



Epta

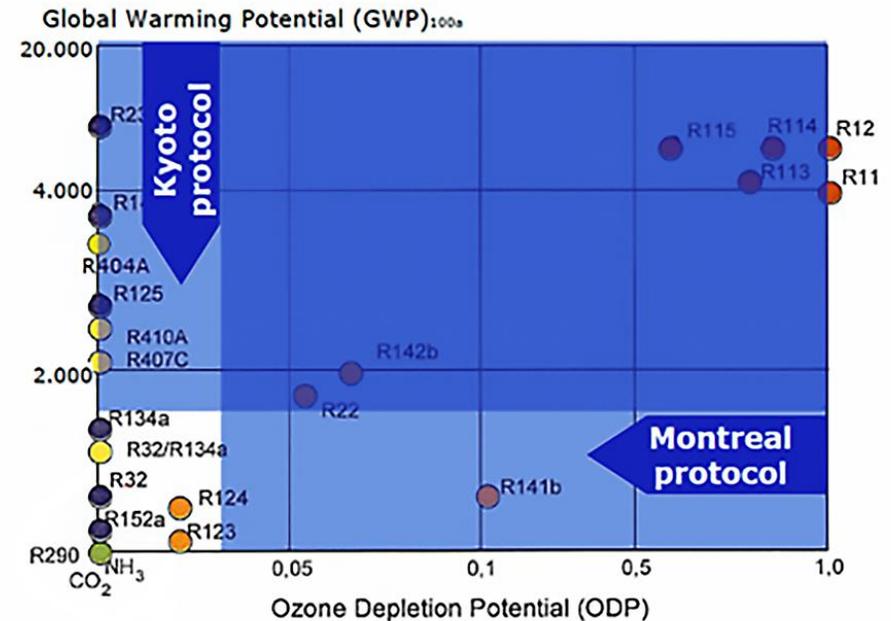
Advanced Solutions for your Store

CO₂ TRANSCRITICAL SYSTEMS

WHY CO₂ FOR DX REMOTE SYSTEMS

- Environment friendly refrigerant
- ODP = 0
- GWP = 1
- Excellent heat transfer capability
- Colorless and odorless up to 3%
- Not flammable
- Stable substance that does not decompose
- High cooling capacity compared to traditional refrigerants
- Smaller pipe diameters
- Low and stable price

Global Warming & Ozone depletion



EPTA NATURAL REFRIGERATION SYSTEMS

ECO₂ *Small*

EPTACLIMA

ECO₂ *Large*

ECO₂ *Small* COMPACTA

E+E
Epta Educational



CO₂
TRAINING CENTRE

City & Guilds
Approved Centre



CO₂ transcritical FTE System



New highly innovative CO₂ transcritical solution that combines low costs, energy saving and reliability in any country, with any external temperature

LIFE-C4R PROJECT

The FTE system is part of the Life-C4R Project (Carbon 4 Retail Refrigeration), aimed at finding new technologies and standards for natural refrigeration in retail sector, highlighting Epta's commitment to research and development.



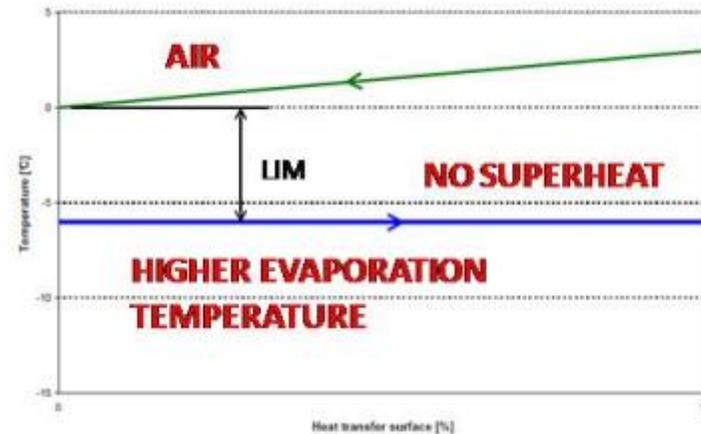
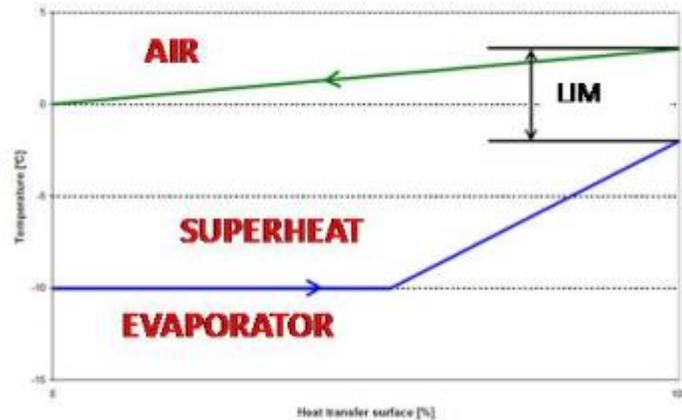
**Carbon
4 Retail
Refrigeration**

Natural Technologies
for Sustainable Retail



The Life-C4R project has received funding from the European Union under grant agreement n° LIFE 17 CCM/IT/000120

OVERFEEDING OF THE EVAPORATORS



- **What is the superheat?** The amount of heat added to the refrigerant after its complete evaporation. *The superheat is necessary to have only vapor at the evaporator outlet, but it also introduces a significant energy waste and higher compression work.*
- **Superheat and Evaporating Temperature** The maximum evaporating temperature is limited by the approach between the air inlet temperature and the refrigerant temperature at evaporator outlet. *Superheat causes lower evaporation temperature and hence higher energy consumption.*
- **ZERO superheat : overfeeding of evaporators** Superheat is completely eliminated, liquid refrigerant is mostly used at the evaporator, liquid and vapor are present at the MT evaporator outlet
- **Advantages of evaporators overfeeding** Higher evaporation temperature (up to 6K), liquid refrigerant ensures excellent heat transfer

