.06
Cooling Capacity	kW	20.25	14.78	12.96	11.70	15.74	32.65	16.01	14.05
Power In	kW	5.52	5.37	8.63	11.13	7.67	14.86	13.80	15.81
COP	-	4.56	3.64	2.41	1.98	2.97	3.14	2.10	1.84
Operating Current	A	11.4	11.1	17.9	23.0	15.9	25.34	23.5	27.0

COMPRESSOR

Type	BLDC Inverter
Speed	15-120 1/min
Oil RFL68EP	2.51 l
LRC [3]	- A
Max. Op. Current	35 A

EVAPORATOR

Type	Coil
Material	Al/Cu
Heat Transfer Area	84 m^2
Fin Spacing	2 mm
Max Overpressure	4.2 Mpa
Air Flow	max. 15000 m^3/h
Fan Motor	max. 0.7 kW
Fan Diameter	2x630 mm
Speed	max. 900 1/min
Sound Power Level	62 dB"A"
Defrost	reversal

CONDENSER

Type	PHE
Material	AISI316
Water Flow	1.20 kg/s
Minimum Flow	0.60 kg/s
Temp. Difference	5 K
Water Volume	7.0 l
Max. Water Overp.	250 kPa
Max. Ref. Overp.	3.1 MPa
Pump Ext. Head	4.0 m
Pump Motor	310 W

REFRIGERANT CIRCUIT

Refrigerant	R290
Charge	4.0 kg

AUX. HEATER (OPTION)

Heating Capacity	15+(15) kW

CONTROLS

Controller	pCO5
EEV	Yes
Water Probe	Yes
SHW Probe	Yes
Outdoor Probe	Yes
Dynamic Set Point	Yes
Refrigerant Probe	2xPT

POWER SUPPLY

Voltage	3x400 V
Frequence	50 Hz
Max. Current C (H)	40(60) A

CONNECTIONS AND DIMENSIONS

Hot Water	1 "OD
He x Wi x De	168x206x104 cm
Weight	350 kg

LIMITS

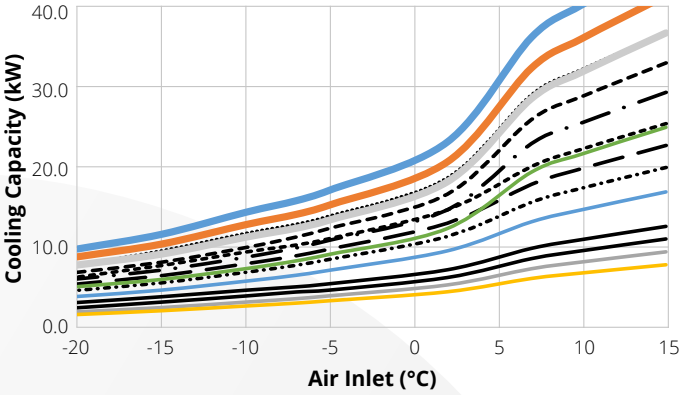
Water Overpressure	0.25 MPa
Ref. Overpressure	3.1 MPa
Air Min/Max	-20/+35 °C
Water Min/Max	20/75 °C

*A2W35, acc. to EN14511, condenser dT=5K
"A2" Air Inlet +2°C
"W35" Water Outlet 35°C
Defrost energy considered.
Refrigerant Circuit Performance Tolerance EN14511

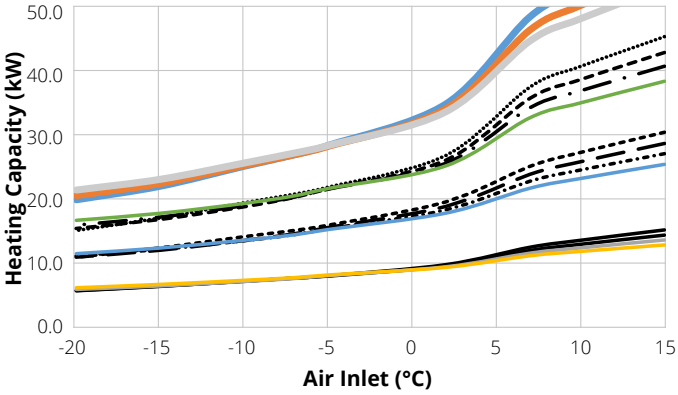
ECODESIGN	35 °C	55 °C
Pdesign	31.02	3.35 kW
SCOP	4.48	3.42 -
ETAs	176	134 %
Rating	A+++	A++

