

Innovative tech and progressive design for increased sustainability

Refrigeration insights ... 2022 and beyond

Depending on the nature of your retail business, in-store refrigeration can occupy as much as half of your retail space. It is also a significant chunk of your electricity bill every month, which is why innovative technology and a focus on energy-savings is crucial. Eye-catching displays that are aesthetically pleasing and functional are also critical to driving in-store sales.

South African retailers have access to suppliers and manufacturers of refrigeration technology that are at the top of their game. In this feature, we look at the latest tech and designs on offer, as well as efficient, sustainable, and cost-effective refrigeration and cooling systems.

“ From innovation and smart technology to superior design and extensive testing, these suppliers are using their wealth of knowledge, industry experience, and technical knowledge for efficient, sustainable, and cost-effective refrigeration and cooling systems and related services. ”



Image courtesy of Bara Cross, Pexels

Emerson commercial and residential solutions

Emerson provides a range of automation and commercial technologies and has long been an industry leader in the energy field, constantly refining their energy efficient technology for refrigeration and cold chain, heating and cooling, and controls and monitoring.

Emerson's Copeland ZX Refrigeration Condensing Unit is their most successful global outdoor condensing unit platform with over 100 000 units installed globally in just over ten years. The units offer up to 20% better energy efficiency, resulting in early investment payback. They use Copeland scroll compressors that have proven success, and their application is well suited for supermarkets, wholesalers, the hospitality industry, cold rooms, fast food restaurants and convenience stores.

The initial range, between 2 and 7.5hp, can be used with new generation HFC refrigerant, and the outdoor condensing unit offers up to 15 dBA quieter operation as well as an enhanced appearance. It is also the first in the industry to use an advanced electronics controller for



ZIEHL-ABEGG

RETROFITBLUE



Feel the **future**

...with energy-saving fan technology

With the **Retrofitblue** program, upgrade old ventilation systems fast and effectively without lengthy downtime. The result: significantly improved performance with greater energy efficiency and reduced noise level. www.ziehl-abegg.co.za

Successful retrofit examples:



Heat exchanger

Highly-efficient ZPlus units with ECblue motors. **Estimated savings/year: 25.6% energy savings***

