



# ATMO sphere





## CO<sub>2</sub> transcritical plant based on superheat optimization

Eliwell by Schneider Electric

Life Is On



## ELIWELL and SCHNEIDER-ELECTRIC



**The global specialist  
in energy management  
and automation**



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solutions**

## CO<sub>2</sub> TRANSCRITICAL PLANT BASED ON SUPERHEAT OPTIMIZATION

- **Case study of CO<sub>2</sub> DOMINO booster solution**
  - Minimize equipment complexity
  - Minimize commissioning & maintenance
- **Efficiency at all equators**
  - Modular approach

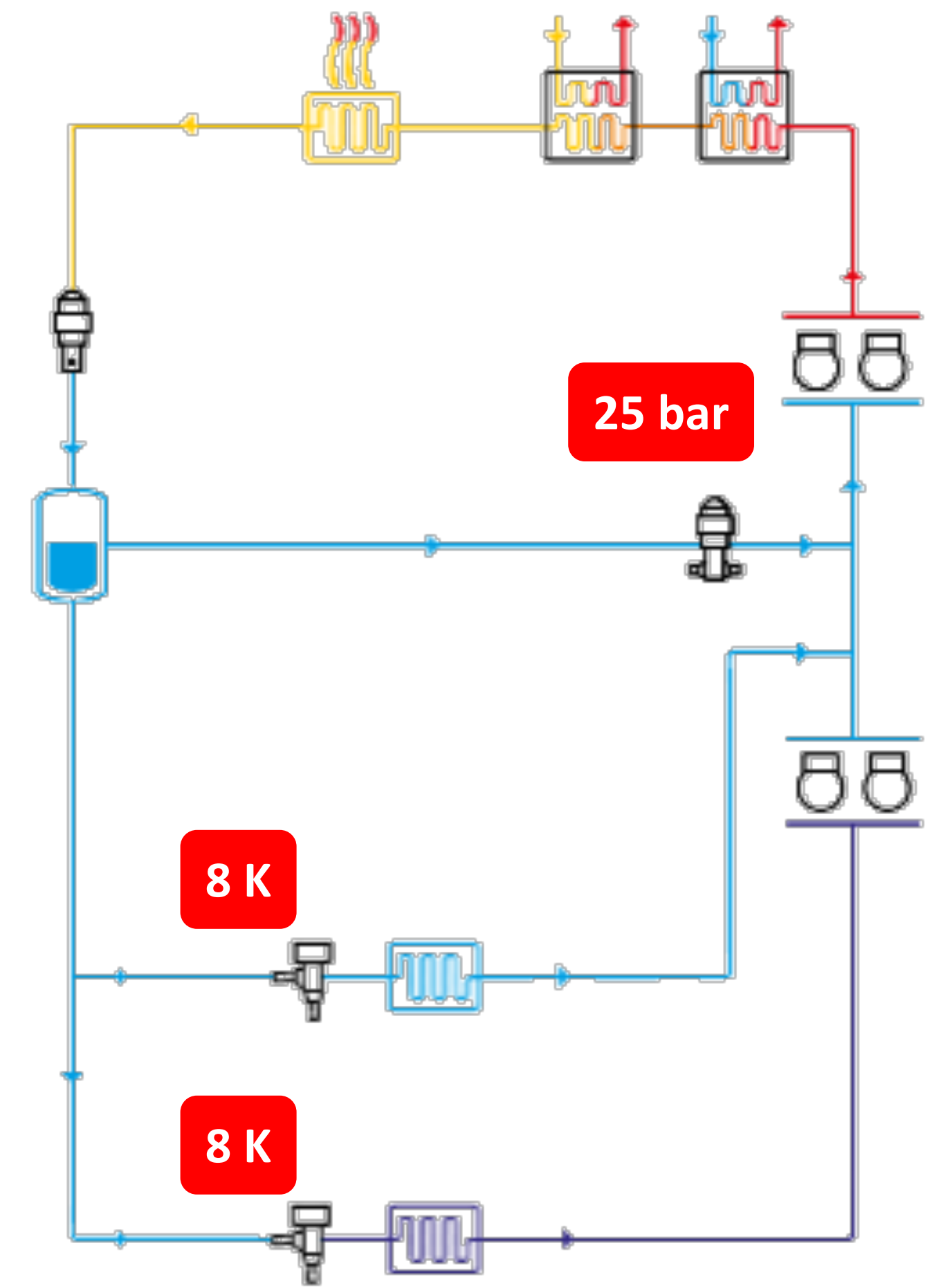
## CASE STUDY – SUPERMARKET LAYOUT

- 1.200 m<sup>2</sup> in South Switzerland
- CO<sub>2</sub> Transcritical booster rack
- 12 cabinets & 2 cold rooms with EEV



