



Business Case for
Natural Refrigerants

11-12/04/2018 – Beijing





Development of Natural Refrigeration in China

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An Introduction to Epta ...

**Production of remote
and plug-in refrigerator
cabinets**



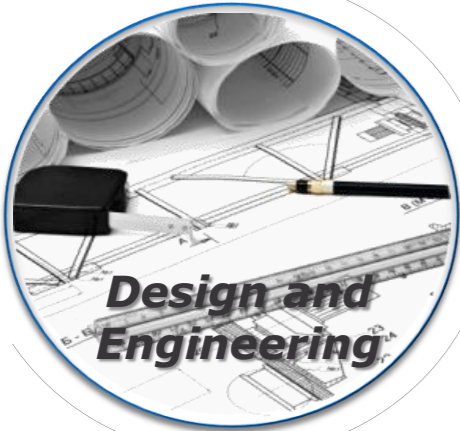
Installation



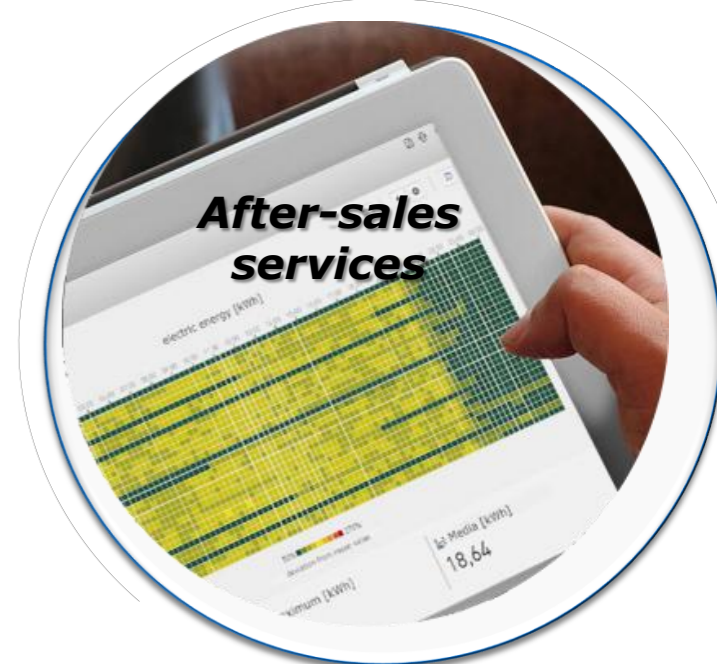
**Production of
cold rooms
and
refrigerator
systems**



**Design and
Engineering**



**After-sales
services**



Turnover 2016:

Over €800 million

Employees:

> 4,000 worldwide

Headquarters:

Milan (Italy)

Production capacity 2016:

> 200,000 units

Technical and commercial sites in

Over 40 Countries

Production units:

11 (total of **300,000 m²**)

Limana	ITALY	70.000 m²
Casale Monferrato	ITALY	80.000 m²
Solesino	ITALY	15.000 m²
Pomezia	ITALY	14.000 m²
Hendaye	FRANCE	46.000 m²
Køge	DENMARK	10.000 m²
Bradford	U.K.	22.000 m²
Rosario	ARGENTINA	12.000 m²
Qingdao	CHINA	9.000 m²
Cha-Am	THAILAND	14.000 m²
Corlu	TURKEY	8.000 m²

Epta in the APAC Region ...



Approximately **600 employees** in the region

Remotes produced : **8,500 units per year**

Plug-in produced : **25,000 units per year**



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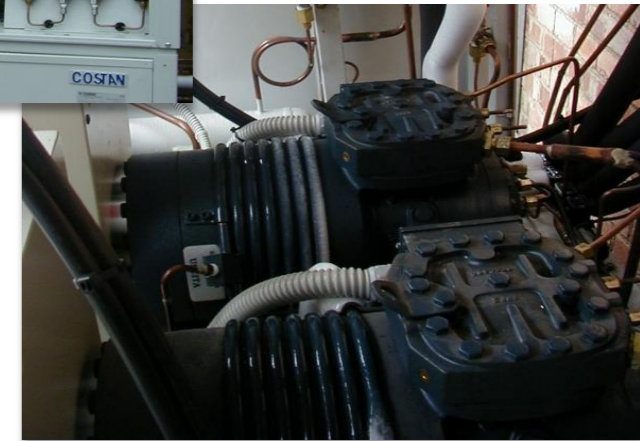
Overview of Natural Refrigerant based systems



Epta has a long history of CO2 installations...

-1999 –Iceland Harlesden, London

(CO2 sub-critical LT, Glycol chilled by HC HT)



Epta current technology...