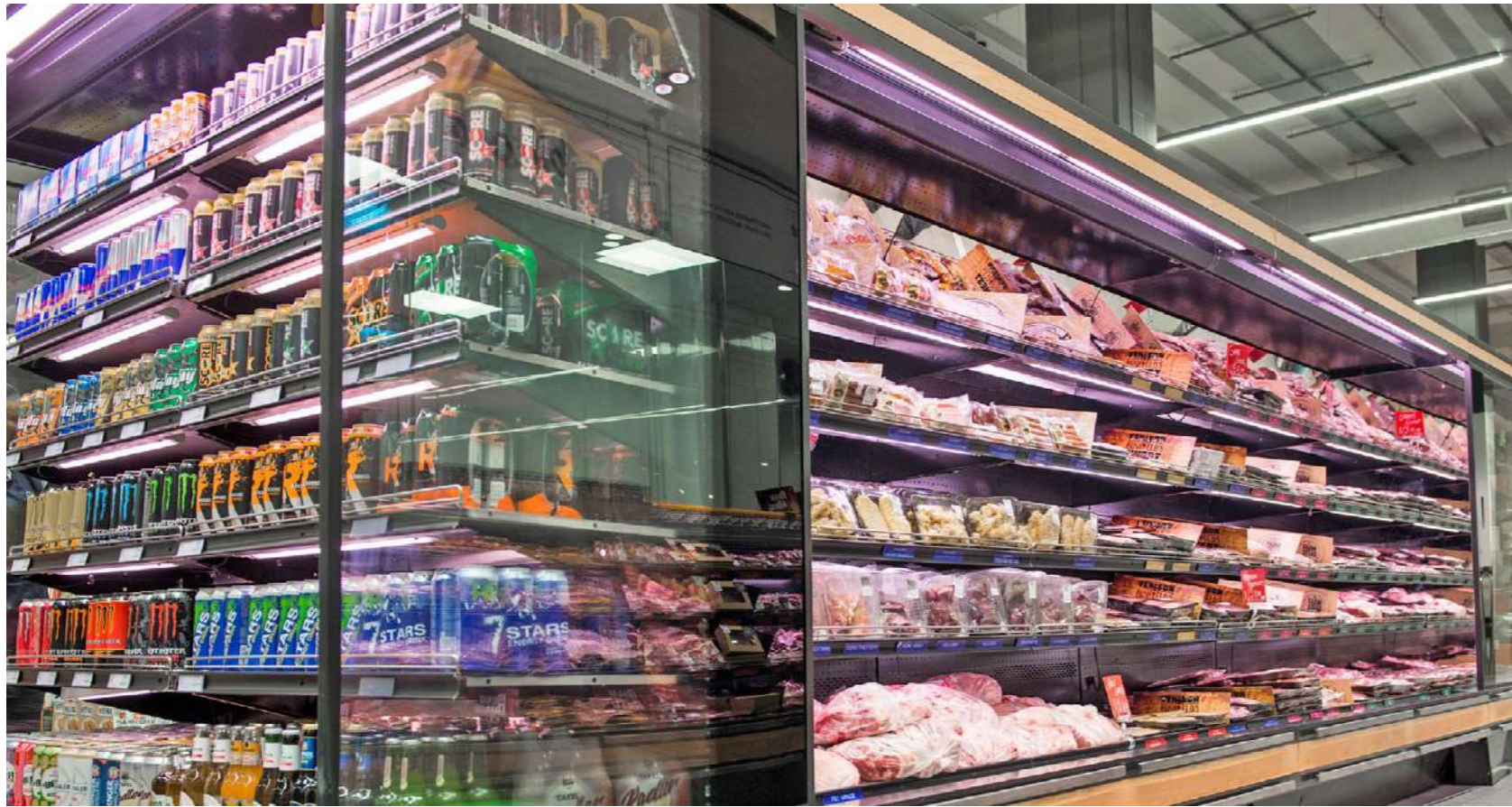


Supply air system

Efficient space-saving centrifugal fan formation with ECblue motors. **Estimated savings/year: 37% energy savings***

* Results vary depending on application, load cycle, the control and installed equipment etc. with many of our RETROfit customers experiencing >60% energy savings

The Royal League in **ventilation**, control and drive technology



Shoprite Checkers with an Energy Partners refrigeration solution.

ease of diagnostics and protection. The unit offers enhanced reliability thanks to the Copeland scroll liquid / vapour injection technology

Emerson's next generation Tandem Digital ZX condensing units expand on capacity with models up to 20hp. Digital modulation technology improves energy efficiency further with a reduced on/off cycle, while precise temperature and humidity control enhances food product quality and life.

This model is particularly useful for multi-evaporator functionality and is equipped with an Emerson CoreSense controller for diagnostics and communication capability. The ZX Digital Multiple Evaporator application means less units are

required to ensure efficient refrigeration in every supermarket.

All ZX condensing units from Emerson are equipped with Intelligent Store™ Solutions. This allows the most innovative approach to enterprise facility management through integrating hardware and services and providing a comprehensive understanding of costs, operations, and maintenance needs. An advanced electronics controller leads to improved speed and accuracy of system diagnostics, protection against over-current, overheating, incorrect phase rotation, compressor cycling, high pressure resets and low-pressure cut-outs. The ZX range of condensing units achieves energy efficiency and reliability.

