Epta
Advanced Solutions for your Store

PARTNER CASE STUDIES

FTE: FULL TRANSCRITICAL EFFICIENCY

CONTACT INFORMATION

James Forbes
Manager of Marketing at Kysor Warren EPTA US
james.forbes@kysorwarren.com

Francesco Mastrapasqua
Advocacy and Regulatory Affairs Manager at Epta
francesco.mastrapasqua@eptarefrigeration.com

ABOUT THE COMPANY

Epta was founded in 2003 and has quickly become a leader in the commercial refrigeration industry. Family-owned and headquartered in Milan, Italy, Epta ensures efficient coverage of world markets through Group brands which include Costan, Bonnet Névé, Eurocryor, Misa, Iarp, and Kysor Warren. With the skills and specialization provided by each individual brand, Epta is able to offer innovative refrigeration solutions anywhere in the world. Epta Group has an extensive technical and sales force worldwide, comprised of over 40 direct branches and 11 production facilities in eight different countries. The company currently employs over 6,000 employees dedicated to providing the highest quality products and a customer experience that is second to none.

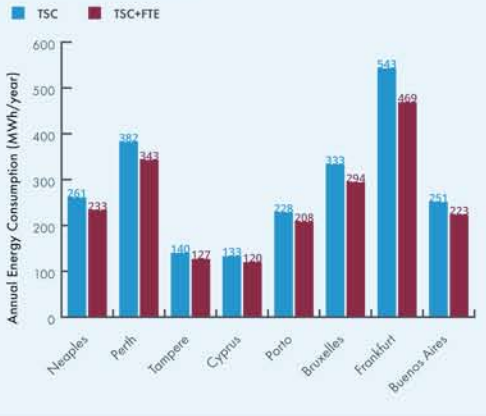
INTRODUCTION

Epta's Research and Development team is consistently pushing the envelope of cutting-edge technologies and designs in the rapidly developing area of CO_2 refrigeration systems. Being that CO_2 is non-flammable and non-toxic, it is an ideal refrigerant to aid in the advancement of natural refrigerant solutions around the globe; however, there are many factors that affect the adoption rate of new technologies. The three obstacles that were most prevalent amongst customers were defined as reduced efficiency in warmer climates, increased capital investment, and serviceability/ technical constraints. As a result, Epta developed the Full Transcritical Efficiency (FTE) system which minimizes the impact of these obstacles, making transcritical CO_2 systems a more attractive solution and ultimately increasing the adoption rate.

ABOUT THE PROJECT

The innovative design of the FTE system provides many benefits as compared to standard transcritical systems. FTE increases efficiency and reliability of CO_2 booster systems by flooding the medium temperature evaporators, without risking compressor flood-back. Flooding the medium temperature evaporators allows the suction temperature and pressure to increase,

FTE ENERGY SAVINGS IN MULTIPLE CLIMATE REGIONS



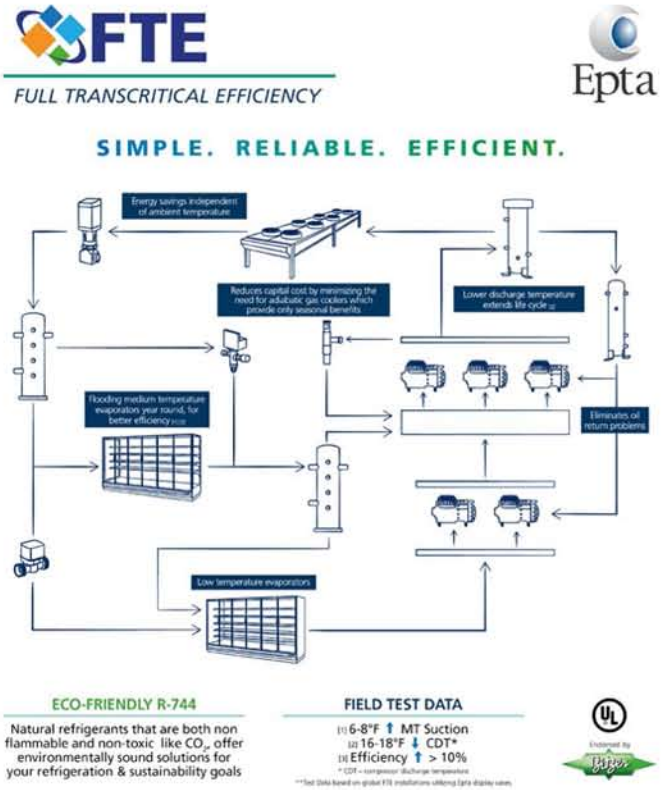
Epta
Advanced Solutions for your Store

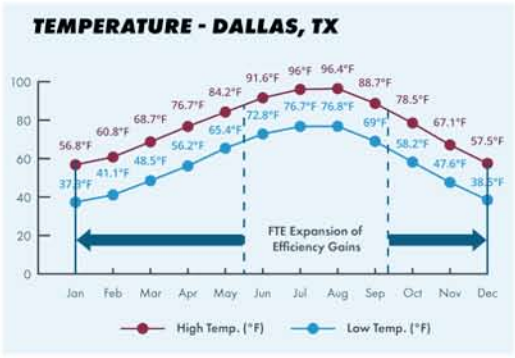
thus decreasing the compression ratio of the medium temp compressors. The effect of the lower compression ratio not only improves the efficiency of the system it also decreases the compressor discharge temperature. Lower discharge temperatures reduce the risk of overheating and degrading the quality of the oil, ultimately extending the compressor life cycle.

Since FTE is an enhancement implemented on the low-pressure side of the system, the efficiency benefits from flooding the medium temperature evaporators are recognized year-round, regardless of the ambient temperature. For this reason, FTE is the ideal solution for customers looking into options to reduce the need for expensive adiabatic or evaporative gas coolers which provide benefits only during the warmer seasons.

The simplicity and serviceability of the FTE system sets it apart from the competition. The technology requires only a few additional standard, easily-sourced components (tank/receiver, solenoid valves, check valves, and control boards) that service contractors use on a daily basis. Best in class training and support are available for installers and end users.

The importance and effectiveness of FTE is confirmed by the fact that it is at the heart of Life-C4R Carbon 4 Retail Refrigeration, the three-year Epta project co-financed by the European Union (under grant agreement n° LIFE 17 CCM/IT/000120). The project was conceived to accelerate the spread of highly efficient CO_2 refrigeration systems and is aimed at finding new technologies and standards for natural refrigeration in retail sector, highlighting Epta's commitment to research and development. It is part of the European program LIFE that includes a numerous array of projects to combat climate change.





RESULTS

With more than 300 FTE installations globally and five U.S. installations planned by end of 2020, Epta and Kysor Warren continue to see growth for this innovative design. The data collected from the global installations provide conclusive evidence of a 10% reduction in energy consumption. The data shows that flooding of the medium temperature evaporators allows the average suction temperature to increase by 6-8°F [by 3-4°C], while also maintaining product temperature and integrity. The discharge temperature of the medium temp compressors decreases by 16-18°F [by 9-10°C] which again reduces oil degradation and extends the compressor life cycle. Combining the simplicity, reliability, and energy efficiency of the FTE system make it the best option for customers interested in a future-proof, sustainable CO_2 refrigeration system.