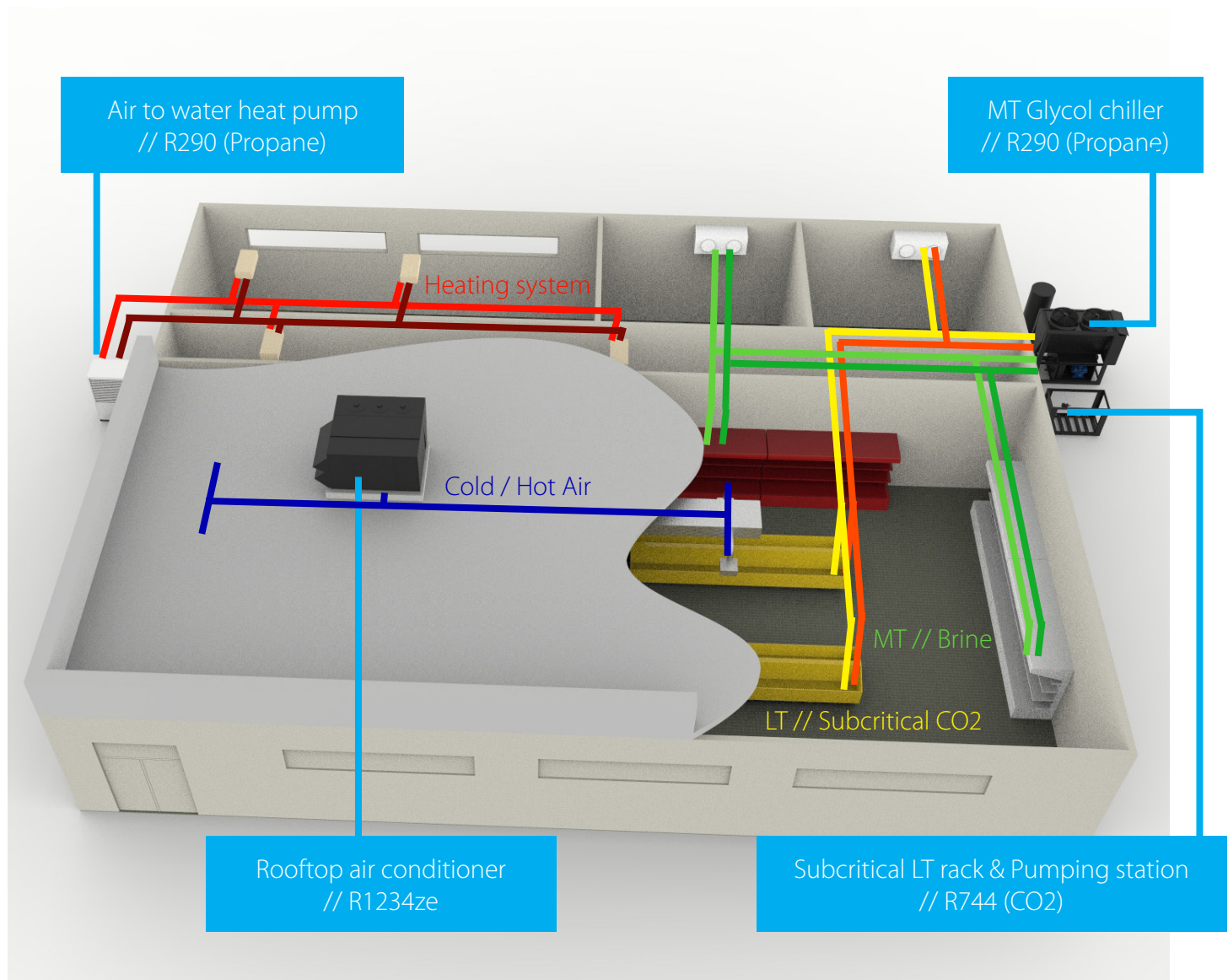




GREEN SUPERMARKET SOLUTIONS

## Our solutions for supermarkets



### // Our offer

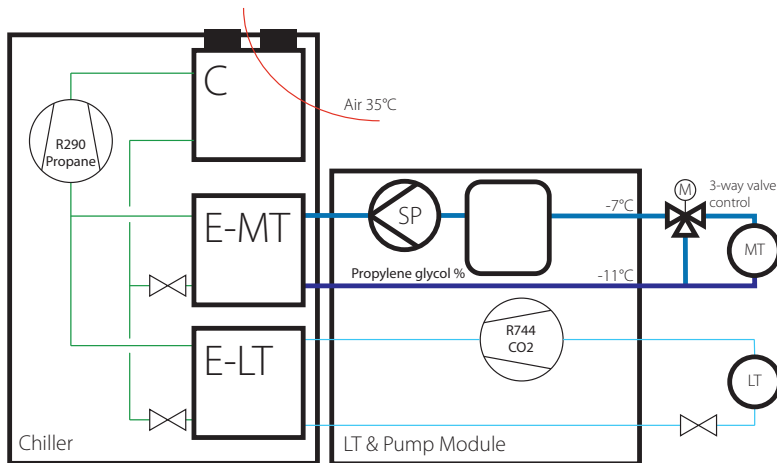
Felzer offers complete Plug-and-Play solutions for medium and low temperature refrigeration, air conditioning and heating in supermarkets based on R290 (Propane), R744 (CO2) and HFO refrigerants. We recommend cascade Propane (R290) / CO2 (R744) / Propylene glycol (E1520). Other solutions are available.

### // Energy efficiency

Our Propane / Subcritical CO2 cascade + Propylene glycol system has 5-7% better EER / COP compare to transcritical CO2 system on the most typical EU design parameters.

## Why cascade Propane (R290) / CO2 (R744) / Propylene glycol (E1520)?

## // How it works?



Medium temperature desks and storages (MT load) are cooled by propylene glycol solution (brine). Brine is pumped in the closed loop between MT load and Felzer AirGREEN brine liquid chiller with R290 (Propane) green refrigerant. MT load increases brine temperature from -11C to -7C and Chiller decreases it from -7C to -11C in the first evaporator (E-MT). And in the second evaporator (E-LT) the same unit condensates CO2 in subcritical low temperature cycle.

Second stage compressors in subcritical CO<sub>2</sub> circuit cools low temperature desks and storages (LT load).

All the system is controlled from single chiller controller. In the basic version propane chiller is installed outdoor and CO2/Pumping module can be installed indoor or outdoor.