Key features

- Reliable
- Cost-effective
- Self-diagnostics
- Reduced downtime
- Reduced maintenance and repair costs
- Slim, lightweight, and ergonomic
- Reduced noise levels
- Decreased carbon footprint
- Accurate evaporating temperature

Energy Partners Refrigeration and Energy Partners Intelligence

Energy Utility Asset Manager for Energy Partners (RP) Refrigeration, Coenrad Ehlers, and Head of Business Development for EP Intelligence, Tygue Theron, share how retailers can reduce and actively manage their supermarket refrigeration systems' operational costs, efficiency, and carbon footprint. EP owns and operates more than 15 refrigeration sites on a Cooling as a Service (CaaS) basis. Their customers only pay for the cooling that they consume, whilst EP takes charge of the capital, the servicing and maintenance, and the energy costs associated with the refrigeration plants.

"Managing plants from a total lifecycle cost (TLCC) perspective shifts the focus from a traditional reactive management strategy to taking the initiative and being proactive. This is only possible through the effective and active use of data for decision-making," says Ehlers.

EP Refrigeration and EP Intelligence collaboratively provide retail customers with specialised and



Discover ebmpapst.

Energy-saving refrigeration solutions
at discover.ebmpapst.com/refrigeration_technology

ebmpapst

engineering a better life



At ebmpapst, we develop fans for refrigerated display cases. Not only do they keep your frozen pizza fresh, they also use up to 70% less energy. And they're particularly quiet as well.
You can't see it. But you can feel it!

For more information: www.ebmpapst.co.za
Johannesburg 011 794 3434 | Cape Town 021 555 4547 | Durban 031 569 1963



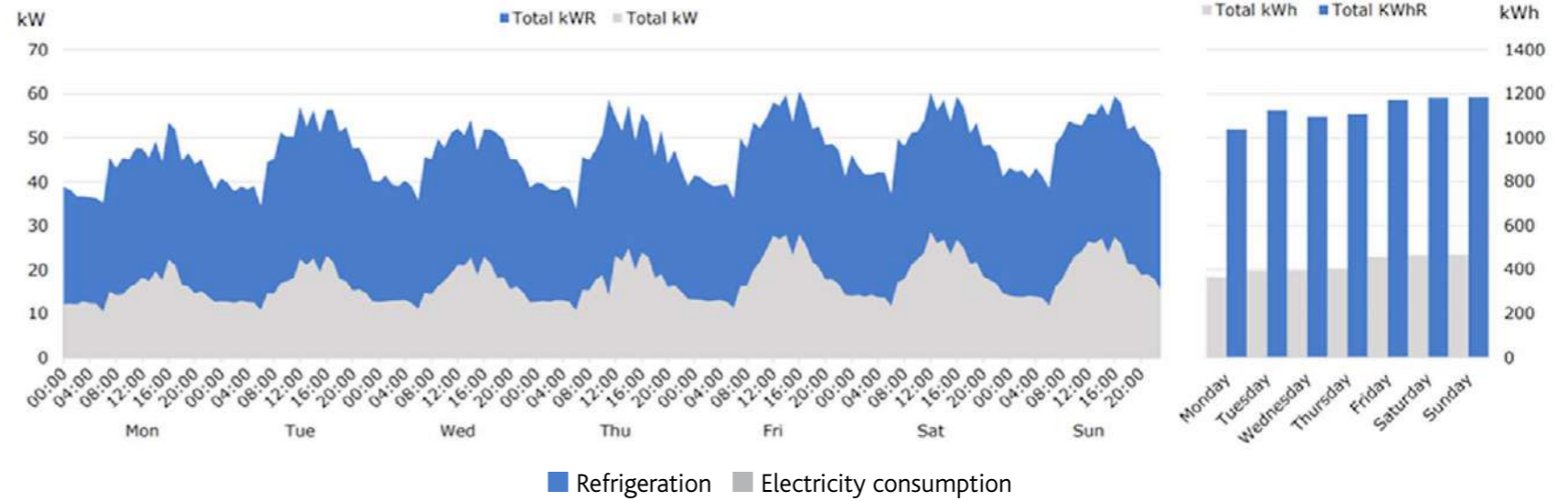
Image courtesy of Energy Partners



intelligent retail refrigeration services. They install (new builds and revamps), service, and maintain refrigeration plants in the most efficient way and, by extension, at the lowest TLCC.