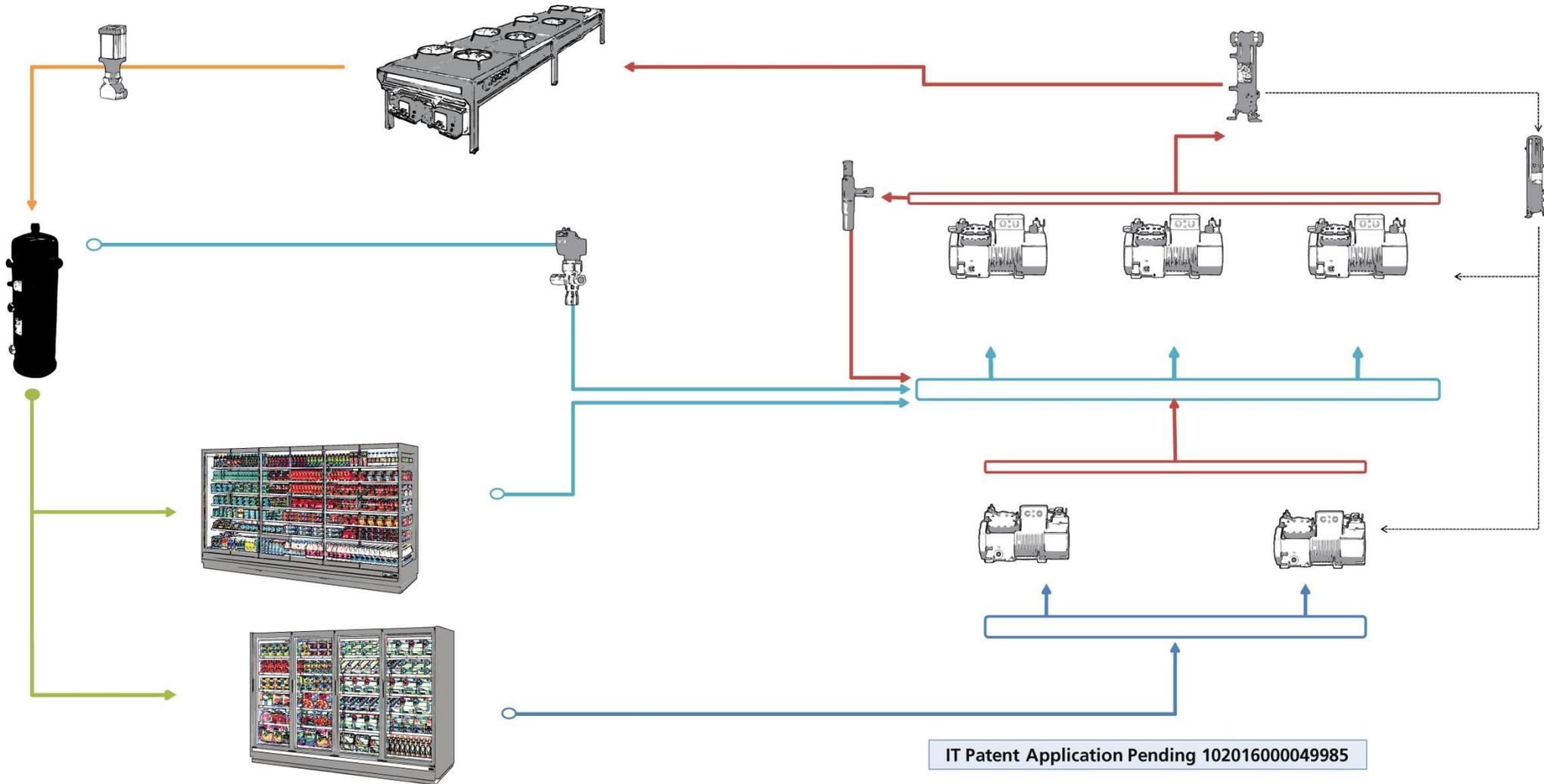


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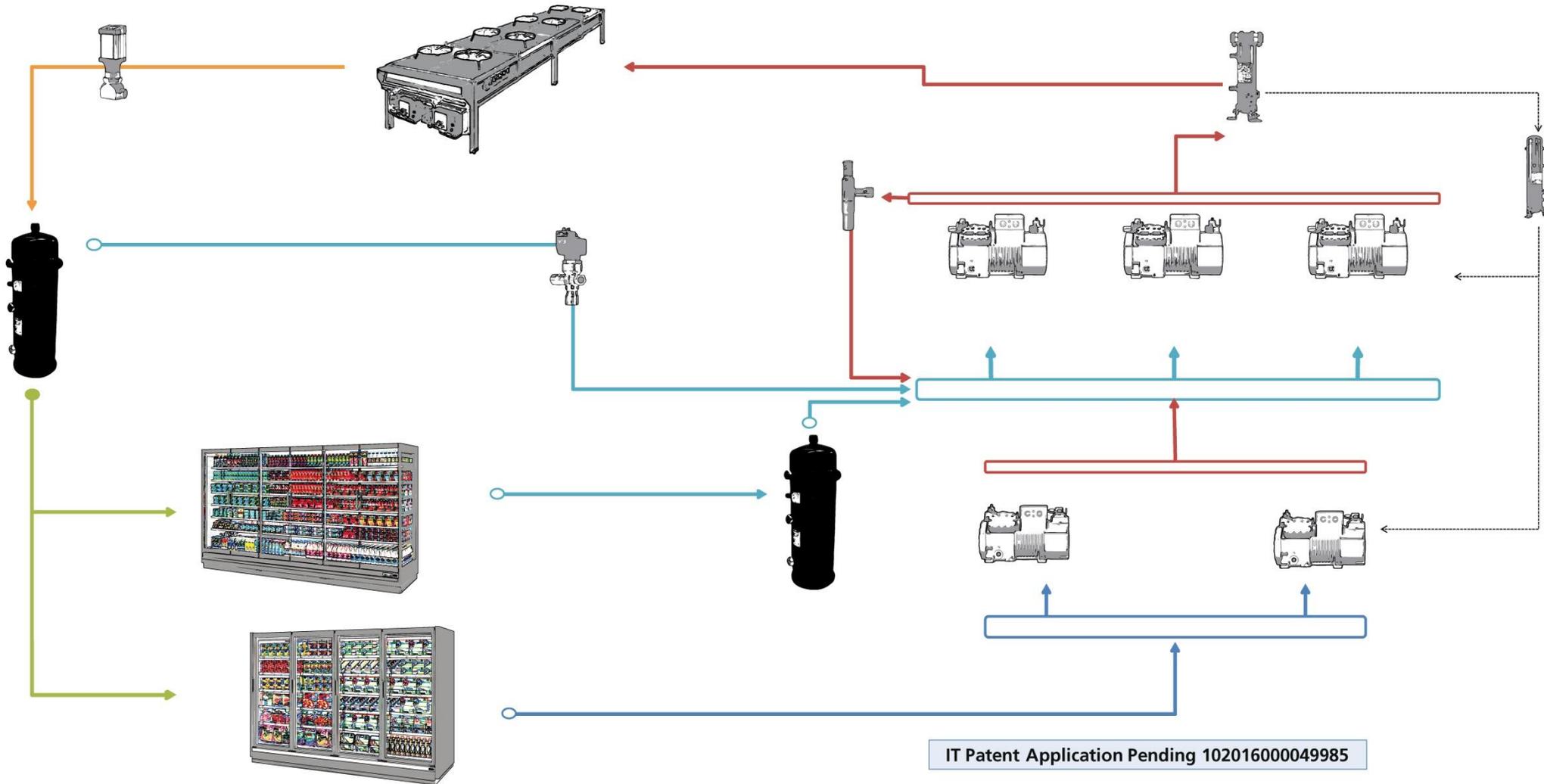
IT Patent Application Pending 102016000049985