-2017 –Kaufland Sonneberg, Germany

(Parallel compression, Gas Ejector, FTE Full Transcritical Efficiency with overfeed evaporators, internal Heat Exchanger for Heat Reclaim)

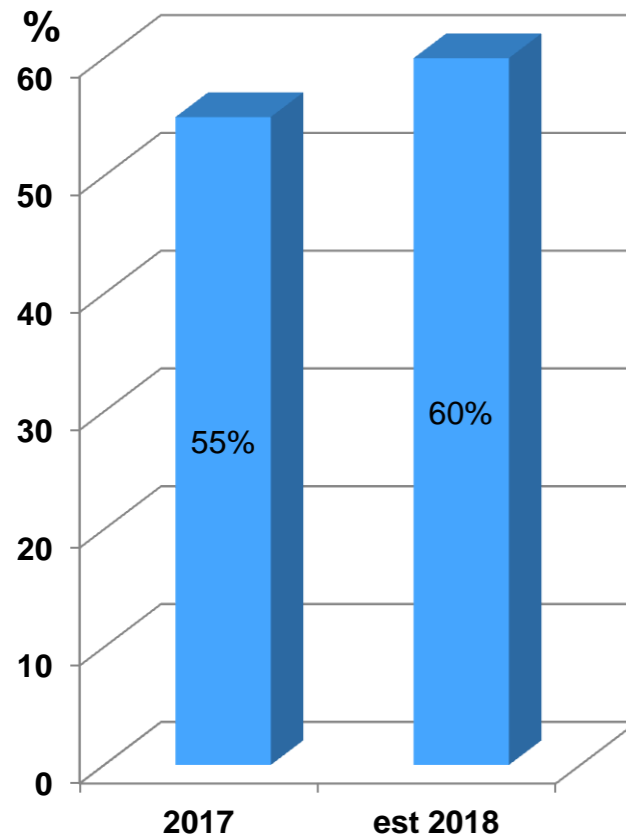


Epta Natural Refrigerant Installations in China

CO₂ Remote Systems in S.E. Asia

Retailer	Fairprice Xtra	Fairprice Finest	Fairprice Xtra	Metro Cash & Carry
Country	Singapore	Singapore	Singapore	China
Store Location	Changi Biz Park	Balestier (Zhong Shan Park)	JEM	Tianjin

Epta IARP Natural Refrigerant Plug-In cabinets





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Opportunities and Challenges in China ...



The Chinese climate varies from temperate to tropical:

- The Solution is the FTE system to provide reliable operation in conditions that range from warm ambient (+40c) through cold climates, whilst maintaining optimum energy efficiency



In every market the Challenge is to overcome "natural concern" of higher pressures & increased complexity:

- The solution is COMMUNICATION & TRAINING!



The Chinese geography and current supply chain needs an integrated approach to ensure new technology is not defeated by lack of availability:

- The solution is events that focus on businesses working together!



The Epta training centre was completed in 2009 and was designed for training staff from throughout the Epta group and later expanded to train engineers from throughout the industry.

The primary focus was on the widespread adoption of CO2 as a refrigerant and the necessary skills that this required passing on to the workforce.

A full complement of CO2 systems are available for training and research:-

Cascade system – a two compressor cascade system featuring Bitzer compressors and standby cooling together with inverter control.

Transcritical Booster system – A multi compressor system comprising MT and LT booster compressors. The system is configured to utilise multiple transcritical and flash gas solutions. The plant is equipped with inverters and standby cooling.

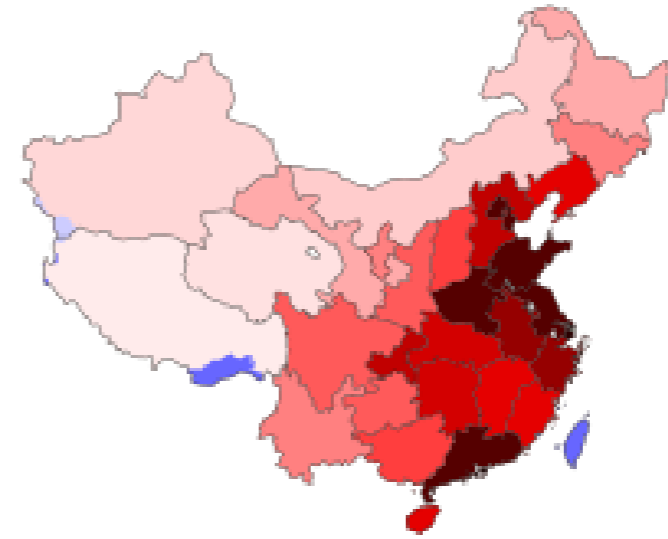
Pumped system – featuring the latest Grundfos hermetic refrigerant pump, and multiple regulation valve options.

In 2010 the centre was accepted as a City & Guilds approved training provider and expanded its operation into conventional refrigeration technology.



Our trainers are “hands-on”

- they train on site, anywhere in the World
- they “train the trainers”
- March 2018 training in Philippines
- Installations in China = Training in China



FUTURE PLANS & NEXT STEPS

- *Continued optimisation of CO₂ remote systems for Warm Climate conditions*
- *Roll-out of fully-Industrialised Natural Refrigerant integral systems utilising CO₂ and HC*
- *Building confidence and infra-structure Worldwide to ensure correct level of knowledge & supply-chain support*
- *Industrial investment into APAC region:*
 - *Epta Qingdao Factory expansion inc Packs & technical solutions*
 - *Epta Thailand IARP new Factory (Natural Refrigerants)*
- *CO₂ and HC into China will be structured and planned:*
 - *Build Confidence through cascade sub-critical*
 - *Targetted Transcritical with training "on the job"*



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Thank you very much!