EP Refrigeration specialises in developing digital twin models of refrigeration plants to simulate TLCC in order to fully demonstrate the efficiencies and savings that can be achieved by installing a new, more efficient system. However, says Ehlers, monitoring, recording, and understanding system data is crucial. Plant performance not only deteriorates over time due to general wear and tear of components within the system, it is also due to people changing settings or parameters during breakdowns or even normal service activities.

As soon as these changes are made, the designed efficiency can become compromised. Each change can contribute to the deterioration but at the time, without system monitoring, there is no clear view of the overall impact. Correctly managing your system can prevent significant deterioration



A weekly view of the consumption of a medium-sized supermarket refrigeration.



A lifetime trend view of the COP of a medium-sized supermarket refrigeration system (target vs actual). Note the annual variations due to changing ambient conditions, as well as the increase in actual COP approximately 15 months after implementing a modification aimed at increasing the COP.

in efficiency, reduce downtime, and allow for proactive preventative maintenance and servicing.

To actively manage energy consumption, EP Refrigeration uses data to track the refrigeration plant's system Coefficient of Performance (COP) over time. This information allows active manage-

ment of a refrigeration plant's energy consumption. This includes identifying and addressing visible deteriorations in system COP, as well as pinpointing new opportunities for increased energy efficiency, whilst having the ability to accurately determine the return on investment.

Environmentally Energy Efficient Future Proof Refrigeration Systems

CUBO₂
SMART



CUBO2 Smart is a compact, plug & cool, high efficiency CO2 transcritical condensing unit equipped with a brushless DC variable speed compressor with an advanced control system.

BOOSTER BOOSTER INDUSTRIAL
SMKT



The MWT SMKT & MWT Industrial BOOSTER product lines are high efficiency CO2 transcritical systems that can be configured as MT only or booster MT/LT.

The modular design allows for superb customization as well as system optimization for control, configuration and layout. This makes the MWT SMKT/Industrial range the best option for supermarket & industrial applications.



SCM Ref Africa, distributed through Metraclark supplied Natcool with a MWT SMKT BOOSTER CO2 transcritical system for Pick n' Pay in Randfontein.

The system supplied is a high efficiency 6 compressor MWT indoor Booster LT/MT unit. (3xMT+1xIT+ 2xLT)

Key features

- EP Refrigeration Asset Management Team actively monitors sites to investigate temperature trends or refrigeration plant parameters to determine potential gas leak and their location
- Identify gradual ice-ups of refrigerated areas/coils and address the root causes before these translate into temperature compliance issues, consequent stock losses, and damage to the refrigeration plant
- Monitor ambient temperatures and the store's energy intensity and comparing this to refrigeration energy consumption
- Measure savings of various implementations such as store refurbishments and where to invest for highest impact
- Portfolio analytics. With thousands of data points across a consolidated group being measured, store anomalies (outliers) can be identified and rectified
- Understanding turnover versus energy cost
- Understanding turnover versus refrigeration footprint (m³)

Refrigeration and intelligence

Understanding the need for efficient, effective, and inclusive intelligence and monitoring of refrigeration and cooling systems may seem simple. You need to know how much energy you are using, how much that energy is costing you, and where you can cut costs. But in reality, that is just the tip of the iceberg. For Tygue Theron, Head of Business Development at Energy Partners Intelligence, leveraging data to reduce energy consumption in supermarkets makes absolute sense.

Theron says, "Supermarkets contribute significantly to global energy consumption and greenhouse gas emissions. Anywhere from 50-60% of a supermarket's total energy consumption and cost lies in the application of refrigeration/cooling. Other consumers of energy lie in air conditioning (approximately 15%), lighting (approximately 15%), and other activities (10-20%)."



Tygue Theron

“In recent years, various energy-efficiency measures have been implemented to help curb energy usage, carbon emissions, and, ultimately, of course, costs. After having exhausted all current physical energy efficiency measures, it may seem reasonable to believe that any apparent opportunity has been exhausted. However, there are further efficiencies and opportunities to unlock through the intelligent application of data-led strategies.”