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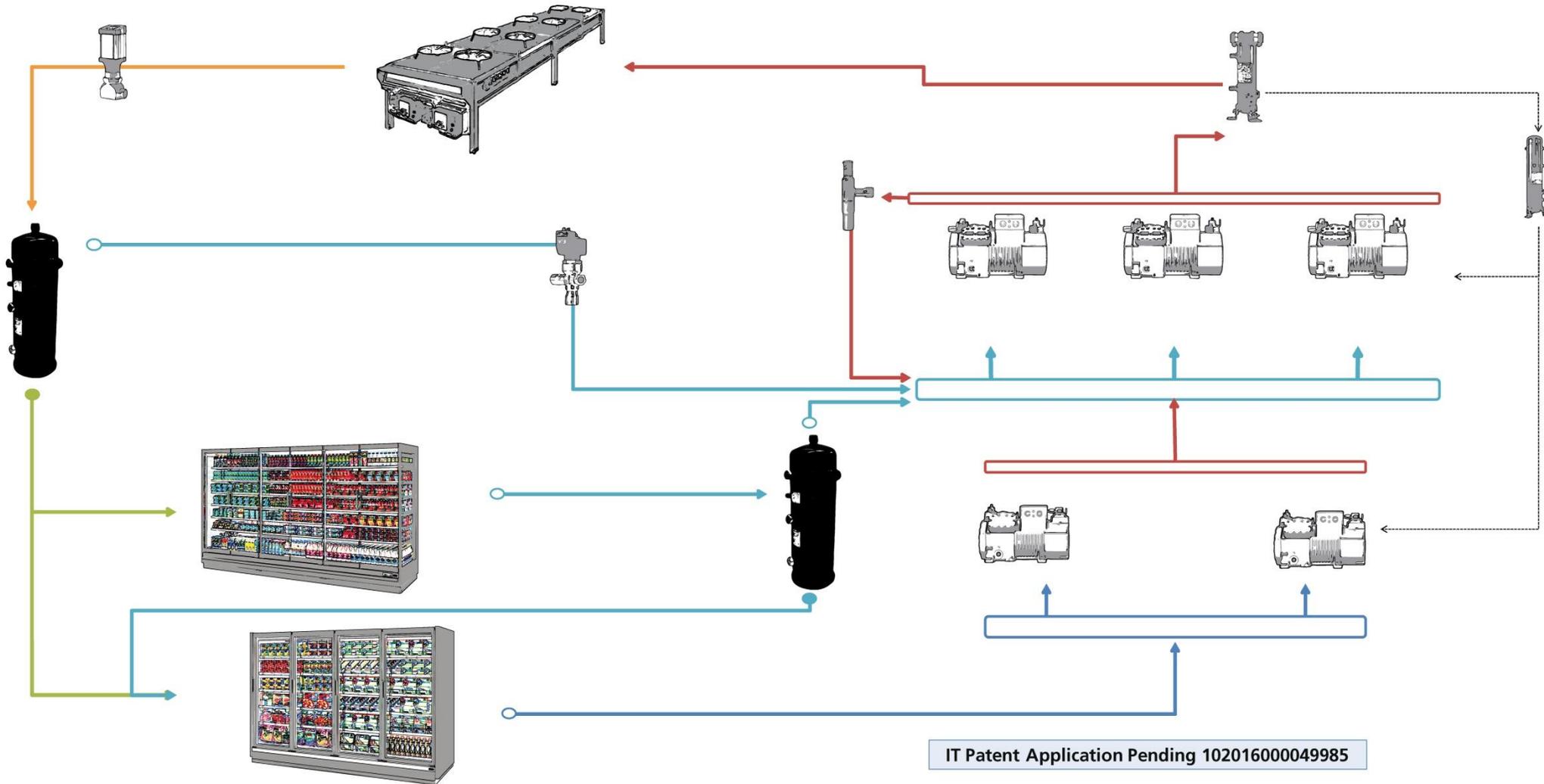
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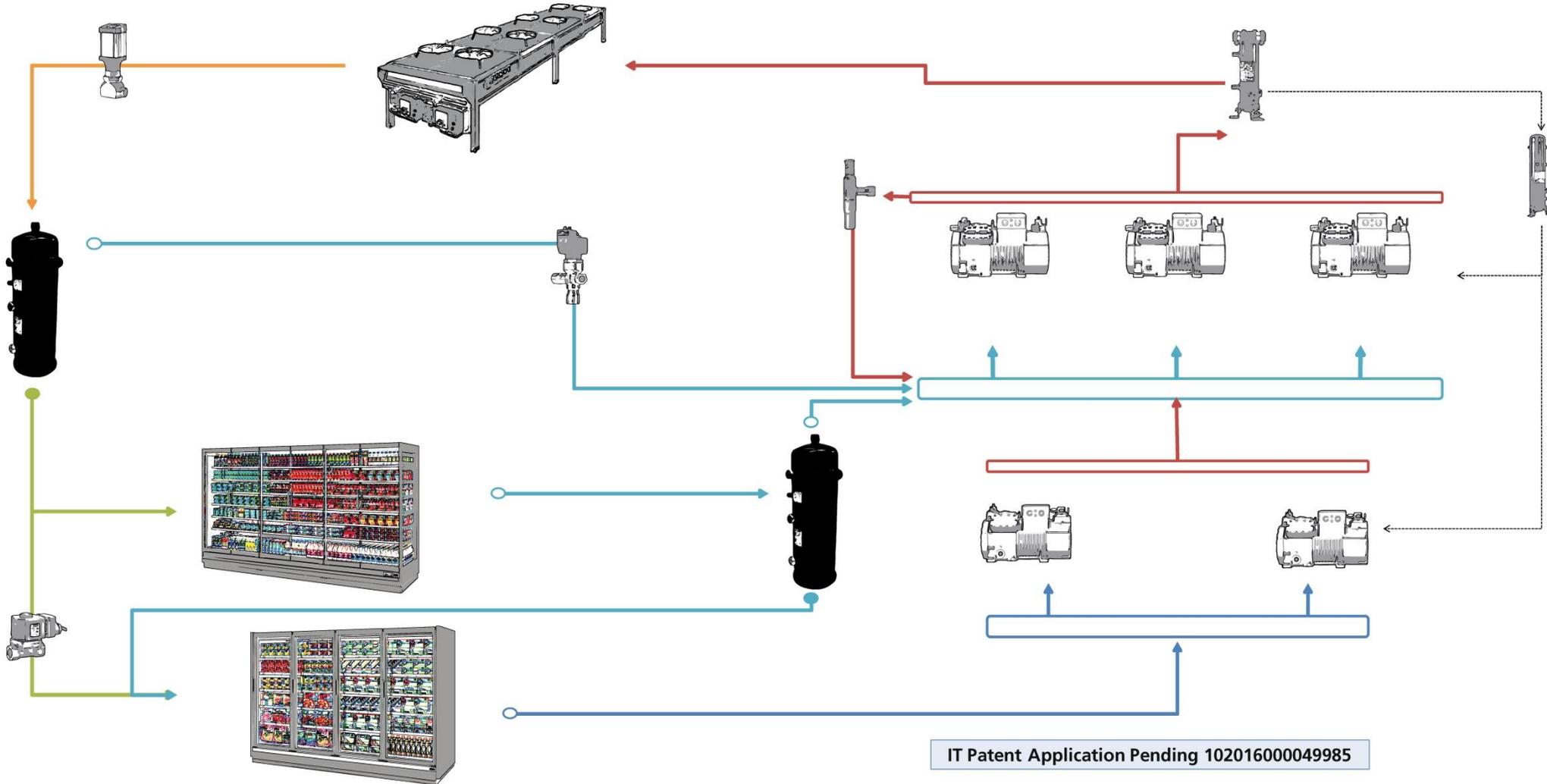
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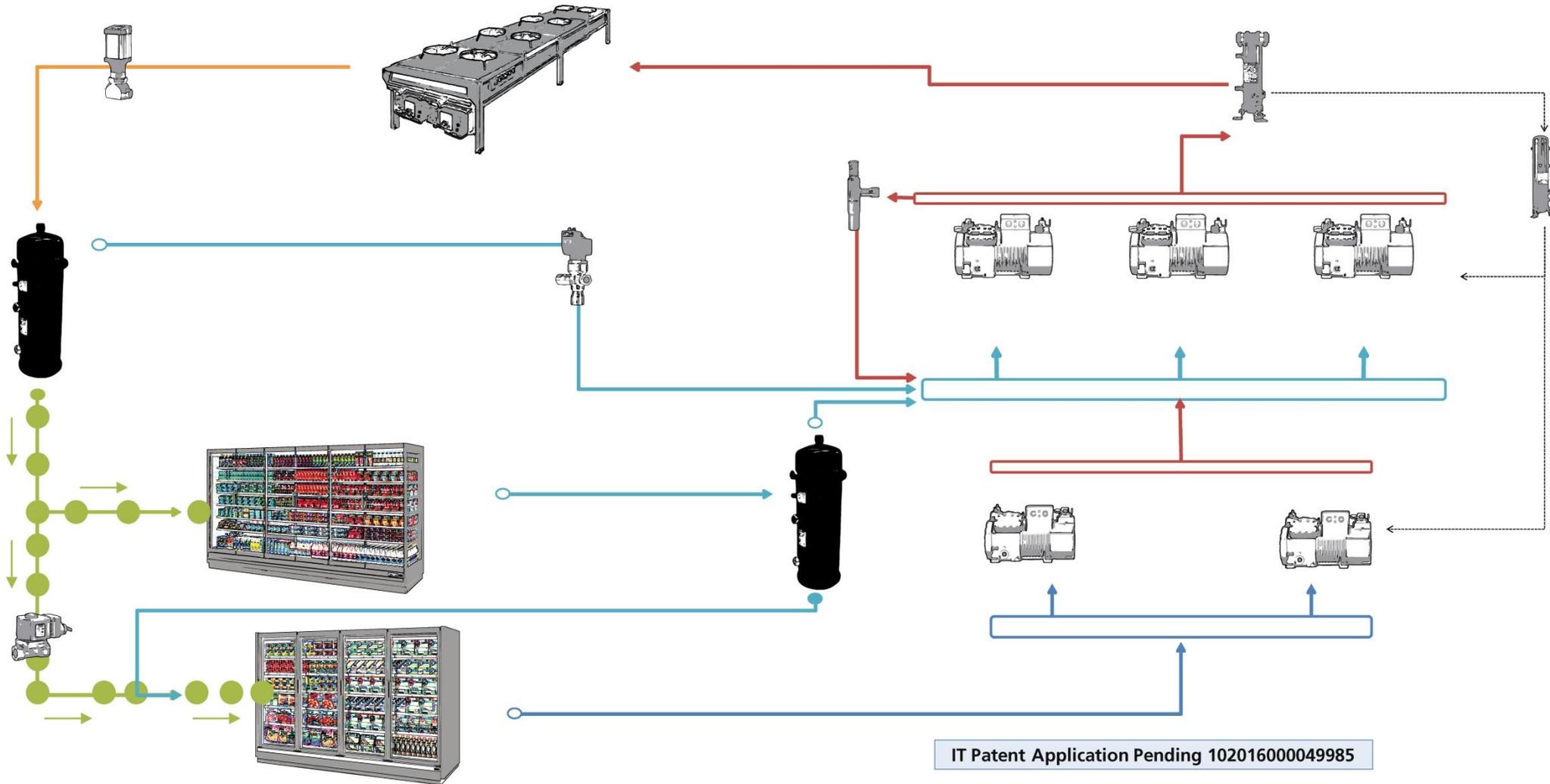
