



 **ATMO**
sphere
Business Case for
Natural Refrigerants

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NatRefs - Lessons learned from the German-speaking market

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aht.at



Global presence for highest customer satisfaction



- Austria (Headquarters)
- Germany
- United Kingdom
- USA (factory)
- Turkey
- Hong Kong
- China (factory)
- Spain
- Brazil (factory)
- Mexiko
- France
- Italy
- Nordic
- Russia





Factories in Austria, China, Brazil and USA

AUSTRIA



CHINA



BRAZIL



USA



Environment management

according ISO 14001:2004

Quality management

according ISO 9001:2008

Safety & Health management

according OHSAS 18001

Social accountability

according SA 8000



We stand for...

- ... state of the art in design, innovation, and product quality
- ... environmentally orientated and careful use of all resources used by us
- ... delivery reliability and customer orientation
- ... a professional partnership with our customers and suppliers
- ... a forward-looking, leading company in the industry that operates responsibly in terms of the best possible customer orientation



What do we do... Supermarket refrigeration



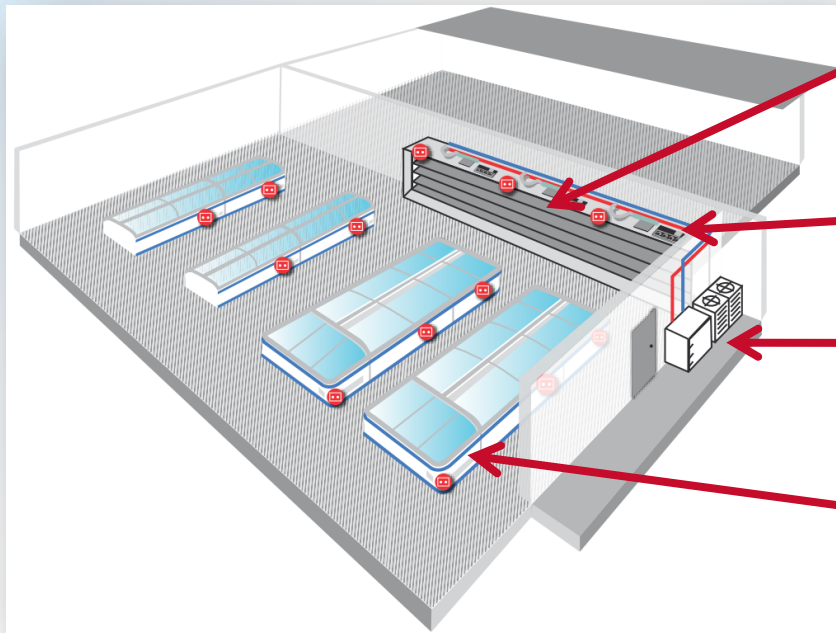
Supermarket





What do we do... Supermarket refrigeration

AHT „Green“ Plug-In Solution: **100 % R-290**



Plug-in multidecks with integrated cooling circuit

(only 2 interfaces: power supply and defrost water drain)

Optional heat removal via water pipes on the multidecks

Optional external plug-in unit for heat removal
(for „warm“ stores; contains no refrigerant or compressors)

Plug-in deep freezers
(require only power supply)



What do we do... Ice cream chests

since 2004 with R290



Ice cream





Green refrigeration - the AHT way to go

“Green” key features of the AHT technology:

- Environmentally friendly
 - Hermetic cooling circuit – each unit is manufactured on highest standards
 - Very low energy consumption
- **Future proof technology**
 - Main focus on natural refrigerants
 - Cutting-edge components
 - Connectable to store management systems
- Holistic applications:
the AHT technology is suitable for a broad field of use





HC's – The AHT Experience I

AHT is the “green” pioneer – R&D with natural refrigerants since the 1990s

- Very early focus on natural refrigerants
 - Exploring and understanding all benefits of natural refrigerants
 - Implementing of all necessary capacities (legal, technical & intellectual)
- Seek, find and use of manageable and save technologies
 - Step 1: Ice cream chests & bottle coolers (R-600a)
 - Step 2: Supermarket units (R-290)
 - Step 3: Refrigerated shelves (R-290, multi-circuit)





HC's – The AHT Experience II

AHT is the “green” pioneer – R&D with natural refrigerants since the 1990s

- Initial doubts & concerns from the market
 - No long-lasting operation experience in the commercial use
 - Fear of fire hazards
 - Health issues
- Different legal foundations
 - Flammable
 - Limited filling capacities per cooling circuit (150g-rule)
- Availability of R-290 & R-600a in service & maintenance issues

We faced the challenge – successfully!





