



# Air Source Heating Solutions

Merging Science with Practicality

**B**ERGDORF

# The future concept of heating, today



“Traditional central heating systems exist in homes across the country – delivering on demand heating and hot water. Radical thinking in terms of efficiency, cost and environmental impact will change the way we think about heating and the solutions to address these issues.”

HERMAN SCHREIBER, CEO – BERGDORF™

## Why consider a change?

Fed up with heating bills that leave you wanting to pull out your hair? You've found our website which means that you have already taken your first step towards a cheaper and greener heating future.

The laissez-faire adage that “if it's not broken don't try to fix it”, applies to many things in life. Your central heating system shouldn't be one of them! While it may not be broken it differs little to a leaking car fuel tank left unattended, literally throwing money away unnecessarily to achieve the same level of performance.

Reliant on fossil fuels, central heating systems crave combustibles which are rapidly decreasing due to an ever-rising global demand. This commodity, as a result, has become more valuable and is realised in higher bills for us all. Additionally, as we consider our carbon footprint, many of us are becoming more mindful of the overall impact we place on the environment and the part that we can play to reduce it.

## Thankfully there is a solution.

You can now achieve the same heating performance levels as your existing system while saving yourself money and doing your bit for the environment at the same time!

Bergdorf's renowned Air Source heating systems optimise heating output by harnessing renewable energy resources available in the outside air. This readily available and free energy provides heat for all your needs; warm room air, hot water, underfloor and radiator heating systems – controlled entirely by you. Whatever your motivation, it makes sense to consider technology which lessens the impact either from an economical or an ecological point of view!

### ► DID YOU KNOW?

There's enough heat energy extractable from sub-zero air temperatures to enjoy a hot bath

# Government-backed scheme to go Green

As the U.K Government looks to renew its pledge towards the 1997 Kyoto Agreement, it is committed to supporting efforts made by homeowners to reduce carbon emissions and to encourage improved energy efficiency.

As laid out in June 2010 by Chris Huhne, the former Climate Change Secretary, the 'Green Deal' will create a £90bn benchmark which incentivises homeowners to design more heat efficient homes while the Government works towards targets of greener energy consumption and employment growth. Grants offered of up to £6,500 per household as well as business incentives will undoubtedly make this an attractive offer to be considered.

This has been yet further highlighted by the coalition Government's recent announcement (April 2012) that future home improvements may only be completed if offset by energy efficient charges being made to the property. While this is only in proposal phase - legislation of such as scheme is likely to be inevitable.

In addition to the targets set out by the U.K, the wider EU has adopted its own target of achieving 20% of all energy production from renewable sources by 2020. Set out by the European Renewable Energy Sources (RES) Directive in October 2001, it will monitor ongoing efforts taken by all 15 member states to work towards this goal.

**In the United Kingdom; domestic properties and non-domestic properties account for up to 25% and 17%, respectively, of all Carbon Dioxide (CO<sub>2</sub>) emissions.**

**Of this, in excess of 75% of household CO<sub>2</sub> emissions can be attributed to the use of central heating and hot water systems.**

This level can be reduced dramatically if two heating factors are considered; firstly improved insulation in wall/loft cavities to reduce excessive heat loss but also through the installation of more efficient and environmentally-friendly heating systems, like an Air Source Heat Pump.

With this in mind, tough standards have been set with regards to developing sustainable homes for the future. Although bolt-on amendments have since been made in 2010 to Building Regulations: Part L (1996); there are clear guidelines requiring all public sector properties to achieve 44% improvement to energy efficiency against the target set in 1996, and with private sector properties required to follow suit by 2013. To achieve this, future designs must adopt energy efficient concepts and cost-effective alternative sources of renewable energy.



All our Bergdorf™ Air Source systems deliver optimal energy co-efficiency at a ratio in excess of 3:1 (Heat Gain : Electrical Consumption), with minimal electrical input required to deliver sufficient heat output to meet your hot water/heating needs. Supplied by electricity and harnessing latent heat in the outside air, while CO<sub>2</sub> emissions are greatly reduced through no domestic-based requirement for fossil fuels – air is returned back to the atmosphere as a renewable energy source. This ensures mutual benefits for both you and the environment!