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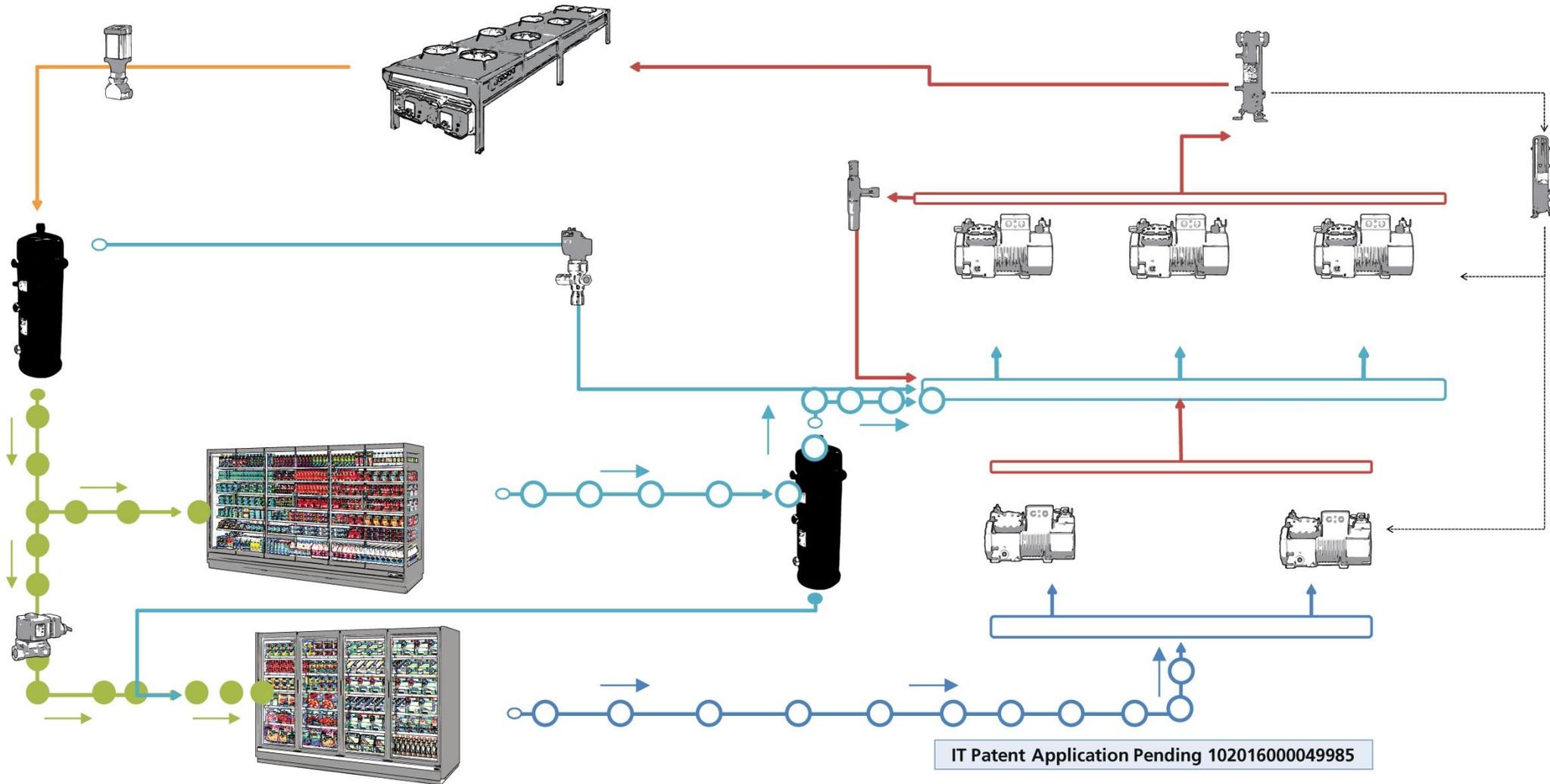
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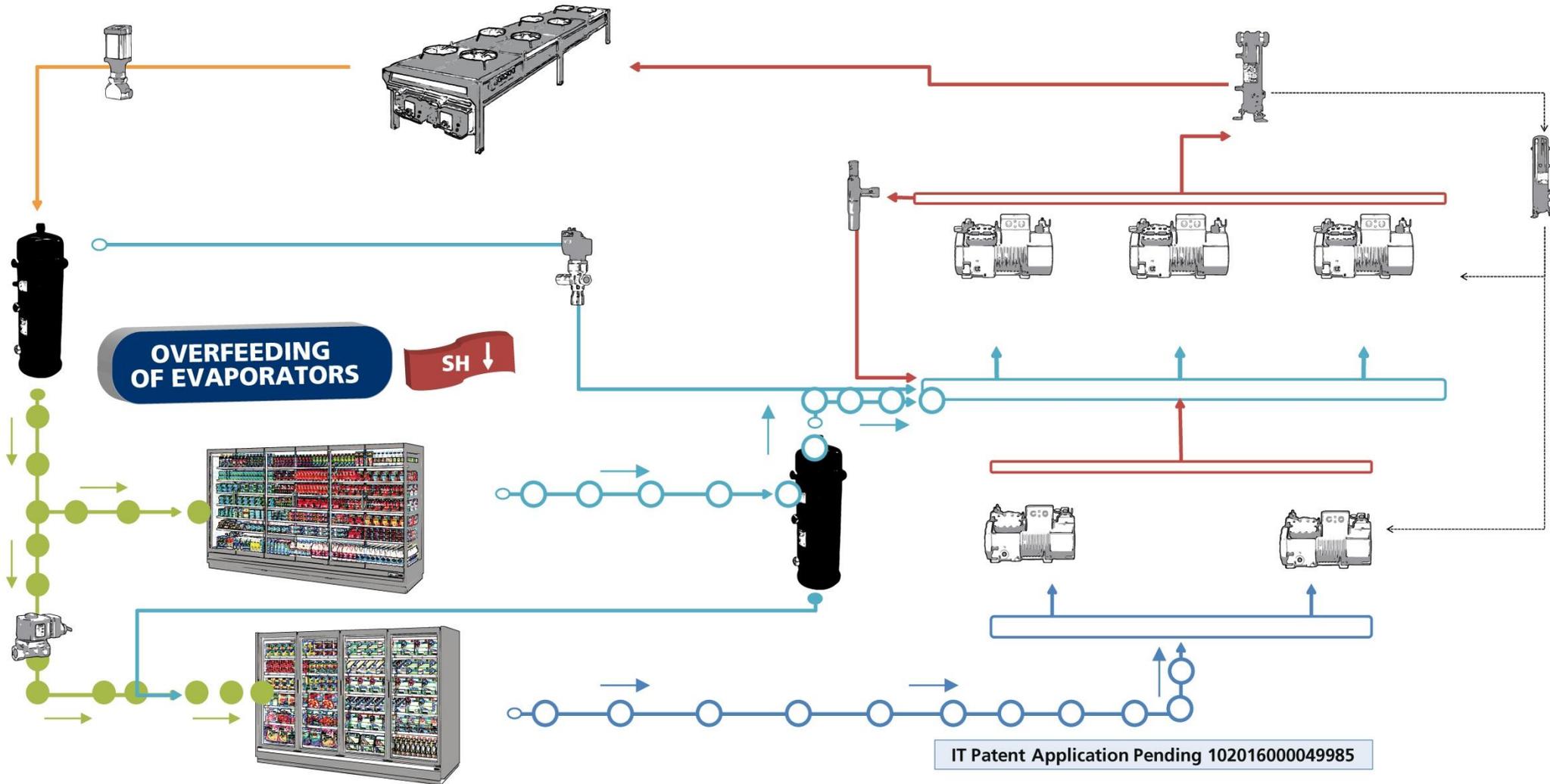
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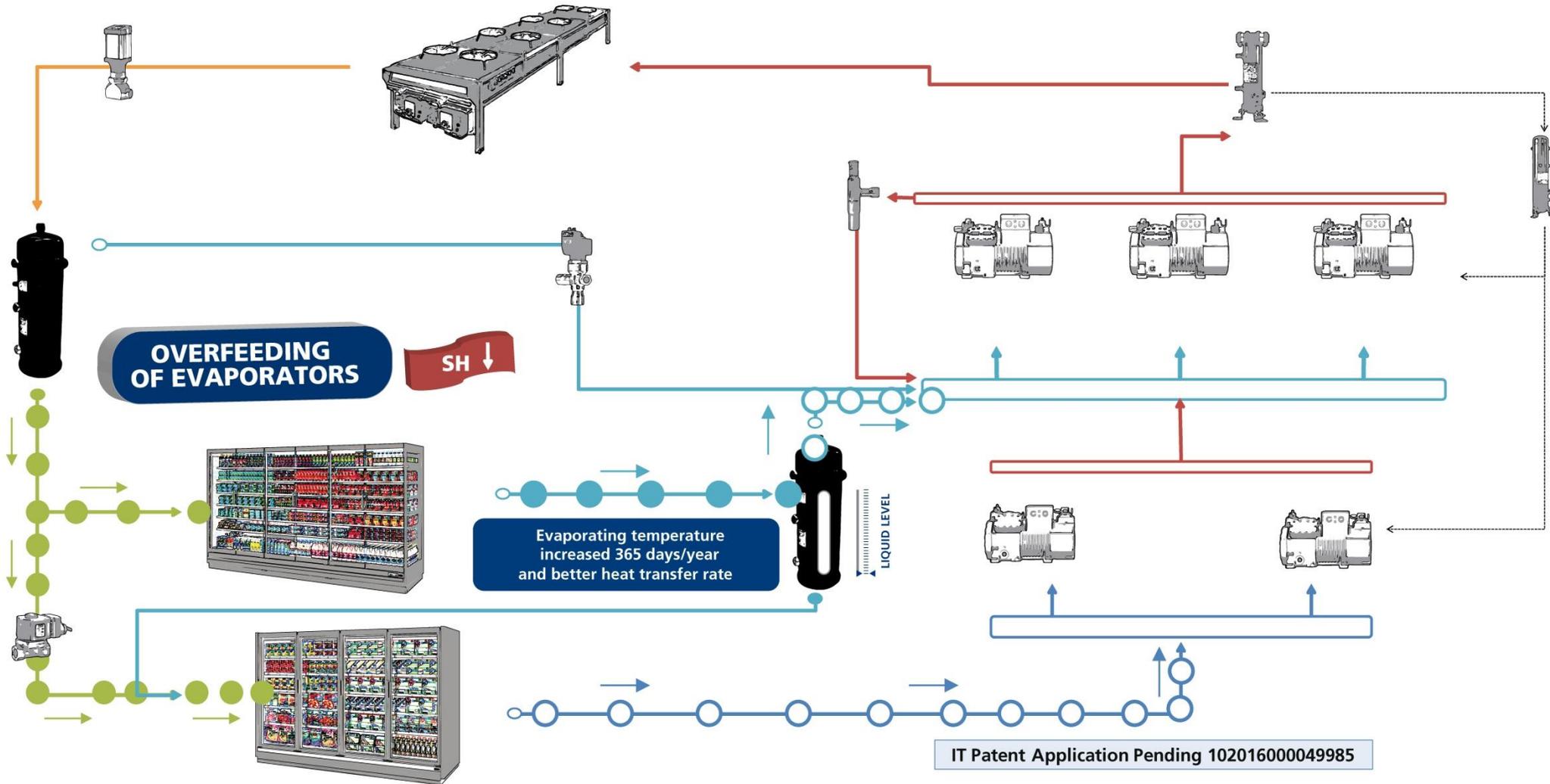