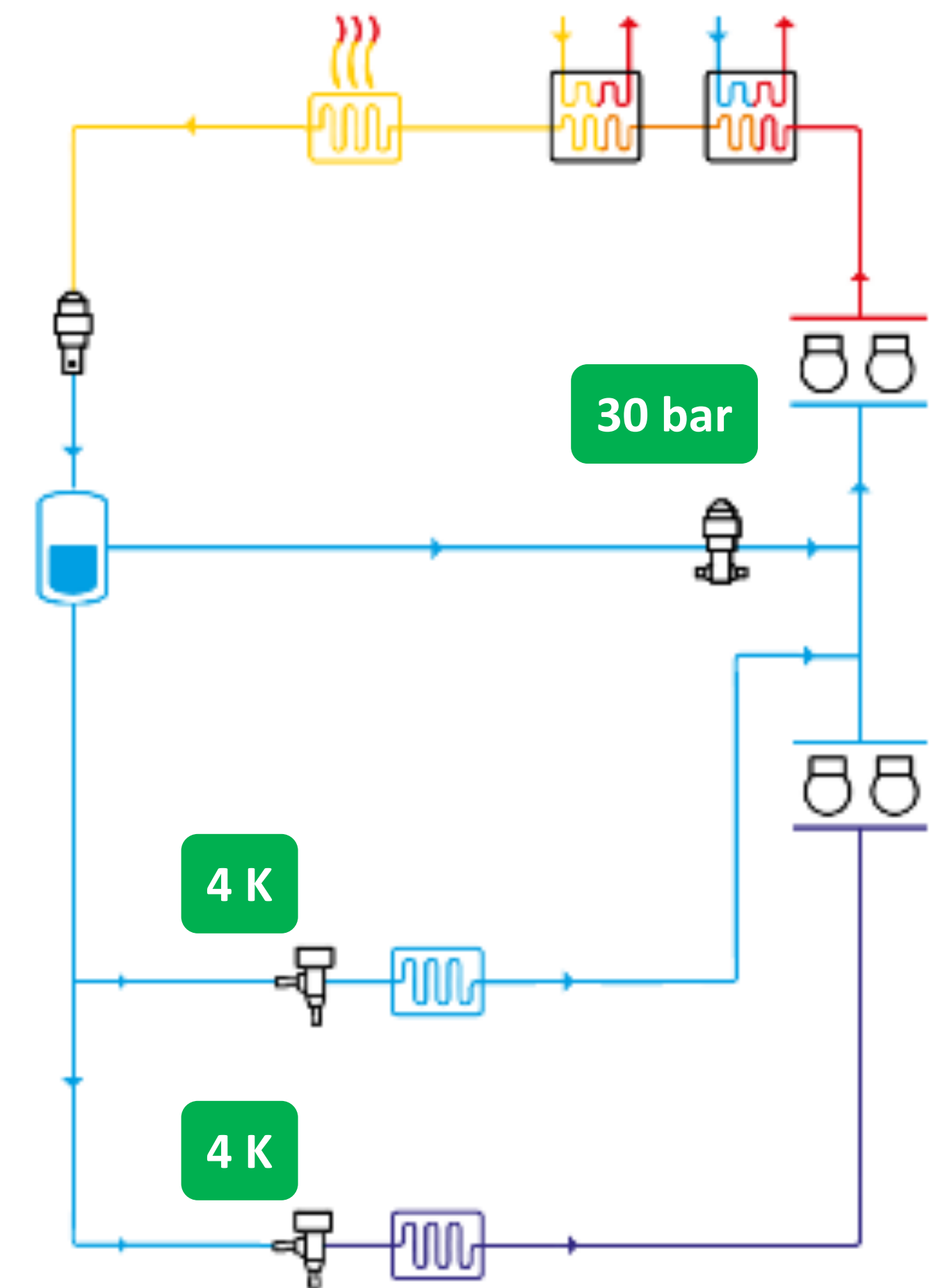
## ORIGINAL DESIGN – CO<sub>2</sub> BOOSTER CONFIGURATION

- Electronic EEV controller
- Evaporator superheat set at 8 K
- MT suction pressure set at 25 bar



## CO<sub>2</sub> DOMINO BOOSTER CONFIGURATION

- **DOMINO** Pulse EEV controller
- Evaporator superheat set at **4 K**
- MT suction pressure set at **30 bar**



## CASE STUDY RESULTS – CO<sub>2</sub> DOMINO vs ORIGINAL DESIGN

- 2 parameters superheat settings
- No liquid return to compressors
- **MT suction from 25 to 30 bar**
- No oil return issues