## ► DID YOU KNOW?

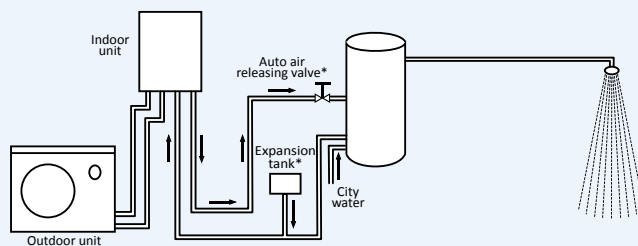
U.K households make up 25% of all Carbon Dioxide emissions

# What is it about Bergdorf Air Source Heat Pumps?

Renewable energy delivering effective & clean heating solutions

## ► Application 1

This installation is for supplying sanitary hot water only.



### \*Expansion tank (5-10L)

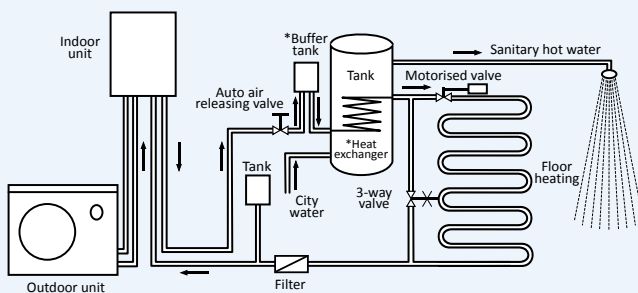
Helps to keep the pressure inside the hot water system.

### \*Auto air releasing valve

Releases air inside the water system automatically.

## ► Application 2

It provides house heating and sanitary hot water at the same time, by using a buffer tank with a heat exchanger inside



### \*Heat Exchanger

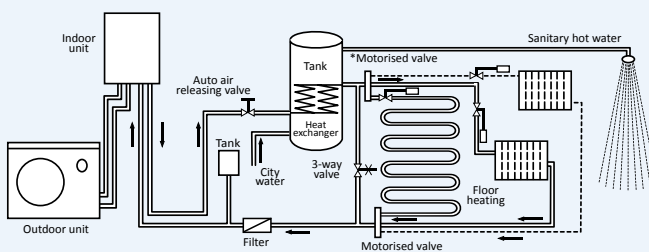
The heat exchanger inside the tank should be over 15m long.

### \*Buffer tank

To keep proper water volume inside the water system.

## ► Application 3

Works together with some motorised valves, for a central house heating and hot water system. One extra water pump is recommended to keep a proper water flow.



### \*Motorised valve

Guides waterflow to different directions and controls the water volume.

## Getting it right over time

The Bergdorf™ manufacturing brand name needs neither introduction nor fanfare. Established in 1982, this is simply manufacturing at its best!

Designed in Germany, we meet the same strict standards of reliability that you come to expect from other reputable German engineering specialists. Bergdorf was originally conceived as a manufacturer and distributor of air conditioning systems however, as demand for our products has grown and technologies have evolved through the years, we have spent heavily in both time and money to help engineer the next generation of heating systems.

We think you will agree, once installed, that our hard work has definitely paid off and will deliver you real long term cost benefits.

## Flexibility

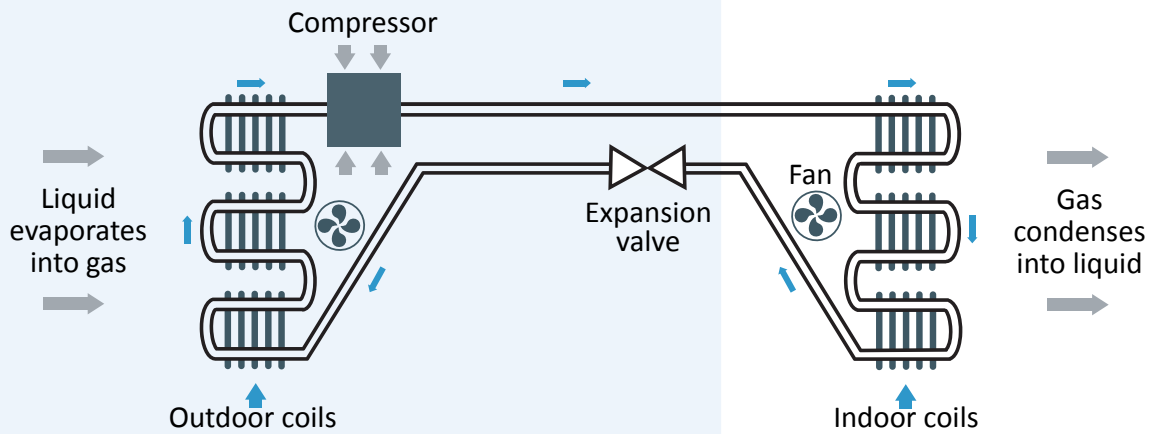
Here at Bergdorf™, we understand that needs differ. Our systems are so versatile that they can be used in a variety of ways to distribute central heating around your property in a way that you require; either as a stand-alone hot water system, as an under floor heating and hot water system, or even as under floor heating/radiators with hot water system.

