



Supermarket CO2 transcritical cooling system with heating and airconditioning

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EPTA

THE NATURAL

WAY UP



Advanced Solutions for your Store

COSTAN



eurocryor





Agenda



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1. System targets
2. Summer operation
3. Winter operation
4. Consumer Integration
5. Scope of supply
6. Conclusions



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- ❑ Green solution following the
 - ✓ Montreal protocol
 - ✓ F-gas regulation
 - ✓ Building energy saving regulation
- ❑ Refrigeration system total heat recovery
- ❑ One compact system for HVAC&R
- ❑ Optimized efficiency for cooling, heating and AC
- ❑ One main control system with reduced interfaces
- ❑ Cost reduction : capital investment + energy consumption

1. System targets

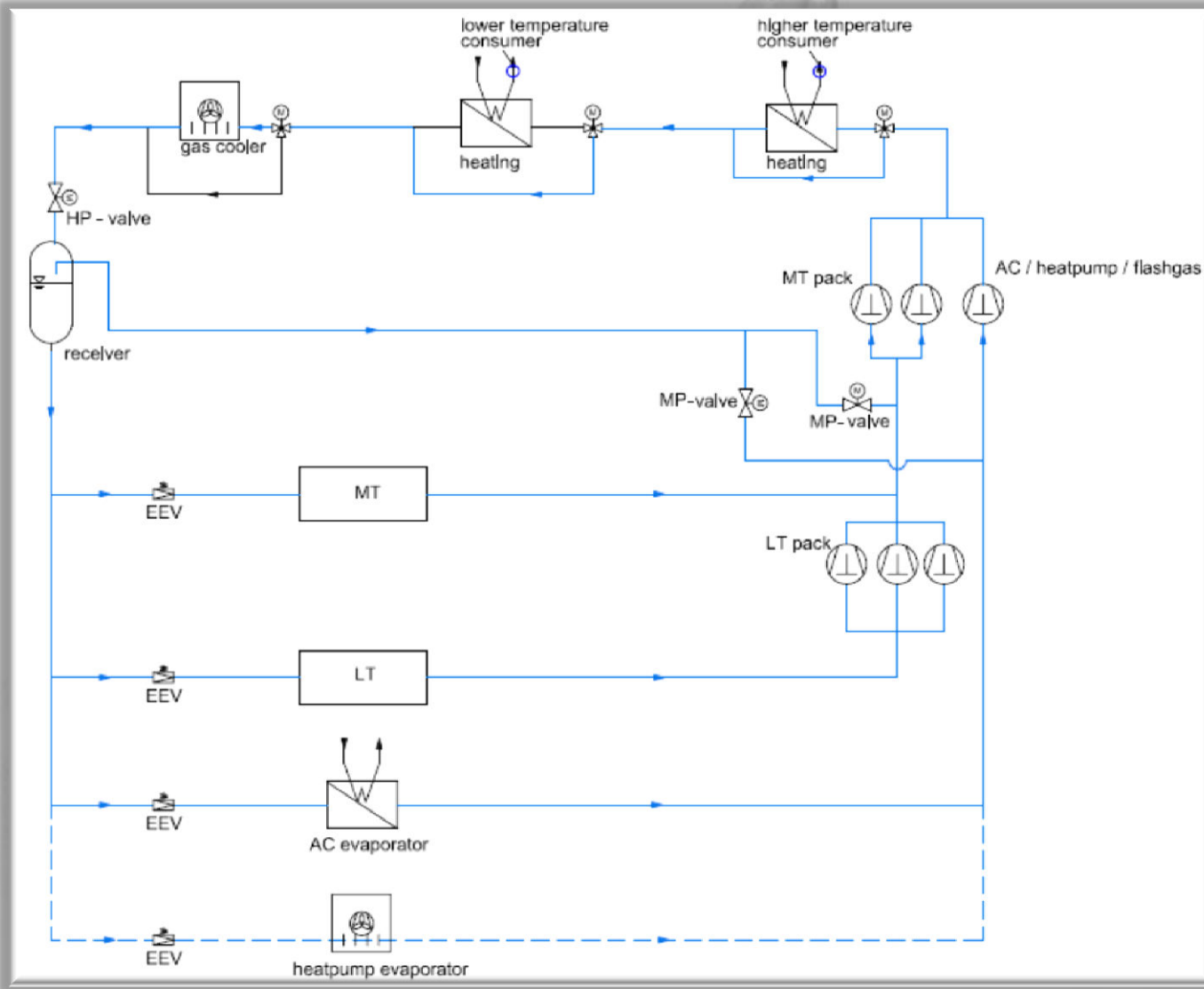
2. Summer operation

3. Winter operation

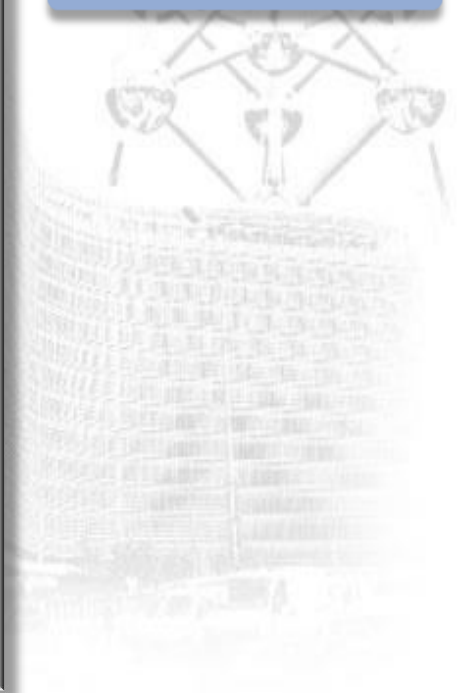
4. Consumer Integration

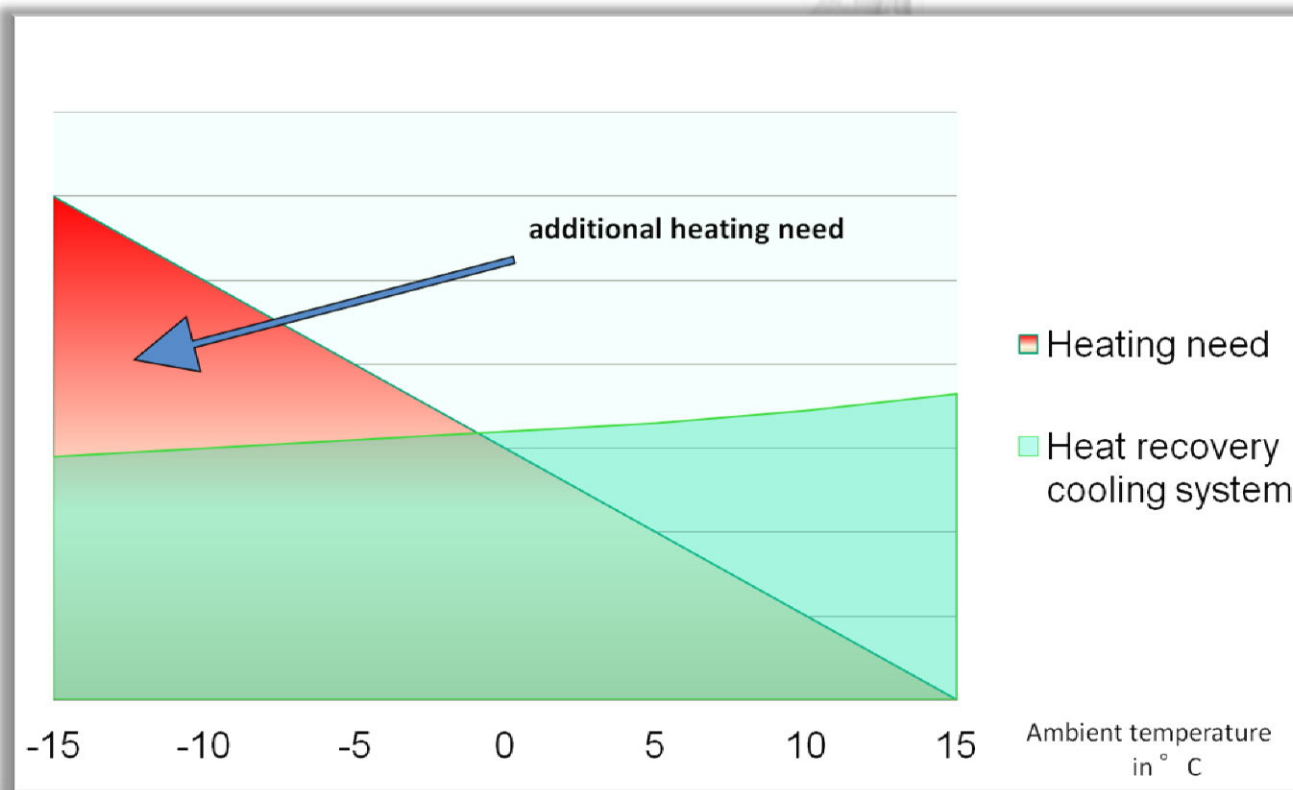
5. Scope of supply

6. Conclusions



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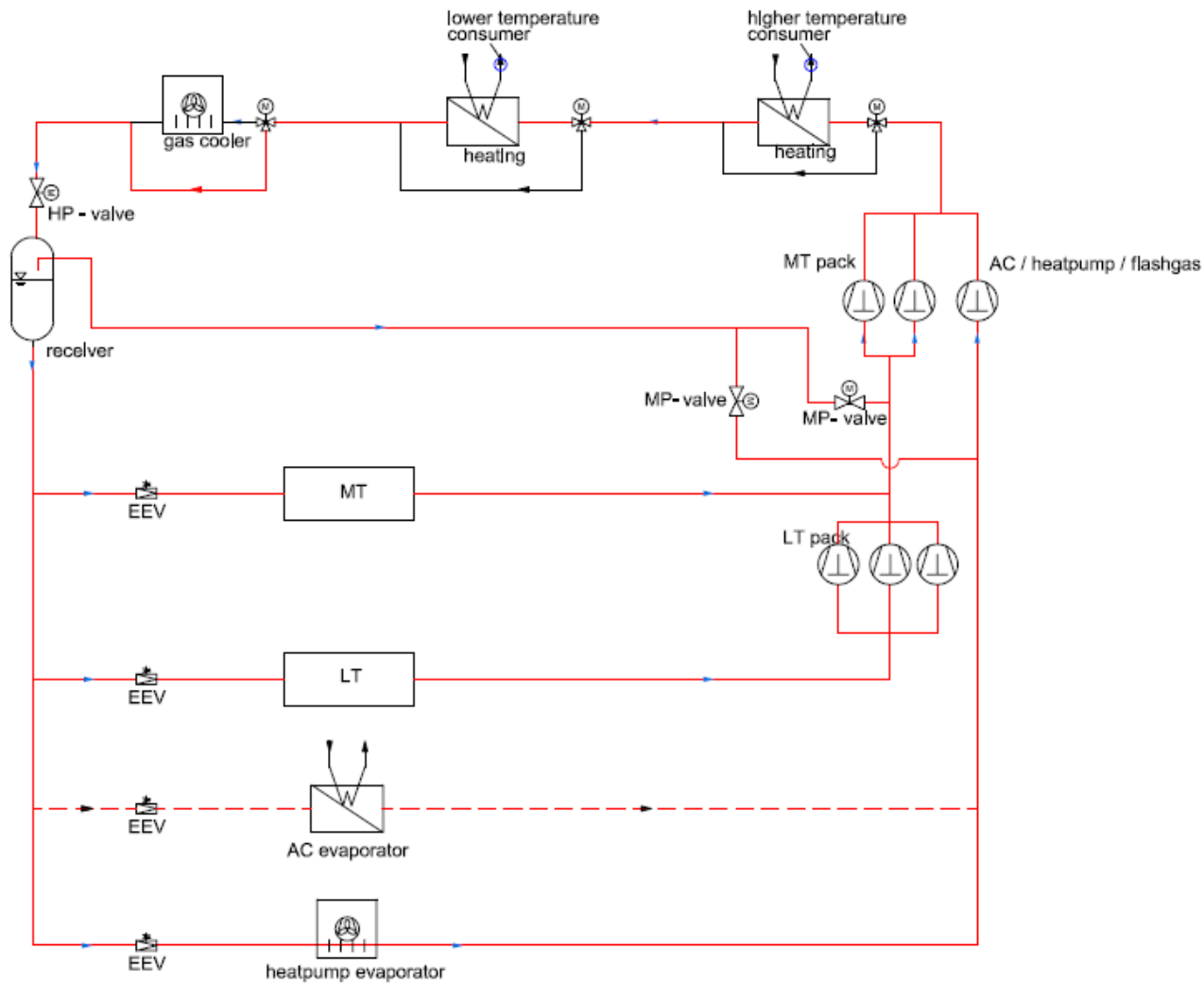