PERFORMANCE *

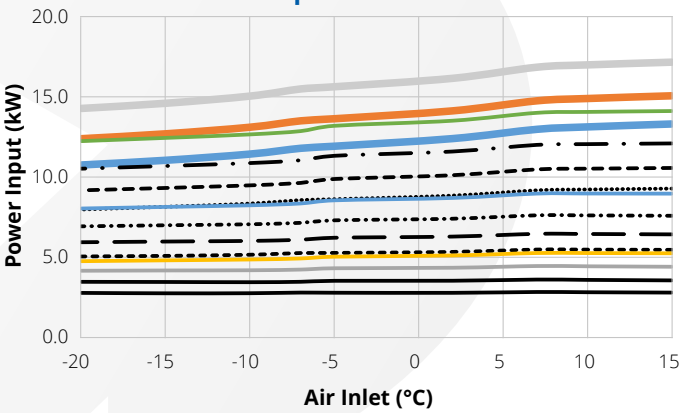
Cooling Capacity Tw=35/45/55/65°C



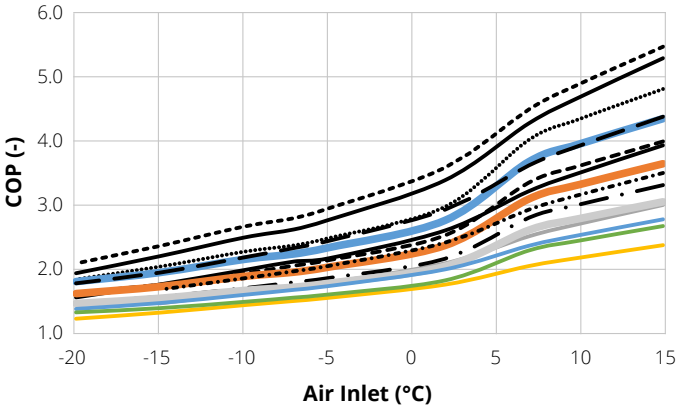
Heating Capacity Tw=35/45/55/65°C



Power Input Tw=35/45/55/65°C



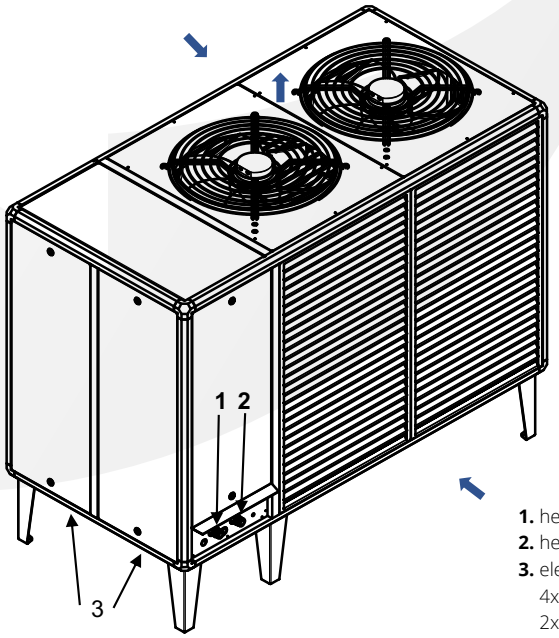
COP Tw=35/45/55/65°C



30rps/35°C 60rps/35°C 90rps/35°C 120rps/ 35°C 30rps/45°C 60rps/45°C 90rps/45°C 120rps/45°C 30rps/55°C 60rps/55°C 90rps/55°C 120rps/55°C 30rps/65°C 60rps/65°C 90rps/65°C

* Performance Tolerance ± 5%, defrost energy included

DIMENSIONS, CONNECTIONS



1. heating outlet 5/4" OD
2. heating inlet 5/4" OD
3. electrical cables bushing
4xPG21
2xPG29

Unit Pressure Drop Condenser