Which ever way you desire, we offer product solutions to help. Unlike many other manufacturers, we welcome your efforts to be more installation cost-effective which is why we supply the Bergdorf Air Source Heat Pump system as a stand-alone product, to give you freedom and flexibility to design your own unique central heating and hot water system.



# Bergdorf™ Heat Pumps - Facts not Fiction

## ▶ A split-system heat pump heating system



## Where technology compliments science

Bergdorf™ Air Source Heat Pumps deliver outstanding performance - day after day. The efficient way that heat pumps extract latent heat from the outside air is explained quite simply as an air conditioning unit, but in reverse. Easy-to-install and quiet in operation, our products are what you're looking for!

Heat pumps take full advantage of the nature of science. You're sat in a warm car surrounded by cooler outside air. When you open the window, the car begins to cool. This is because heat is drawn from a hot to a cold area across a temperature gradient. Applying this principle, we use super-cooled refrigerant liquid within a heat exchanger to extract the heat energy from the warmer outside air, even at temperatures as low as -15°C, changing the coolant state from liquid to gas. At this point, technology is applied:-

- At the Compressor; this gas becomes pressurised and as a result temperature rises

- At the Condenser; this superheated gas cools to become liquid again, this releases the contained heat energy - which is fed on to the water storage tank
- At the Expansion valve; coolant liquid repeats the cycle by passing across a depressurising zone (converting from liquid to super-cooled gas state) before passing back to the heat exchanger.

## Facts

- Compared to a traditional boiler system, Bergdorf™ Air Source Heat Pumps extract up to 70% of energy acquired to heat water from the outside air. This means that only 30% of this input energy is electrical. This makes our units in excess of 3 times more efficient!
- Bergdorf™ systems WILL reduce energy consumption and thus prove cheaper to run
- Support all your heating options - hot water, under floor and radiator heating
- Will reduce CO<sub>2</sub> emissions by up to 50% preserving long term sustainability and environmental conservation
- Provides an ideal solution for people who live away from a gas-supply network

# Bergdorf™ Air Source Water Heat Pump: Product Range

We supply products that fit in with your needs; whether you live in an apartment or detached property, new build or old.

## Low Temperature (Split System) - new build

Designed for new-build properties. Your home will have been built with heat conservation in mind. Therefore it makes sense that you install a system that recognises this efficiency – by producing hot water at a lower temperature and thus saving you money!

The system is comprised of 2 parts; indoor unit, and an outdoor unit (which can be installed at distances in excess of 50 metres from the indoor unit). A third component, a hot water storage tank – should already be in place and easily connectable to the indoor unit. Heating water up to 50°C, this heated water source may either be used to supply direct hot water to taps/showers and/or to be routed around a low-temperature central heating network; under floor, radiator or a combination of the two.



## High Temperature (Split System) - older build, large space builds

Older and larger styled properties require more heating to achieve the desired temperature, governed by space and less efficient building insulation techniques. Incredibly efficient, it beats a traditional boiler/central heating system hands down for practicality and money saving!

The system is comprised of 2 parts; indoor unit, and an outdoor unit (which can be installed at distances in excess of 50 metres from the indoor unit). A third component, a hot water storage tank – should already be in place and easily connectable to the indoor unit. Heating water up to 80°C, this heated water source may either be used to supply direct hot water to taps/showers and/or to be routed around a low-temperature central heating network; under floor, radiator or a combination of the two.