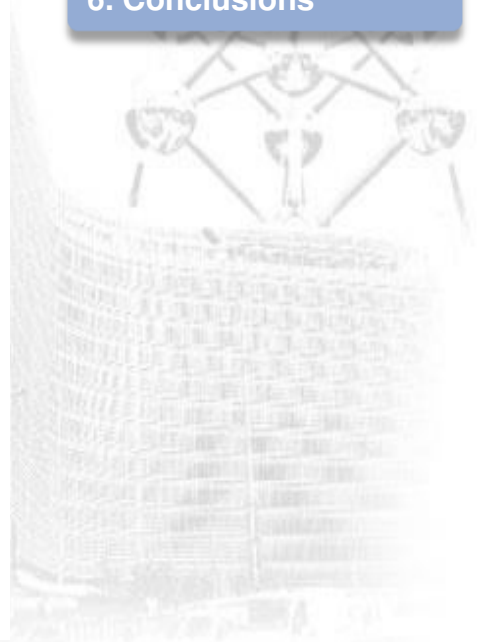
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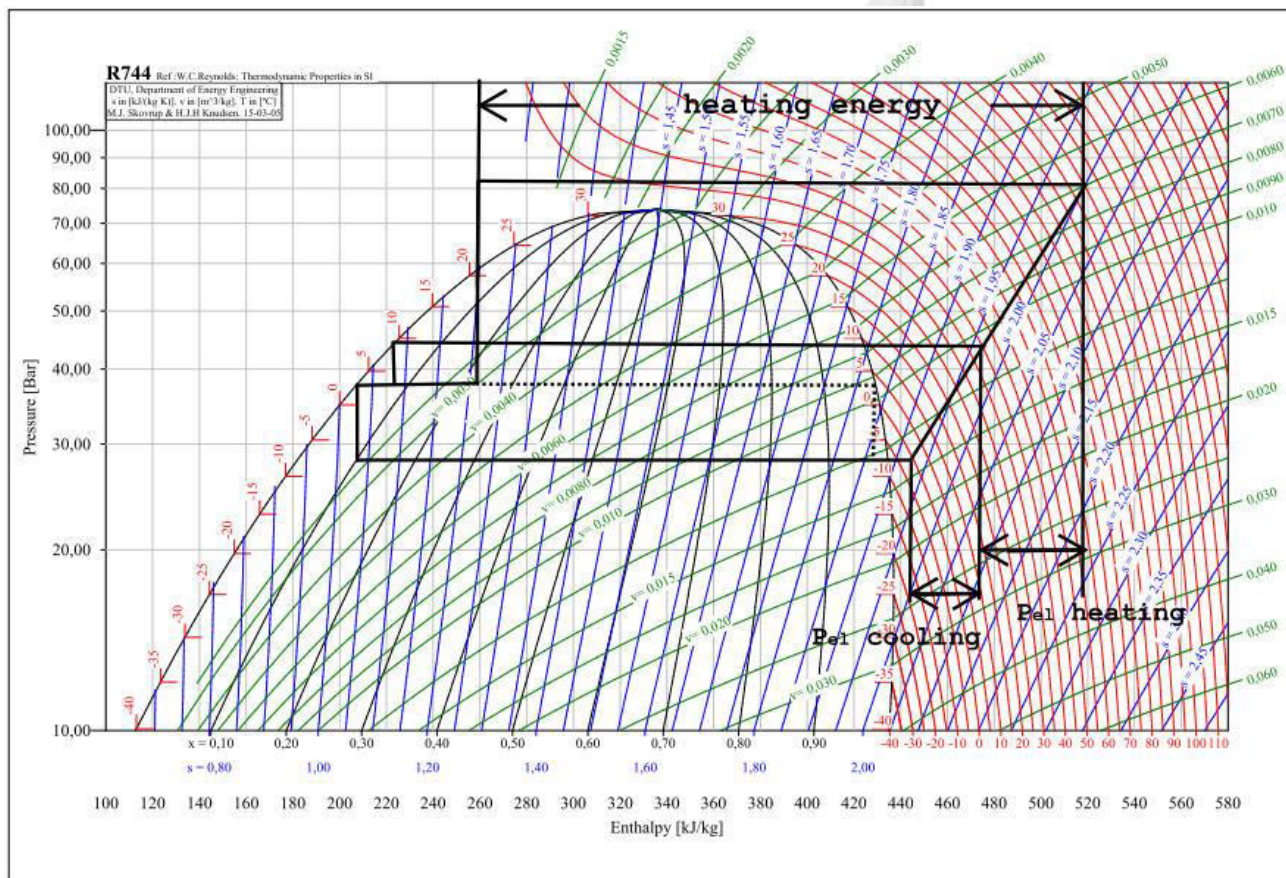
Step 1 Heat Recovery and HP offset