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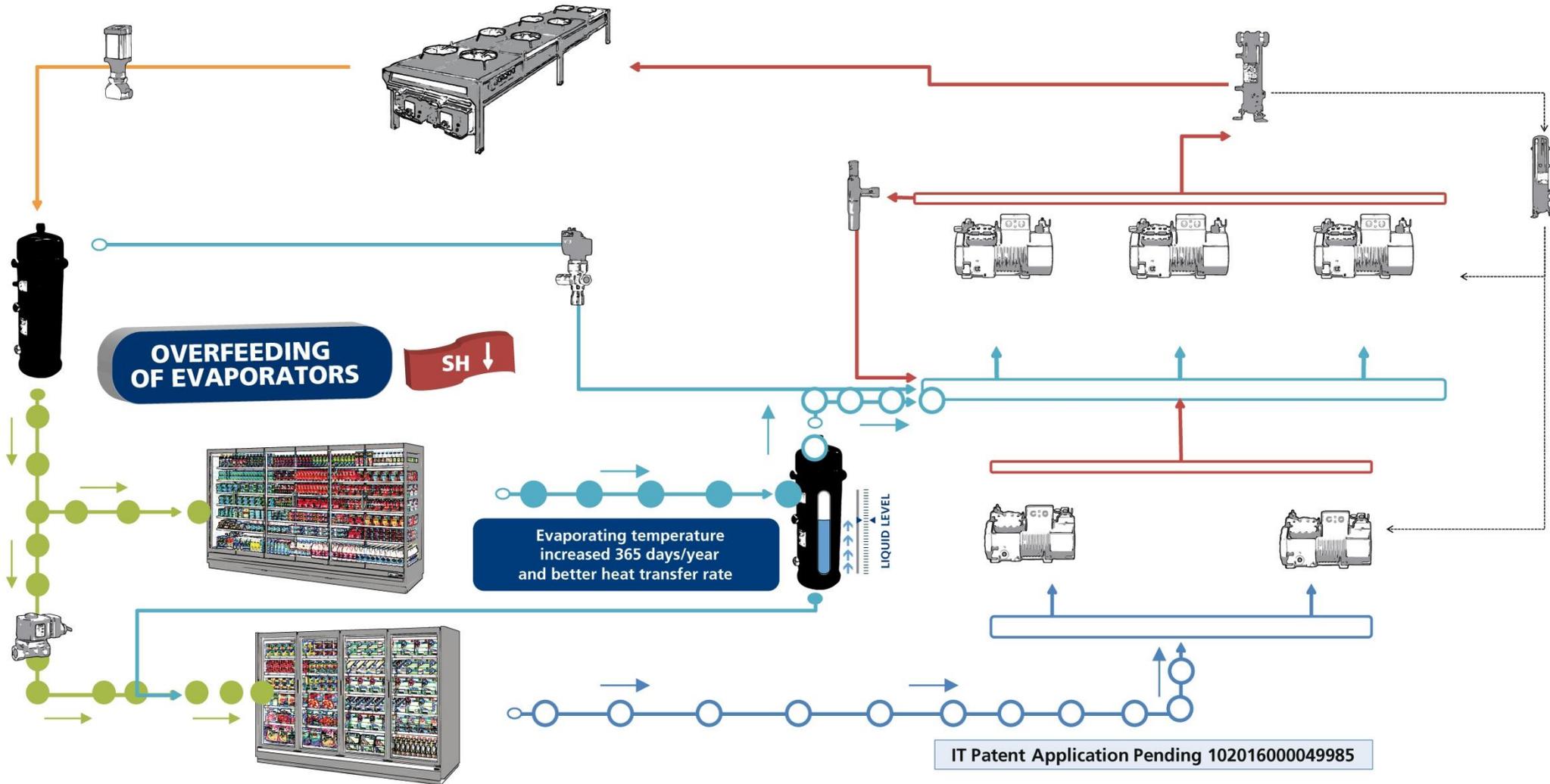
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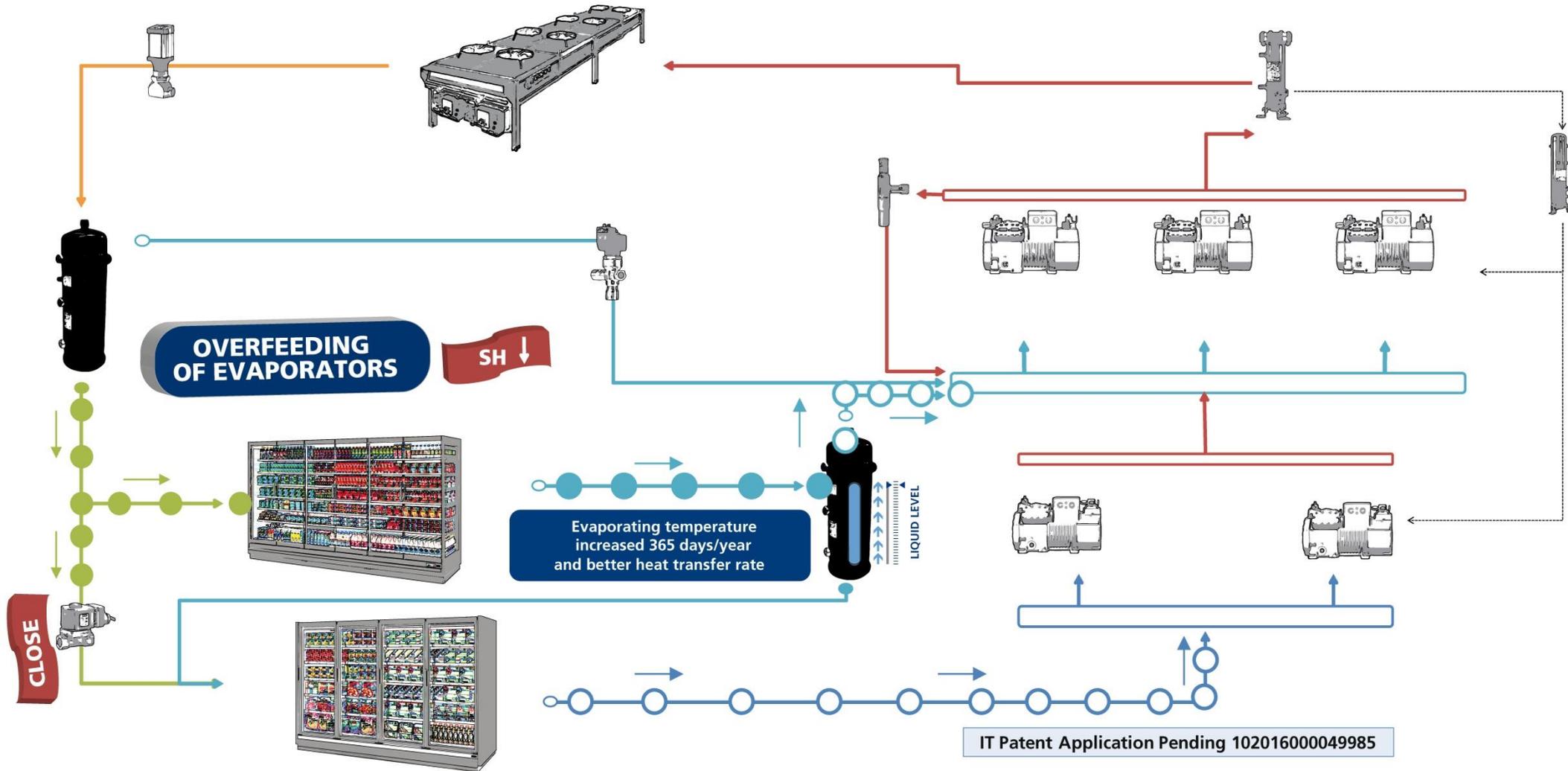
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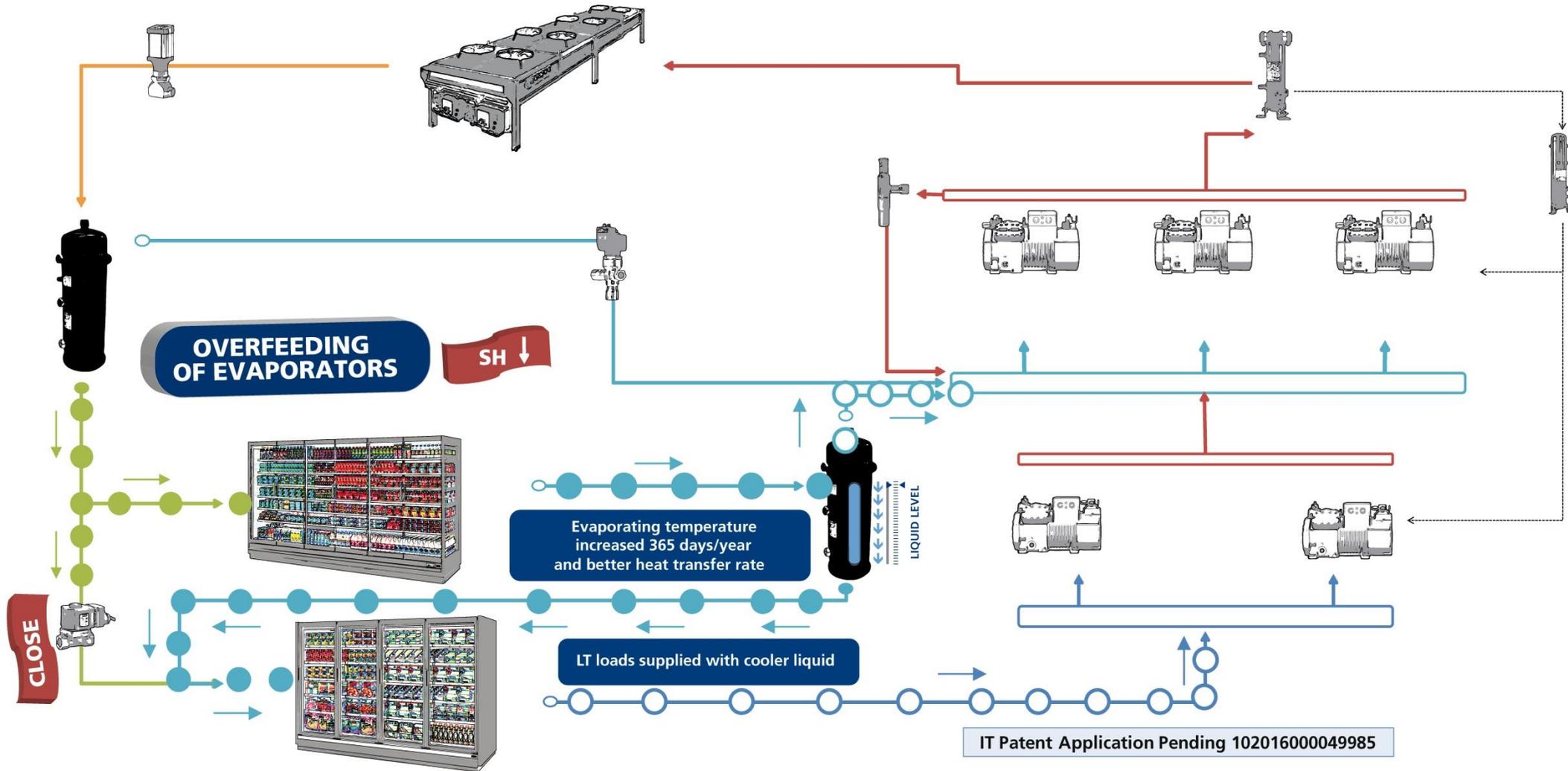