## Monobloc System - Where space is a commodity

This is an ideal solution for anyone whose lifestyle is governed by limited home space. Although an indoor hot water storage unit will still be required (alike the other systems) – an indoor unit is not required as all of the system components are contained within a full integrated and compact outdoor unit.

Easy-to-install and with simplified connectors for both electrical input and heating output – this is an ideal solution when seeking heating efficiency with smaller bills and greener solutions without the need to compromise on space!



Get in touch with one of our support representatives today for advice - Bergdorf's Air Source Heat Pumps will deliver immediate savings and revolutionise the way you think about 21st Century heating.

[sales@bergdorf.cc](mailto:sales@bergdorf.cc)

[info@bergdorf.cc](mailto:info@bergdorf.cc)

Porscheplatz 26, 70435 Stuttgart, Germany

# Technical information: Bergdorf™ - Domestic Air Conditioning Fixed Speed

<b>Cooling capacity</b>		kW	3.50	4.20	5.30	6.20	7.00	8.2	9.4	13.2
<b>Heating capacity</b>		kW	4.00	5.40	6.20	7.30	7.90	9.1	10.2	13.8
<b>Compressor</b>		Type	BER-12EU	BER-16EU	BER-18EU	BER-21EU	BER-24EU	BER-30EU	BER-36EU	BER-48EU
<b>Refrigerant</b>		R 410 A								
<b>Power Supply</b>		V/Ph/Hz	230/1/50+E							
<b>Power input (cooling / heating)</b>		kW	1.1/1.2	1.3/1.6	1.6/1.7	1.9/2.1	2.2/2.3	2.4/2.5	2.7/2.8	3.6/3.6
<b>EER/COP</b>		w/w	3.2/3.4	3.2/3.4	3.4/3.6	3.2/3.4	3.2/3.4	3.4/3.6	3.4/3.6	3.4/3.6
<b>Fuse Rating</b>		A	16	16	20	20	20	25	25	25
<b>Indoor airflow (high speed)</b>		m <sup>3</sup> /h	660	730	850	1020	1160	1380	1520	1860
<b>Sound Pressure at 1m</b>	Indoor	dB/(A)	29/32/36	32/34/40	35/37/41	36/38/42	37/40/43	38/41/43	38/41/43	38/42/44
	Outdoor	dB/(A)	50	51	53	54	54	56	56	56
<b>Dimensions</b>	Indoor/Outdoor	H (mm)	280/540	280/540	286/695	286/695	330/695	330/695	330/695	330/695
		W (mm)	815/780	815/780	906/845	906/845	1080/845	1080/845	1080/845	1080/845
		D (mm)	195/250	195/250	235/335	235/335	222/235	222/235	222/235	222/235
<b>Net Weight</b>	Indoor unit	kg	10.50	11.00	14	14	17	17	17	17
	Outdoor unit	kg	36	38	57	58	59	60	63	68
<b>Piping</b>	Type of connection	QF								
	Diameter	Gas	1/2"	1/2"	5/8"	5/8"	5/8"	5/8"	5/8"	5/8"
		Liquid	1/4"	1/4"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"
<b>Refrigerant charge (c/o - h/p)</b>		g	830-1150	830-1150	1380-1380	1380-1380	1850-1900	1850-1900	1850-1900	1900-1950
			1080	1480	1660	1720	1880	2020	2420	3150
<b>Max pipe run</b>		m	15	17	18	20	20	30	30	30
<b>Operating limits - cooling mode</b>		min/max	+10°C/+43°C							
<b>Operating limits - heating mode</b>		min/max	-7°C/+28°C							

Normal cooling capacity based on - Indoor Air Temp. 27°C DB / 19°C - Outdoor Air Temp. 35°C DB

Normal heating capacity based on - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length: 7.5m with initial charge