“The supermarket industry is incredibly complex in nature. Many supermarket groups have store quantities in the thousands, which differ in size, application, asset arrangement, the technology used, climatic conditions, and energy policy. Each store will have its own opportunities and risks in its found environment (climate, water leaks, behavioural waste,



Image courtesy of Pixabay, Pexels

budgets, billing discrepancies, energy intensities, plant performances). When dealing with operations in these kinds of numbers, management of all stores is critical to maximising efficiency and mitigating the risks that tend to be somewhat overwhelming.


“Reporting and disclosure of non-financial (carbon-related) activities are becoming a compulsory requirement for listed companies and are being formally integrated into International Financial Reporting Standards (IFRS). The potential shareholder/investor will place significant value on the supermarket groups that are actively quantifying risks and converting these risks into opportunity investments to protect the future share price of the stock in question.

“It is virtually impossible to manage or improve something that you do not measure. When dealing with problems of this magnitude and complexity, data will not only allow visibility and informed decision-making for efficiency gains but will also unlock accelerated conversion of risks into opportunities.

“It is paramount to integrate all activities into the greater sustainability strategy, which can be far-reaching, specialised – and incredibly complex to execute. Choosing the correct strategy and having a strong implementation layer is of vital importance.”



**Better performance.
Better business.
Better planet.**



Cooling-as-a-Service,
combined with natural
refrigerants, addresses
both the direct and indirect
contributions refrigeration
systems make to global
warming, while providing
end-users with the lowest
life cycle costs.

EP ENERGY
PARTNERS
REFRIGERATION

www.energypartners.co.za
refrigeration@energypartners.co.za

We are a level 4 BEE accredited provider

Image courtesy of Eduardo Soares, Unsplash



Glacier Door Systems

Glacier Door Systems offers a dedicated focus and understanding of the refrigeration industry, while manufacturing specialised glass doors for refrigerated applications. Glacier provides glass processing, insulated doors, shelving, and insulated panels.

Close the case technology has been proven to increase energy efficiency, reduce costs, and improve the hygiene and shelf life of refrigerated products. Airshield Glass Doors are designed as a retrofit solution for existing display

cases, offering up to a 40% energy saving, which is significant given the ever-increasing energy costs retailers are facing.

Key features

- Reduced energy consumption
- Extended product shelf life
- Double glazed Argon-filled void for superior insulation
- Optimal product temperature
- Spring-loaded glass doors
- Solutions for new cabinets or retrofitted onto existing cabinets
- Less cold air spillage results in warmer aisles
- Optional Mullion LED lights and door hold-open brackets
- Heated option on Standard Airshield Doors to suit coastal conditions
- Integrated full-length handle option



Design, Manufacture & Supply of Storage and Construction Equipment



Mobile Racking



Mobile Racking



In-store Fridge Racking & Shelving

Racking & Shelving

- Dynamic Systems
- Flooring & Staircases
- Conveyor Systems
- Scaffolding & Formwork
- Unistrut Cables, Ladders & Trays

Johannesburg
+27 11 824 1527

Cape Town
+27 21 905 0500

KwaZulu Natal
+27 84 845 7262
+27 82 719 1196

Warwick UK
+44 07841 391 421

Italy
+39 0124 418112

Zambia
+27 79 968 6252

08600 ACROW
info@acrow.co.za
www.acrow.co.za

HEAD OFFICE
37 Dekema Road, Wadeville, Germiston
P O Box 14217, Wadeville, 1422



The Chartered Institute of Logistics & Transport South Africa



COLCAB

QUALITY DISPLAY SOLUTIONS



New range of improved energy efficient cabinets now available

Partnering With People To Create Exceptional Value

CAPE TOWN T +27 (21) 907 2800 E info.cpt@colcabct.co.za | JOHANNESBURG T +27 (11) 869 5513 E info.jhb@colcabct.co.za | KWAZULU NATAL T +27 (31) 569 6290 E info.kzn@colcabct.co.za

Glacier's Infinity and Infinity Integrate Glass Doors are designed with edge-to-edge glass and a screen print border. This allows for increased visibility and a modernised look and feel. The Integrated Glass Door also incorporates a full-length profiled handle.