HC's – The AHT Experience III

AHT is the “green” pioneer – R&D with natural refrigerants since the 1990s

- Very high acceptance in the markets of Germany, Austria, Switzerland:
 - Increasing awareness of “green” topics in supermarket refrigeration
 - Gradually higher customer demand of alternatives to existing and “dirty” systems
 - Sustainability and “Green Thinking” as market drivers
- Influence from different public & non-gov stakeholders in the region:
 - F-Gas-Regulation
 - Governmental initiatives (ProCool...) & incentive programmes
 - Awareness-raising (Greenpeace & other NGO's)
 - EU-Initiatives





Supermarket installations with AHT's R-290-technology

- > 700.000 units in Europe's supermarkets (major share Germany)
- > 1.000.000 units worldwide



FRANCE



KOREA



USA



THAILAND



SWEDEN



Outlook – Specific Situation at the Austrian Market

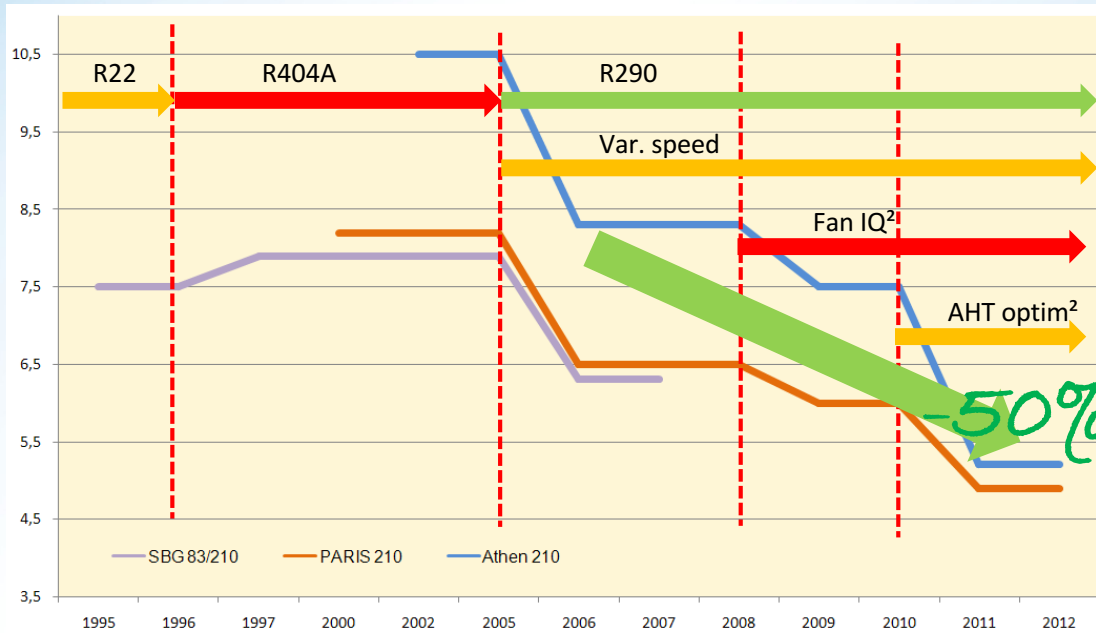
“Green” solutions in Austrian food retailing

- Food retailing in Austria has always been driven by innovation to attract customers with state-of-the-art store layouts, in combination with latest technologies since the early 1980s
- Being “green” is key: all major players run sustainable, full-integrated systems with heat recovery, photovoltaic and/or geothermal heating – all future installations will be 100 % based on natural refrigerants
- Different governmental initiatives create awareness and ensure full support for investments in eco-oriented shop-equipment





The „Energy Experience“



Triple solution

- no ODP
- no GWP
- minimal TEWI





The AHT Future Focus

HC's: Proof, Green & Sustainable

- Technology , equipment and experience are on a very high level – permanently increased with intensive R&D
- Natural refrigerants are
 - future proof (F-Gas regulation!)
 - save
 - tried & tested
- **Conclusion - Our Focus are HC's:**
 - **R-290 and R-600a are the preferable refrigerants for ALL applications**





Thank you!



The sustainable freshness company!

