

### Application:

1900m<sup>3</sup> Cold storage (-24°C) for food, ice cream etc.

### Location:

IPPE Ware House, Dysina 297, Dysina u Plzne, Czech Republic

### Equipment:

- Compressor:  
2x Dorin H15001CS piston
- Condenser:  
2x Model FNH-19/52, 19kW, 52m<sup>2</sup> / 2x Goedhart CCD 43407E.  
t<sub>0</sub>= -32°C, t<sub>c</sub>=44°C, Q<sub>0</sub>= 4.4kW (each compressor)

### Description

The system was built new in Q1, 2017 and consists of two independent compressor racks. Each rack uses two identical compressors in parallel and two identical condensers also in parallel. On the cold side, four evaporator racks were installed, two evaporators per compressor rack. In order to make a clear performance comparison, one compressor / condenser / evaporator rack system was installed using refrigerant R-507, the other with Daikin's Creard R-407H. Both racks are operating in parallel and are of exactly the same design.

There were no special steps needed for the R-407H system. The system was simply filled in the same, standard way as the R-507 system – the only minor exception was that a smaller TXV nozzle was used for the R-407H unit.

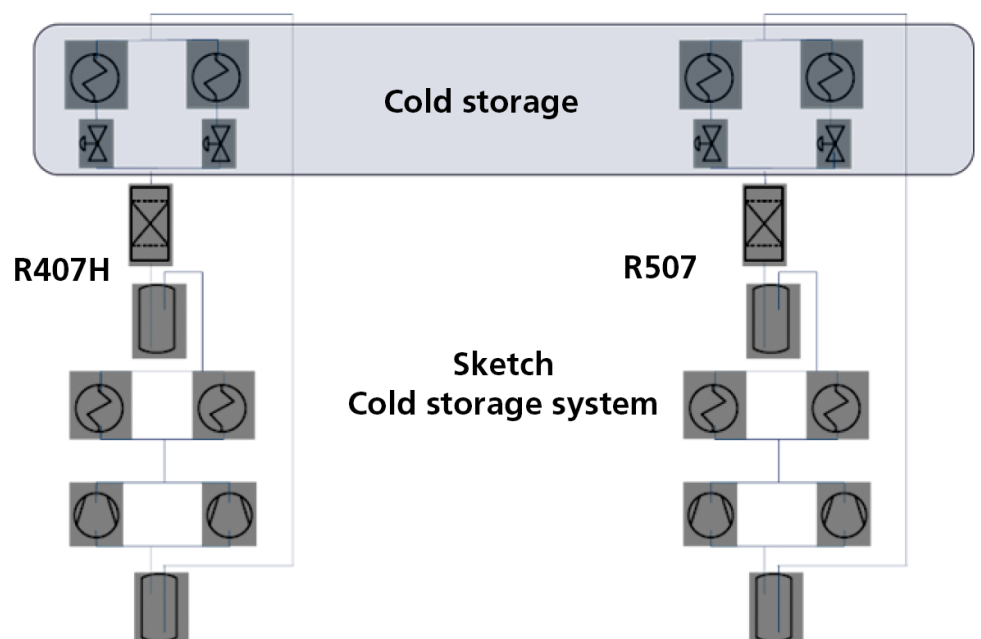


Fig.1: Sketch of the cold storage system



Fig.2: Compressor / condenser racks

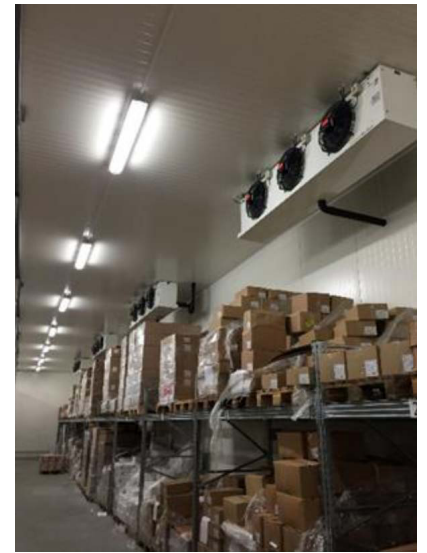


Fig.3: Evaporators / inside cold storage

## Results

- The R-407H system achieved 7% higher COP vs. R-507 while the capacity per compressor was increased from 3.2kW (R-507) to 4.4kW (R-407H).
- The discharge temperatures were increased from 89.9°C (R-507) to 109.9°C (R-407H).

## Project partners

Friza spol s r.o., Kladno; KOVOSLUŽBA OTS, Praha

Daikin Chemical Europe, Düsseldorf



Fig.4: New cold storage build within an existing hall

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