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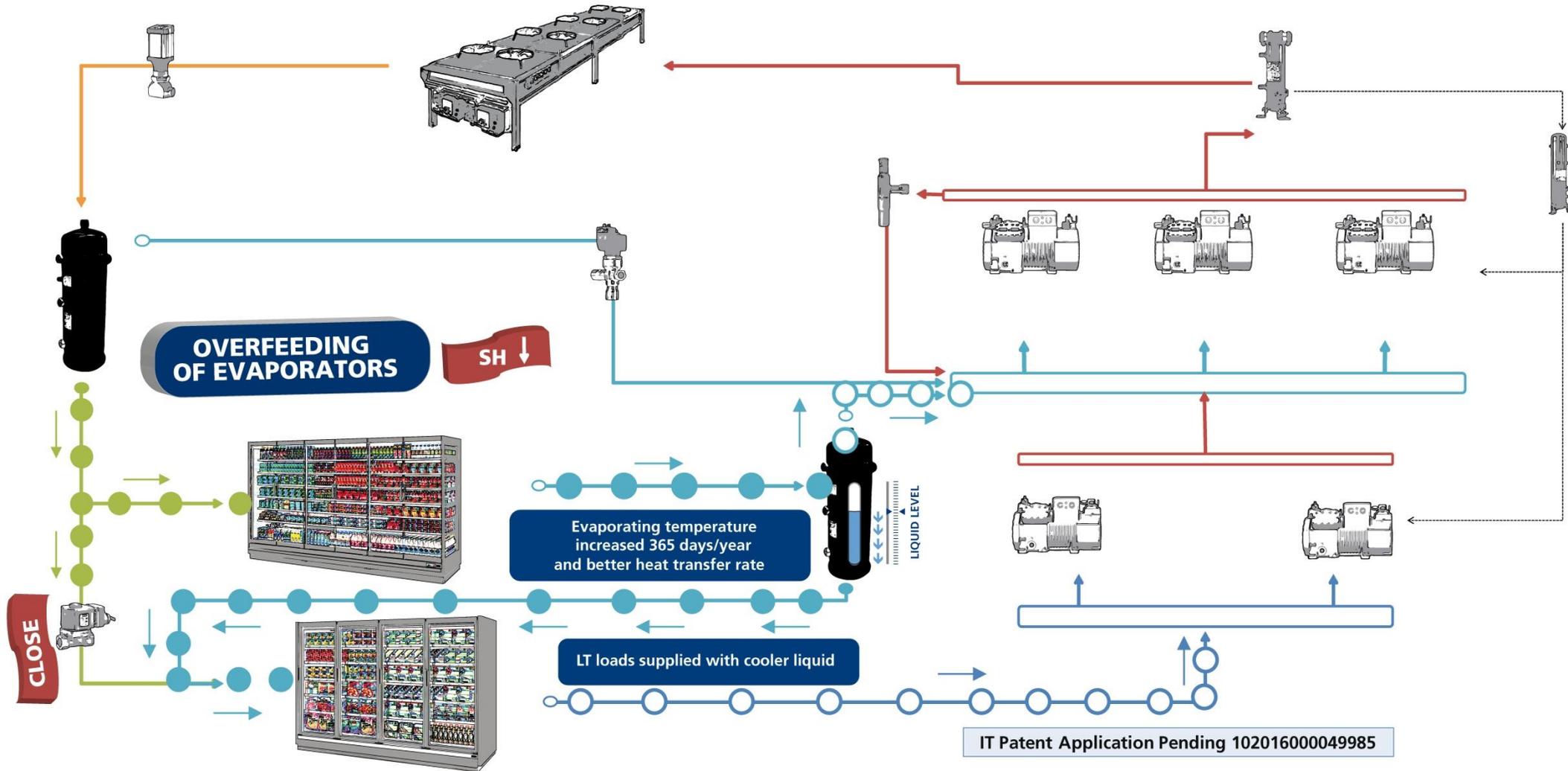
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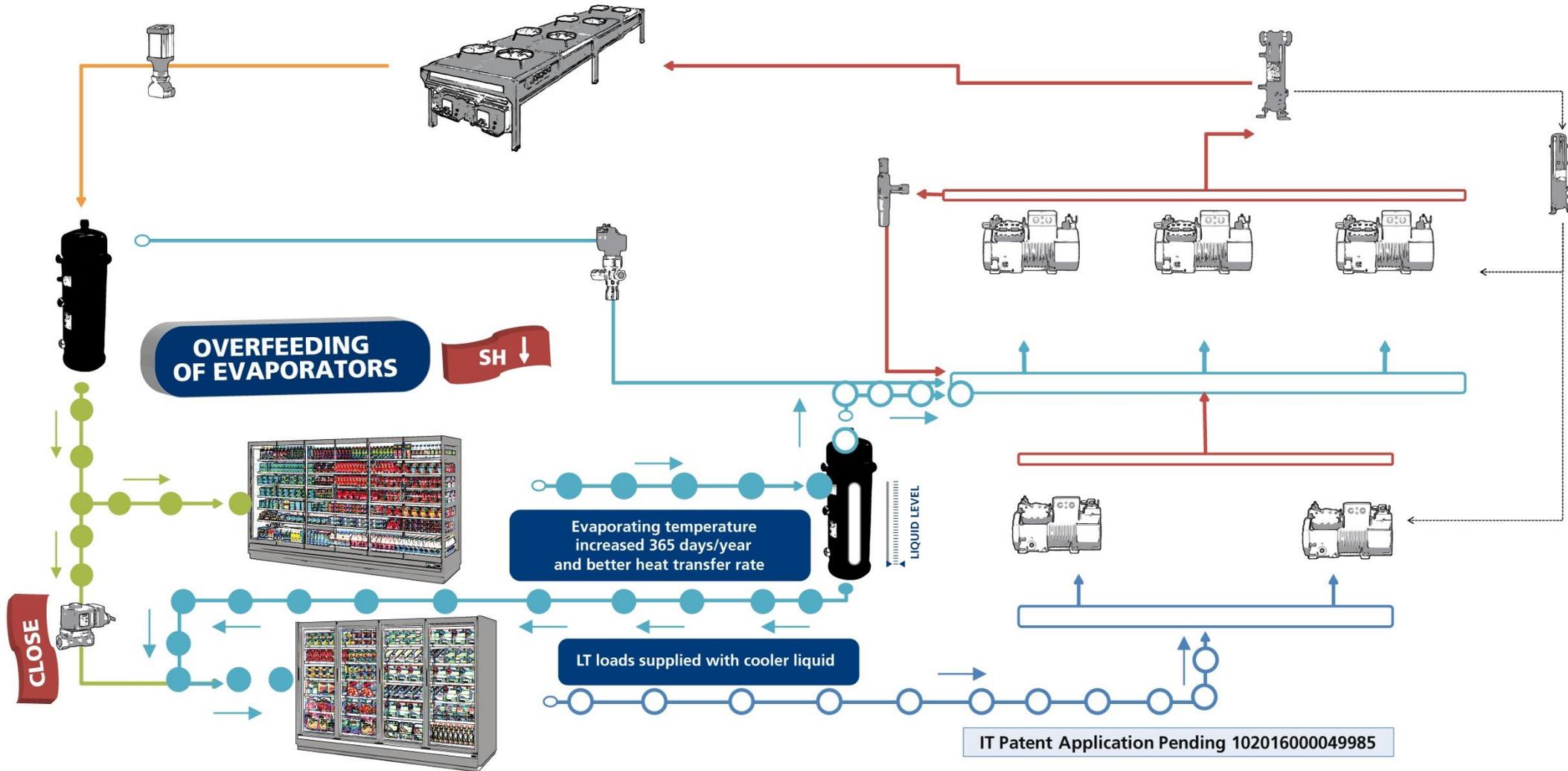
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