



ProEcoPolyNet

ProEcoPolyNet Best practice Sheet

“Detached house Marek”

RTD Project Identification

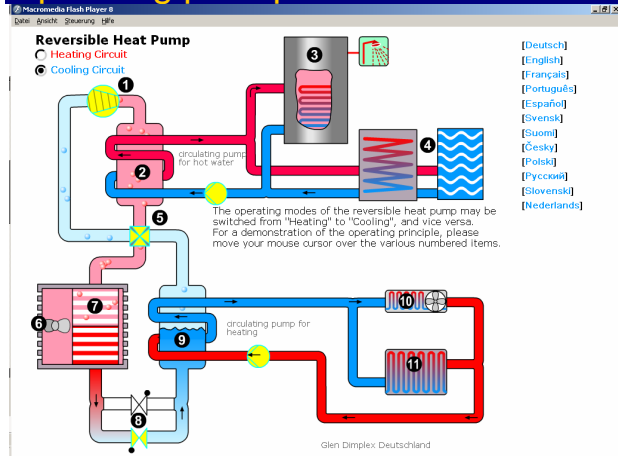
Innovative Air source heat pump for heating and cooling

Description of technology

In Oberkottzau in the north of Bavaria - one of Germany's coldest regions - Dimplex has been demonstrating how outside air can be an efficient heat source for a heat pump. The average outside temperature over any three-day period can drop to -18 °C. A temperature operating limit of between -25 °C and 35 °C ensures Dimplex air-to-water heat pumps can heat at any time.

In Summer, the reversible air-to-water heat pump LA 16ASR can also be used for cooling. By inverting the cooling cycle, the heat pump can produce cold water. The existing underfloor heating system is used for “silent” cooling to keep the additional investment costs at a low level. The heat pump manager takes over complete control of the combined heating and cooling system. To avoid any condensate in the cooling mode, the flow temperature is dew point controlled. By having an additional heat exchanger, the waste heat in the cooling mode can be used for hot water preparation at no additional cost.

Operating principle



See [Reversible Heat Pump” animation](http://www.dimplex.de/en/downloads/animations) download under

<http://www.dimplex.de/en/downloads/animations>

Technical characteristics of installation

- ▶ Reversible air-to-water heat pump
- ▶ Heat output at A+2/W35: 12,8 kW
- ▶ Nominal power consumption: 3,8 kW
- ▶ COP in acc. to EN 255: 3,4
- ▶ Cooling capacity at A35/W18: 14,3 kW
- ▶ Noise emissions in 10m distance: 34 dB(A)
- ▶ Weight: 289 kg

Location and use

- ▶ Private Building
- ▶ Place : D- 95145 Oberkottzau, Germany
- ▶ Heated living area: 270 m²

Capital investment and maintenance costs

- ▶ Capital investment 17650 Euro
- Maintenance 50 Euro / year

State of Development/Market implementation

- ▶ Serial production

Operational data

- Heat demand: 21915 kWh/year for heating and domestic hot water
- Average hours of operation (h/a): 2000h
- Consumption heating and hot water per year: 6440 kWh/a (September-Jun)
- Consumption cooling and hot water per year: 816 kWh/a (July – September)

Contact and further information

Jens Rammensee, product management
Glen Dimplex Deutschland GmbH
Am Goldenen Feld 18
D-95326 Kulmbach
Fon +49 9221 709-103
www.dimplex.de

Date of release of this Best Practice Sheet:
04.10.2007

For the ProEcoPolyNet: Dr. Eleni Konstantinidou,
VDI-GET, ww.vdi.de

Further Technical data LA 16ASR



Reversible air-to-water heat pump with additional heat exchanger (Low temperature)

Set-up / Colour	Outdoors / White aluminium	
Order reference	LA 16ASR	
Maximum flow temperature	55 °C	
Temperature operating limits for air	-20 °C to 35 °C	
Temperature operating limits for cooling	15 °C / 40 °C	
Heat output / COP at A-7/W35*	kW/-	10,60 / 3,00
Heat output / COP at A+2/W35*	kW/-	12,80 / 3,40
Heat output / COP at A+7/W35*	kW/-	15,10 / 3,80
Heat output / COP at A+10/W35*	kW/-	16,70 / 4,10
Cooling capacity / COP at A+27/W18*	kW/-	16,40 / 2,80
Cooling capacity / COP at A+35/W8*	kW/-	11,10 / 2,10
Electrical nominal power consumption at A+2/W35	kW	3,00
Sound power level	db(A)	64
Sound pressure level at a distance of 1 m (air outlet side)	db(A)	51
Refrigerant R404A	kg	5,70
Flow rate (heat source)	m ³ /h	4000
Heating water flow rate with an int. pressure differential of	m ³ /h / Pa	1.4 / 4500
Dimensions (W x D x H)**	mm	1550 x 850 x 1570
Defrosting / type of defrosting	A / --	Reverse cycle
Device connections for heating		1"