# Technical information: Bergdorf™ - Domestic Air Conditioning Inverter

Model Number			IBF9i	IBF12i	IBF16i	IBF18i	IBF21i	IBF24i	IBF30i	IBF36i	IBF48i
Cooling capacity		kW	2.7	3.5	4.2	5.4	6.3	7.2	8.4	9.5	13.0
Heating capacity		kW	2.9	3.9	4.9	5.8	6.9	7.6	8.8	9.8	13.6
Compressor		Type	Rotary								
Refrigerant		R 410 A									
Power Supply		V/Ph/Hz				230/1/50+E					
Power input (cooling / heating)		kW	0.7/0.7	1.0/1.0	1.2/1.3	1.5/1.5	1.7/1.9	2/2	2.3/2.6	2.6/2.9	3.6/4
EER/COP		w/w	4.0/4.2	3.6/3.8	3.6/3.8	3.6/3.8	3.6/3.6	3.6/3.8	3.6/3.4	3.6/3.4	3.6/3.4
Fuse Rating		A	16	16	16	20	20	20	25	25	25
Indoor airflow (high speed)		m³/h	610	630	710	820	1010	1080	1230	1410	1620
Sound Pressure at 1m	Indoor	dB/(A)	22/29/30	28/30/32	32/34/38	32/36/38	32/36/38	34/38/40	34/38/40	34/38/40	36/40/44
	Outdoor	dB/(A)	42	44	44	44	46	48	50	52	54
Dimensions	Indoor/Outdoor	H (mm)	265/595	265/595	265/595	265/595	265/595	265/595	265/595	265/595	265/595
		W (mm)	790/765	790/765	790/765	790/765	790/765	790/765	790/765	790/765	790/765
		D (mm)	190/275	190/275	190/275	190/275	190/275	190/275	190/275	190/275	190/275
Net Weight	Indoor unit	kg	10	10	10	14	14	16	18	18	18
	Outdoor unit	kg	40	40	40	50	50	60	68	70	72
Piping	Type of connection	QF									
	Diameter	Gas	3/8"	1/2"	1/2"	1/2"	1/2"	3/8"	3/8"	3/8"	3/8"
		Liquid	1/4"	1/4"	1/4"	1/4"	1/4"	5/8"	5/8"	5/8"	5/8"
Refrigerant charge (c/o - h/p)		g	1210	1210	1210	1650	1650	1900	1900	1900	1900
Max pipe run		m	15	15	20	20	20	25	30	30	30
Operating limits - cooling mode		min/max	+10°C/+43°C								
Operating limits - heating mode		min/max	-7°C/+28°C								

Normal cooling capacity based on - Indoor Air Temp. 27°C DB / 19°C - Outdoor Air Temp. 35°C DB

Normal heating capacity based on - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB

Piping length: 7.5m with initial charge

## Technical information: Bergdorf™ - “Blue Fin” technology

Model Number	Sizes	IBF12i	IBF16i	IBF21i	IBF30i	
Cooling capacity	kW	3.5	4.2	6.2	8.2	
Heating capacity	kW	4.0	5.4	7.3	9.1	
Compressor	Type	Rotary				
Refrigerant	R 410 A					
Power Supply	V/Ph/Hz	230/1/50+E				
Power input (cooling / heating)	kW	1.1/1.2	1.3/1.6	1.9/2.1	2.4/2.5	
EER/COP	w/w					
Fuse Rating	A	16	20	20	25	
Indoor airflow (high speed)	m <sup>3</sup> /h					
Sound Pressure at 1m	Indoor	dB/(A)	29/32/36	32/34/40	36/38/42	36/38/42
	Outdoor	dB/(A)	50	51	54	56
Dimensions	Indoor/Outdoor	H (mm)	280/540	280/540	286/695	330/695
		W (mm)	815/780	815/780	906/845	1080/845
		D (mm)	195/250	195/250	235/335	222/335
Net Weight	Indoor unit	kg	10.50	11.00	14.00	17.00
	Outdoor unit	kg	36	38	58	61
Piping	Type of connection					
	Diameter	Gas	1/2"	1/2"	5/8"	5/8"
		Liquid	1/4"	1/4"	3/8"	3/8"
Refrigerant charge (c/o - h/p)	g	830-1150	830-1150	1380-1380	1850-1900	
Max pipe run	m	15	17	20	30	
Operating limits - cooling mode	min/max	+10°C/+43°C				
Operating limits - heating mode	min/max	-10°C/+28°C				
Operating temperature	min/max	+12°C/+32°C				
Normal cooling capacity based on - Indoor Air Temp. 27°C DB / 19°C - Outdoor Air Temp. 35°C DB. Normal heating capacity based on - Indoor Air Temp. 21°C DB - Outdoor Air Temp. 7°C DB/6°C WB. Piping length: 7.5m with initial charge						