Step 2 Step 1 + Heat Pump Activation

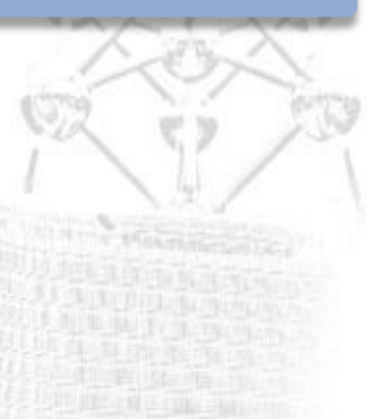


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$$\text{COP}_{\text{Recovery}} = \frac{\text{heating energy}}{\text{Pel heating}} \geq 6$$

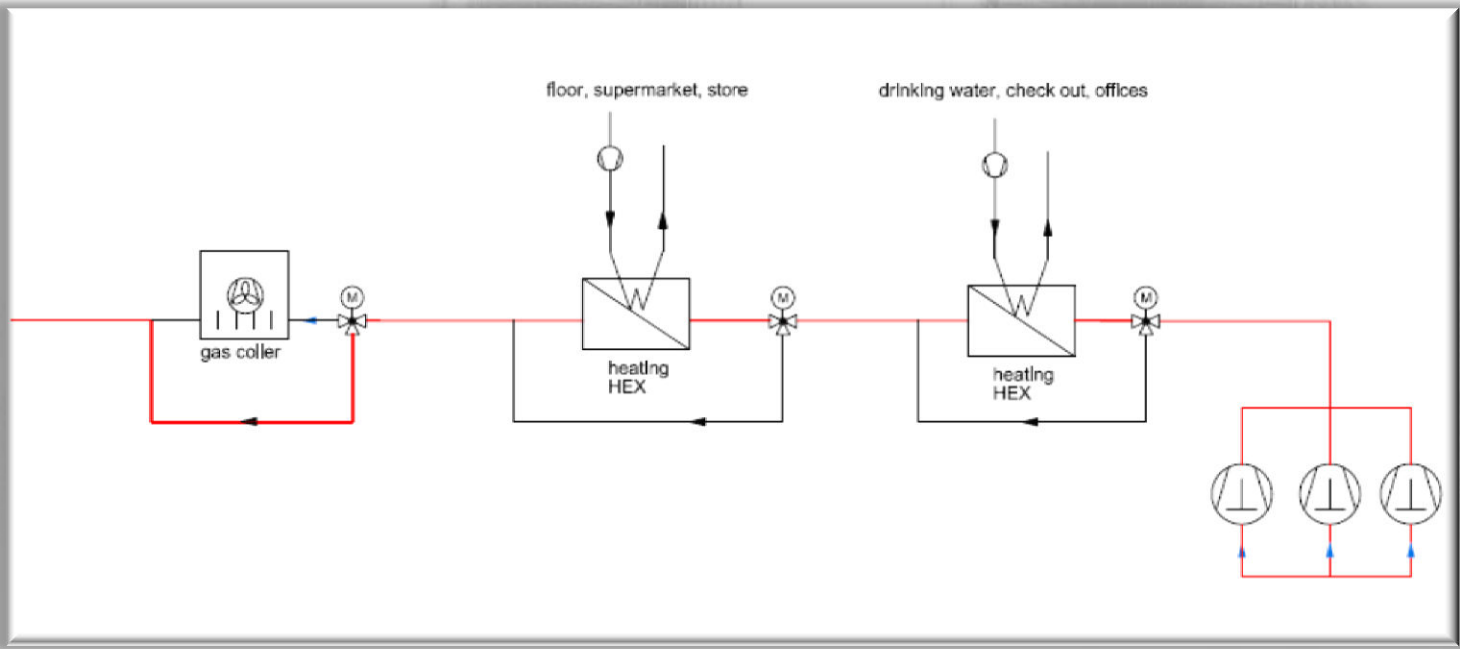
$$\text{COP}_{\text{HP}} = \frac{\text{heating energy}}{\text{Pel cooling} + \text{heating}} \geq 3,6$$