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// Features
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## ECO refrigerants and food-grade heat-transfer liquid

Propane (R290) and CO2 (R744) are natural ECO refrigerants. They have global warming potential (GWP) 3 and 1. Old synthetic refrigerants with high GWP (>150) are subject to phase out and will be prohibited in EU. Propylene glycol is a food-grade heat-transfer liquid (has E-number E1520 for food application). So the system is ECO and food safe.

Easy to install and move MT cabinets. No refrigerant piping and brazing in MT.

Using Propylene glycol for medium temperature MT displays (with temperatures around +2C) allows to move you furniture inside the Supermarket with the help of only plumbers using standard water piping. No brazing is required.

Low pressure piping (compare to transcritical CO<sub>2</sub>).

Only low temperature LT piping (for -20C to -32C) contain refrigerant inside the shop building. Operating pressure is only 10 bar and PS is 25 bar. In transcritical CO2 system MT piping has 28bar operating pressure and PS is 45 bar.

// You may also be interested in other Felzer GREEN solutions

## Air-to water and water-to-water heatpumps with R290 Propane



## Rooftops with HFO R1234ze



## Aircooled and watercooled chillers with R290 Propane







Felzer SIA  
Brivibas gatve, 201  
Riga, Latvia, LV-1039  
tel: +371 6788 2102  
mail@felzer.lv  
www.felzer.lv

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