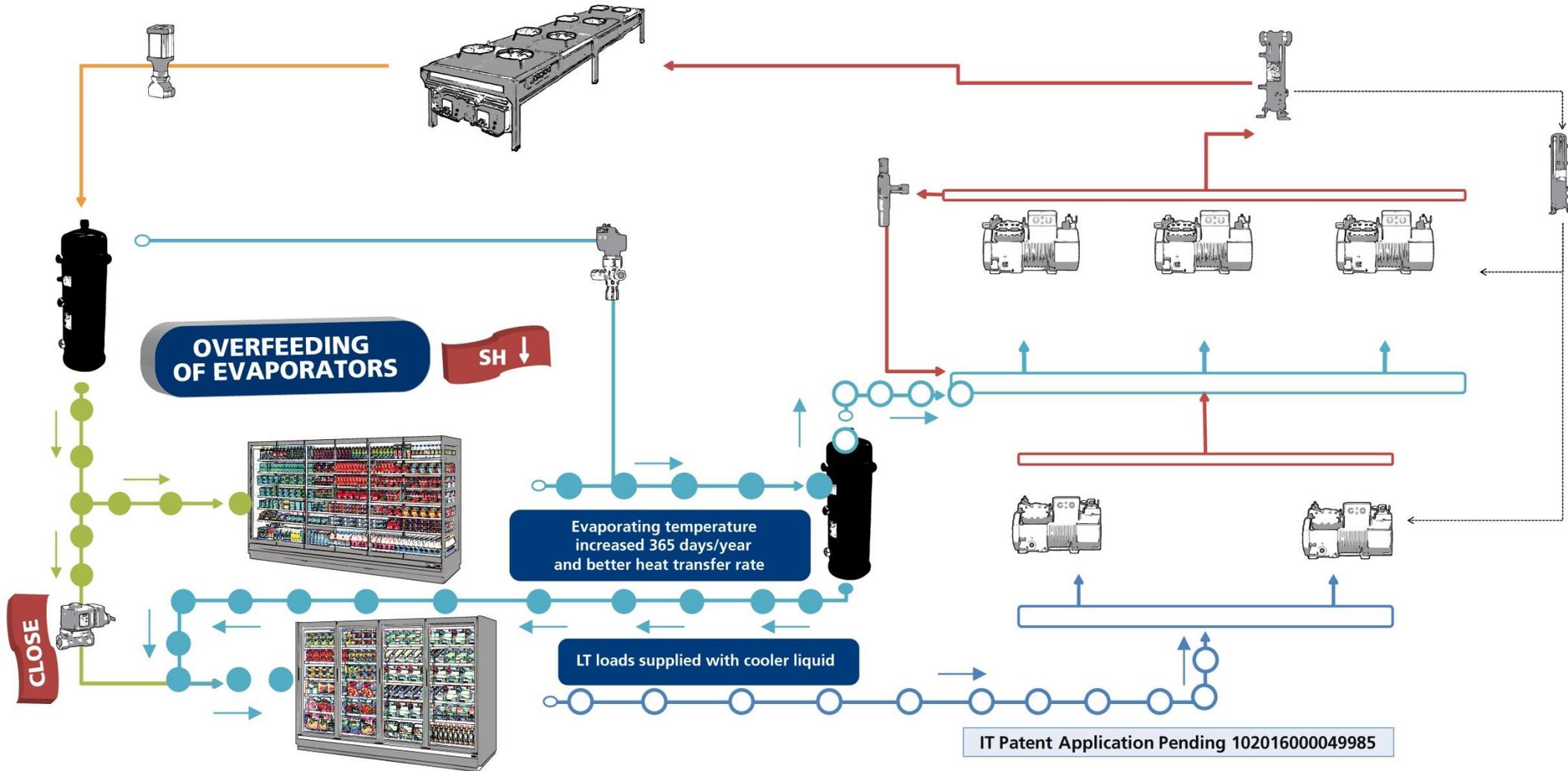
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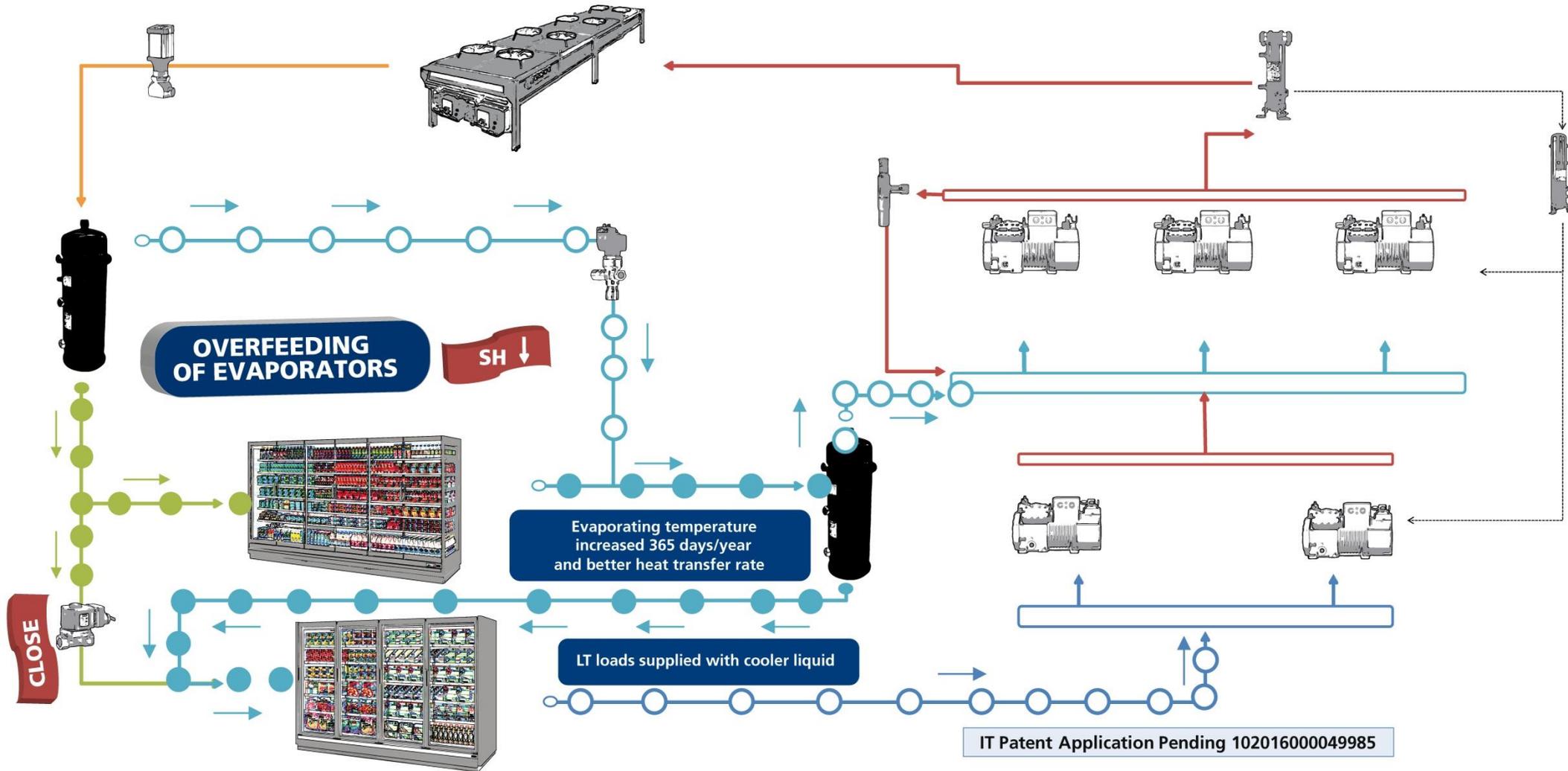
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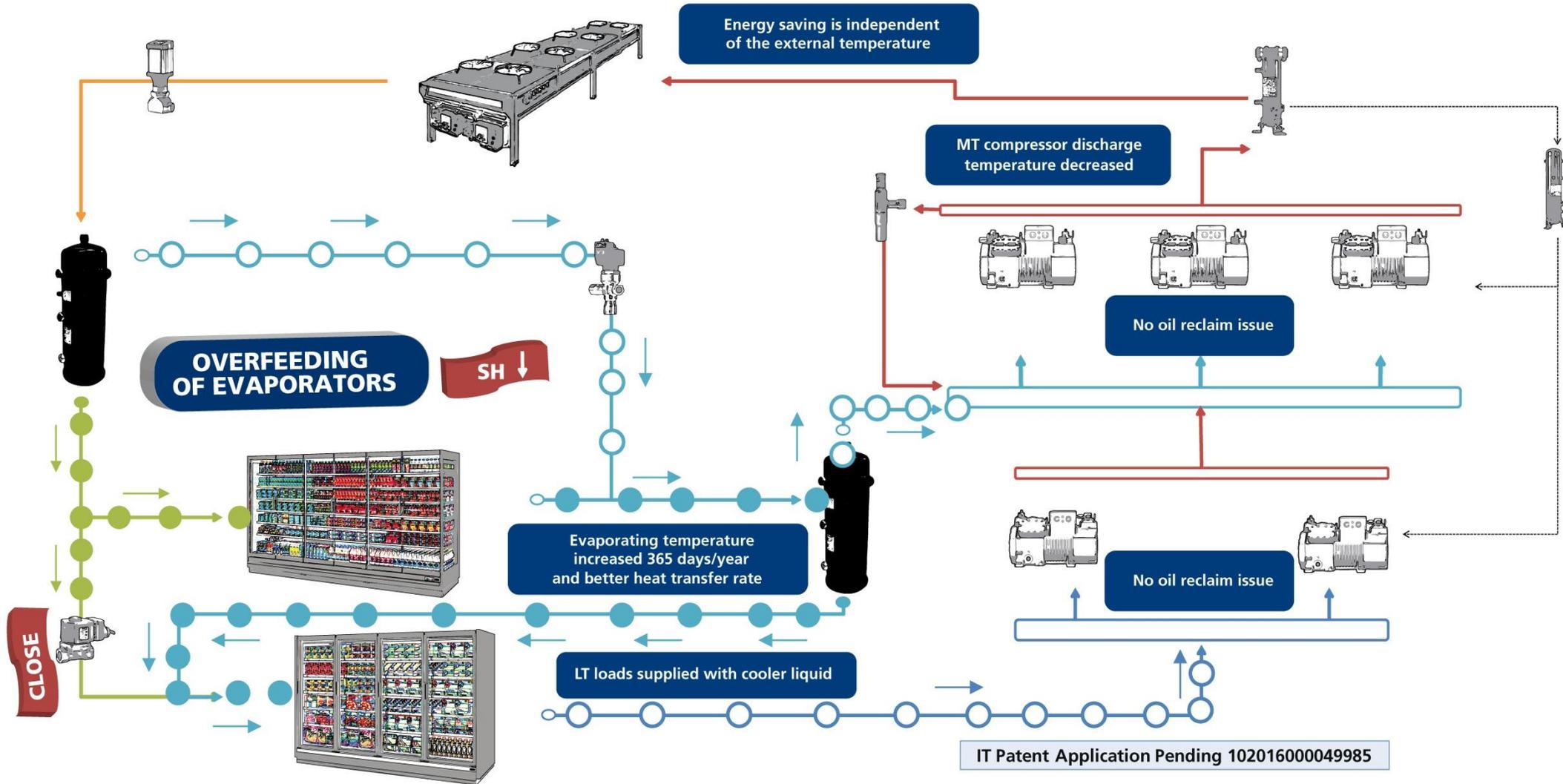