~ 10%  
**savings**



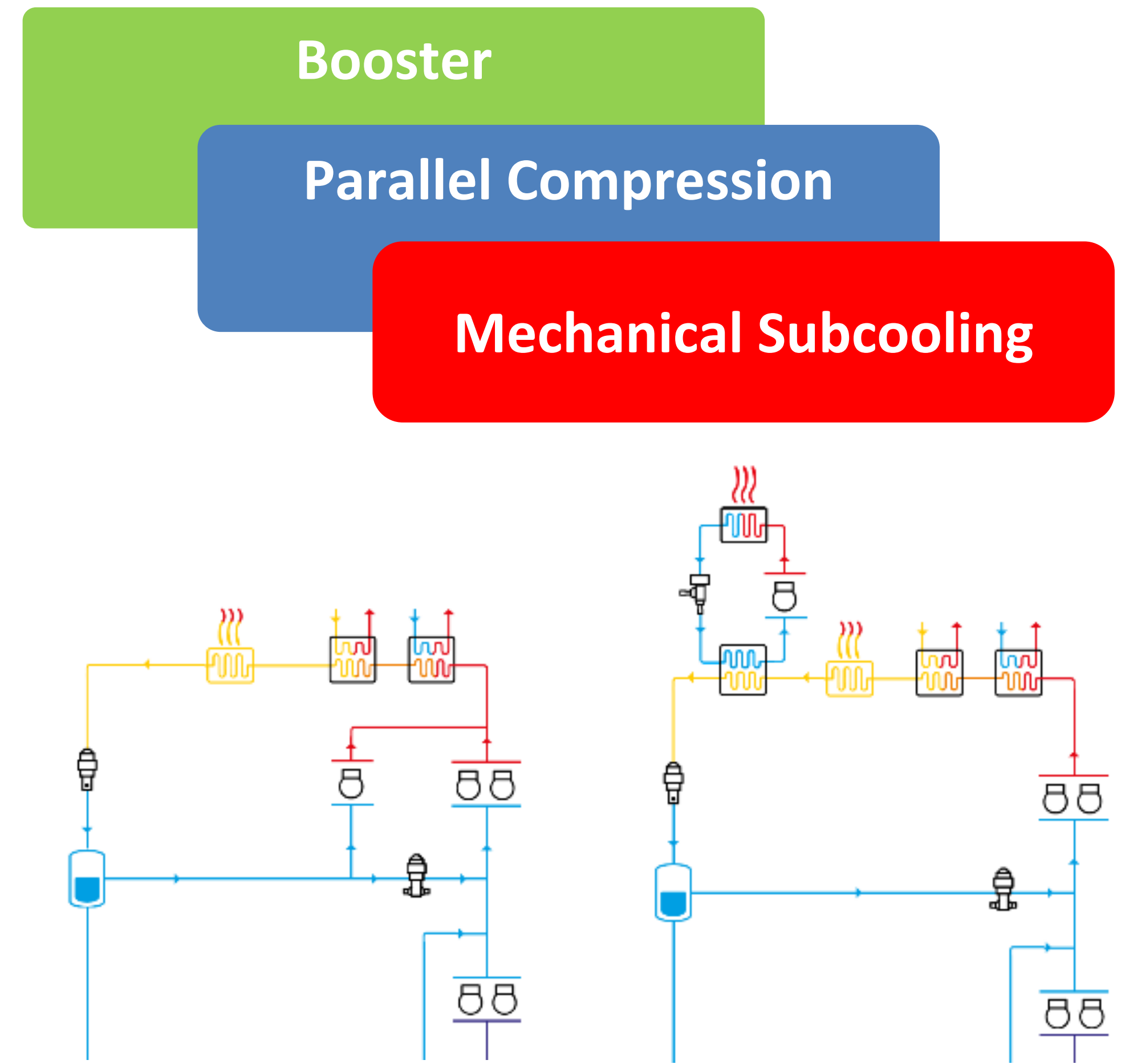
## EXPERIMENTAL SETUP – MAXIMUM PERFORMANCES

- 2 parameters superheat settings
- No liquid return to compressors
- **MT suction up to 32 bar**
- No oil return issues

~ 15%  
**savings**

## MODULAR APPROACH FOR EFFICIENCY AT EACH EQUATOR

- Minimal incremental complexity
- Modular approach
- Same setting and maintenance



## CO<sub>2</sub> DOMINO SOLUTION WRAP-UP

- Installation as easy as a booster
- Pulse EEVs oversized
- Efficiency comparable to the ejector
- Easy setup and maintenance
- Efficiency at all equators with modular approach



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**Thank you very much!**

