Leyhoeve in Tilburg, Netherlands

Sustainable heating of an elderly home with special high temperature heat pump for safe sanitary hot water

Key facts

Building

Location	Tilburg, *Netherlands*
Construction	*2016*
Heat distribution	*in building*
Heated area	*39.650 m² living*
Level of insulation	high

Heat pump and source

Number of heat pumps	6
Installed capacity	600*kW +300 kW*
Operation mode	*monoenergetic*
Heat source	ground source
Brand and type – NRGTeq TNG for space heating and NRGTeq TNG-HT for DHW	
Refrigerant	407C or 134A
Sound level	45*dB*

Heating system

Heat demand	Floorheating
Heating temperature	35 *°C*

Domestic hot water

Type of system	*see overview*
Max. Temperature	*72°C*
Circulation system	High temperature
Legionella measures	none
Storage size	*9000 L*
Number of storage tanks	3
Storage losses	2 degrees
Temperature control	continuously

Other information

Electric energy Consumption year	*kWh*
Investments costs	*unknown*
PV installation	none
Solar thermal	none

Lessons learned

De Leyhoeve is multifamily apartment building created as a place where people feel at home in their old age. A place where they are provided with all the comforts and the facilities they need. The building, where the first residents cam in early 2016, consists of 200 luxury finished rental apartments and 85 intensive care apartments. De Leyhoeve also has several restaurants, a shop, a hairdressing salon and a spacious indoor pool with wellness.

A centrally installed plant supplies heating, cooling and domestic hot water to the apartments, which are individually metered. This applies both to the supply of heat and cold and to the tap water supply. A total of 800 kW of low-temperature heat pumps for heating and cooling have been installed. In addition, there are 300 kW of high temperature heat pumps. These deliver 72°C sanitary hot water continuously on individual delivery sets. All delivery sets of the apartments are linked on the internet. This allows the use to be read remotely and adjusted where necessary.

Leyhoeve in Tilburg, Netherlands, Technical details

Technical installation at Leyhoeve Tilburg

Description of the technical concept

The TNG-HT series heat pumps are equipped with special piston compressors. This allows a higher discharge temperature to be achieved than with scroll and screw compressors.

Scroll compressors can go to about 70 ° C delivery temperature but can only deliver for a very short period. Screw compressors have a maximum discharge temperature of 65 ° C, a higher release temperature can not be achieved. The TNG-HT version can continuously supply up to 72 ° C Cv temperature, even in higher flow rates, with a COP of> 2.7; If the TNG-HT heat pump is equipped with the optional supercooling, the COP is even> 4.5 (depending on the supply temperature source) The HT series is ideal for full-continuous delivery of large quantities of high temperature central heating (tap) water, and also the HT series Ideally used for renovation as there is no need to change the delivery system; radiators and the like can remain seated while the efficiency is higher than a traditional heating installation. The heat pumps from the HT series can also be used to switch off the expensive district heating.

TNG 80 – HT for domestic hot water