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1. Evaporating temperature increased 365day/year

The efficiency of the CO₂ FTE SYSTEM is given by the MT cabinets operating with flooded (overfeeding) evaporators without superheat

Evaporation temperature is increased up to 6K (2.5-3% energy saving per K)

2. Energy saving is independent of the external temperature

Unlike ejector technology, the FTE system works in energy saving mode with flooded evaporators all year long

3. Optimal performance at EVERY temperature

The absence of superheat decreases the discharge temperature of the compressors considerably, making it the ideal system for every climate.

4. LT loads supplied with cooler liquid

Liquid to the LT freezers is subcooled after MT cabinets

5. No oil return issues

Perfect lubrication is ensured as the oil circuit is uninterrupted



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FTE combines simplicity with outstanding performance:

- **Energy Saving: 10%**
on an annual basis, independent of the latitude and the climate
- **Installation and maintenance cost savings: UP TO 20%**
as it requires no ejector or parallel compression and is intrinsically very reliable

Simply available everywhere...NOW!



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SIMPLE

because it does not need ejectors or sophisticated components, it is as simple as a standard basic CO₂ booster system

Mechanically the FTE system operates with the same components as the basic CO₂ transcritical system, plus the FTE multilevel liquid receiver.



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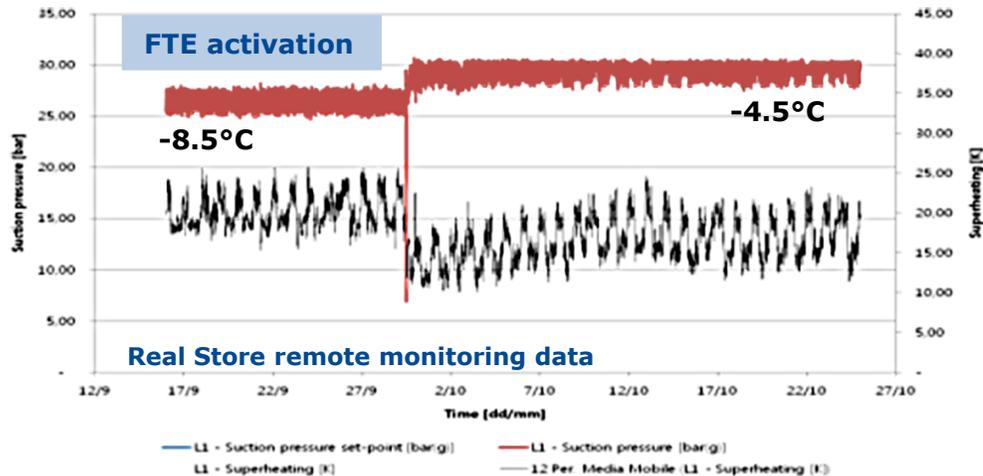
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GLOBAL

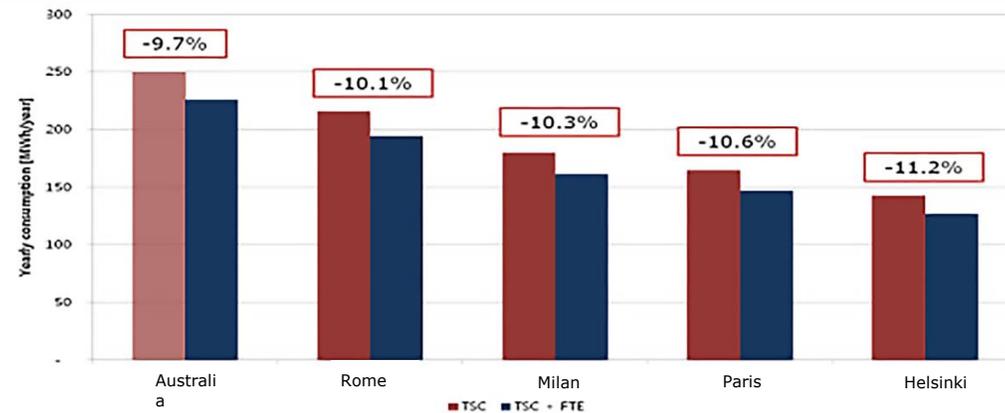
as it works perfectly in hot climates but offers the advantage of a dramatic reduction in consumption all year in any location

One solution for all markets, sustainable and efficient everywhere, and does not require any special expertise.

Evaporating temperature increased



Energy saving independent of the external temperature



Conditions:
 - MT cooling capacity installed: 80 kW
 - LT cooling capacity installed: 20 kW



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RELIABLE

as it is a modular solution based on standard components produced on a large scale: the MT and LT systems use standard CO₂ cabinets and freezers, the power pack is a standard basic CO₂ booster system, whereas the heart of the system is the FTE module, an intelligent standard multi-level liquid receiver.



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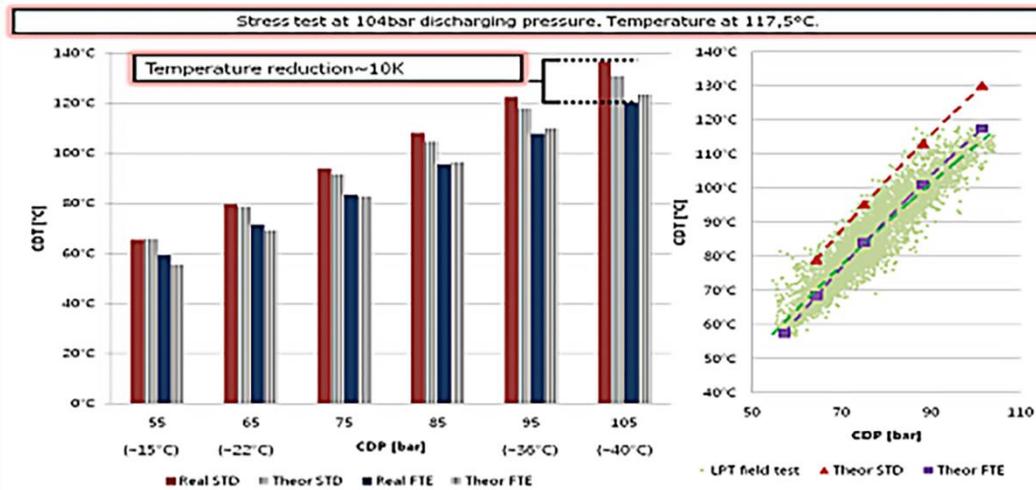


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RELIABLE

finally a CO₂ booster system solution more safe and robust than ever, because the FTE system reduces the compressor discharge temperature and allows perfect oil circulation providing better lubrication.

MT compressor discharge temperature decreased



Certificate

This is to certify that

Epta

has developed a

highly innovative, energy-efficient CO₂ solution with reliable BITZER compressors, which maintains an uninterrupted cold chain in all climate conditions

The transcritical Epta FTE (Full Transcritical Efficiency) system introduces a simple method to introduce flooded evaporators in commercial applications. This leads to a significant reduction of the difference between evaporation and display cabinet temperatures in the optimised mode and thus lower energy consumption.

Especially in combination with ECOLINE+ reciprocating compressors, BITZER sees the new FTE technology as a major step in the right direction towards the environmentally friendly use of refrigerants in commercial refrigeration, combined with energy efficiency in high ambient temperature regions. The FTE solution is reliable and resistant under all operating conditions, no matter whether it is used in warm or cold areas.

We would like to thank Epta, the expert in commercial refrigeration, for its innovation as well as for being a great collaborative partner and hope to carry on working together to create a successful future.

Erik Bucher
Director Sales Refrigeration

Sindelfingen, 15 February 2017

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FTE is a new business model :

- **INDUSTRIALIZE**
- **RELIABLE**
- **EFFICIENCY**

The future of natural refrigeration depends on systems that combine **cost, energy saving and reliability** in a simple design.

With CO₂ FTE SYSTEM the **cost, performance and reliability** gaps can finally be seen to be bridged.

FTE gives a significant contribution to **break down the barriers** to a natural future in refrigeration.



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Thank you!

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