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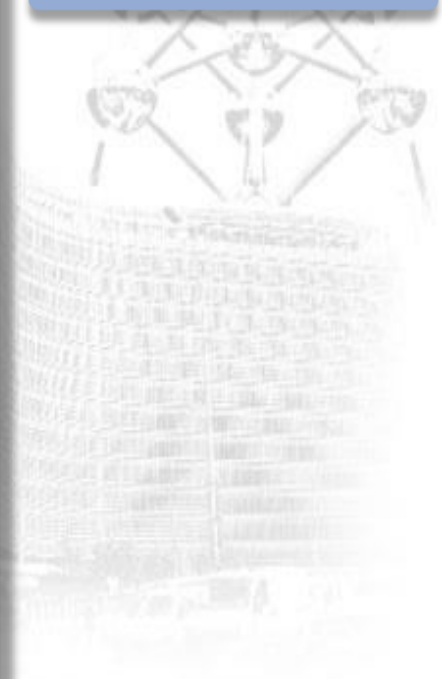
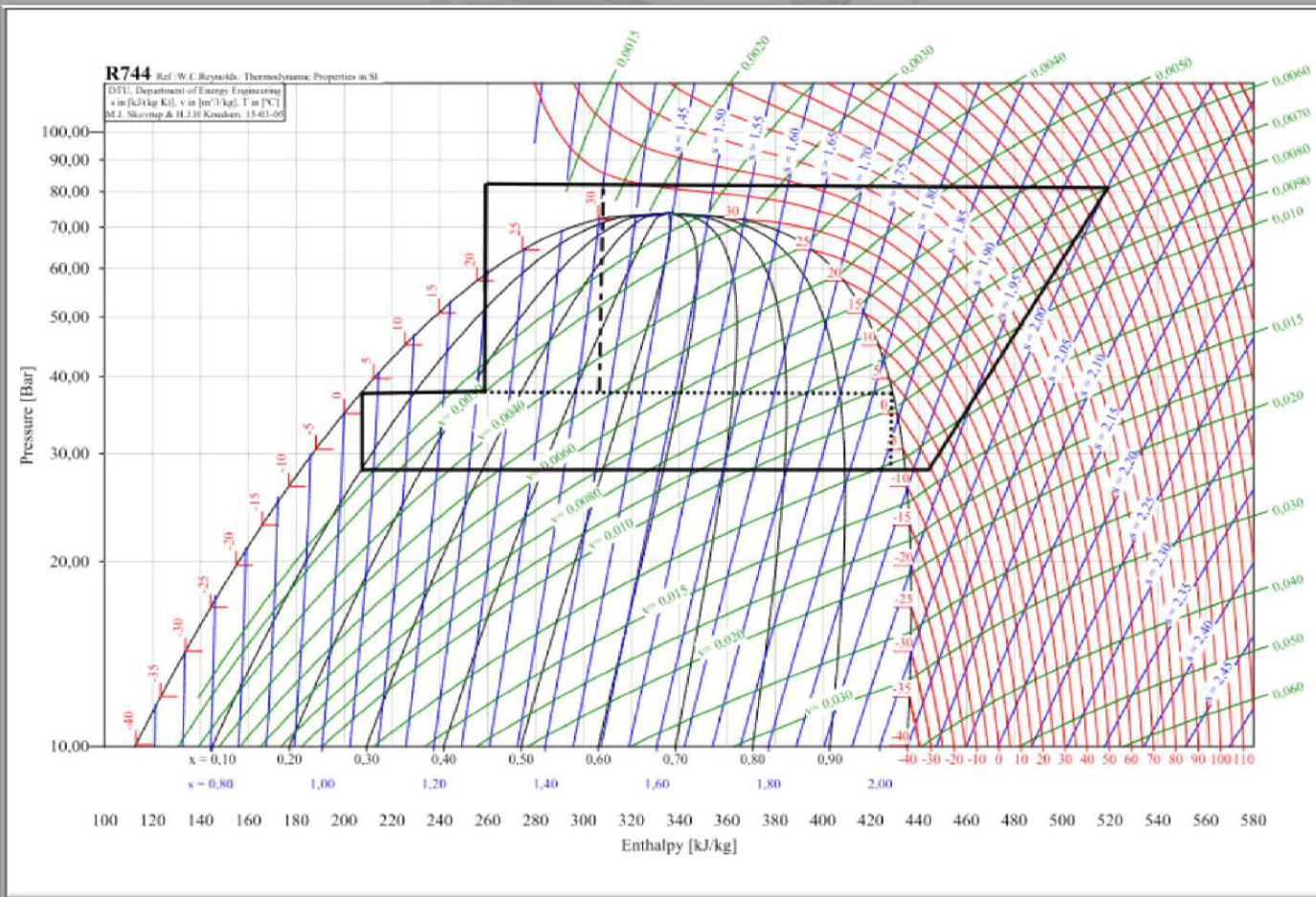


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System efficiency gain

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- Refrigeration cooling, heating and air conditioning systems
- Part of the heating and air conditioning water cycle
- Control system, including building ventilation and H+AC
- Cabinets : chillers, freezers and cold rooms
- Electrical Installation
- Maintenance contract
- Telemonitoring and Energy optimisation

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5. **Scope of supply**

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CONCLUSIONS

The systems described herein are currently in operation in central Europe

This concept is applicable and beneficial everywhere within the „CO₂ equator“

Cost advantages vs conventional systems are currently being monitored in a few systems.

We expect this product will pick up in the future because it offers an immediate ROI, simplicity and extends natural refrigeration to comfort cooling and heating.

**EPTACLIMA is green, competitive,
efficient and cost saving for
supermarkets and hypermarkets**



EPTA

THE NATURAL WAY UP



Advanced Solutions for your Store



eurocryor





solutions for europe
natural refrigerants

16-17 March 2015 in Brussels

Thank you very much!