Low Temperature Eco Leaf energy saving doors comprise a heated door and architrave with a thermal break on the inside of the door frame.

Key features

- Architraves are fitted with anti-sweat heaters
- Glass is 4mm safety toughened on the inside and outside
- Argon gas-filled for efficient, effective insulation
- Low temperature doors are fitted with a heated front glass and a clear rear glass, both safety toughened.
- Energy-saving LED 22W, 6000K, LED lights are fitted on the inside of the architrave in a closed polycarbonate light diffuser



Image courtesy of Staycold

SUPERMARKET & RETAILER

Business knowledge for smart retailers



Want to target real decision makers?

Who are we?

A trusted source of retail information for over 65 years, our magazine informs and empowers retail business owners to grow whilst tackling current industry topics.

How can we help you?

We connect FMCG brands, and Equipment and Service suppliers to retail decision makers around South Africa. Elevate your brand with our wide variety of digital offerings.

Let our team help you with a digital strategy that targets real decision makers

Contact 011 728 7006 | info@supermarket.co.za | www.supermarket.co.za



SCAN TO VIEW MAGAZINE 



As seen
on KykNET
Toks en Tjops



LEKKER Braai Wipes

SHISANYAMA!

THE IDEAL BRAAI COMPANION
DETERGENT DISINFECTANT WIPES
FOR FACES, HANDS, TONGS ETC



LET'S BRAAI!

Now available at Outdoor Warehouse, & Westpack stores.
Contact us Sanitouch@sanitouch.co.za
011 7914860 Fluid Tested Against Coronavirus EN 14476



don't just touch,
sani-touch

Staycold International (Pty) Ltd

Staycold is one of Africa's leading manufacturers of commercial refrigeration, specialising in self-contained display coolers and freezers. An innovative company, they offer technical excellence, class-leading refrigeration performance, and energy saving design.

Staycold's new SD1140-FLC Fast Lane Cooler challenges the status quo in the retail space.

With best in class pack out volume, flexible shelving on either side of the self-closing doors, and a robust durability, this is a product for retailers to consider. Eco-friendly insulation foam, EC (electronically commutated, combining AC and DC voltages) brushless fan motors, and Pathway to Net Zero compliant R290 refrigerant make this solution an efficient and sustainable option for the future. In addition to this, LED downlighting provides maximum visibility and makes this cooler suitable for high traffic locations such as till points and till aisles.

Key features

- Flexible shelving configuration
- R290 refrigerant
- Self-closing doors
- Significantly reduced energy consumption
- Eco-friendly insulation foam
- EC brushless fans used on both evaporator and condenser

Image courtesy of Staycold



The SD1140 Double Sliding Door Beverage Cooler has provides durability, reliability, performance, and efficiency in the upright beverage cooler market. It offers a robust design, classic lines, self-closing doors, and notable energy efficiency. This unit was built with tough environments in mind and can keep products cold in ambient temperatures above 40°C. Products are clearly displayed due to the Low-E (low thermal emissivity glass), keeping condensation to a minimum and the dual internal LED lights and the back lit header panel visible, which has an effect of making the products 'pop'.

Key features

- Durability, reliability, performance, and efficiency
- Available in 'Pathway to Net Zero' hydrocarbon R290 refrigerant
- LED lighting including dual internal lights for maximum visual impact and robust, backlit header panel for maximum marketing visibility
- Operates in the toughest of environments (>42°C ambient temperatures)

- Digital energy management device and thermostat ensures accurate temperature maintenance and energy efficiency
- Also available in single door and hinge door variants

Staycold's HD690F Single Door Display Freezer has been a mainstay in the display freezer market for many years now. Able to operate in high ambient conditions, and incorporating heated doors and frost-free operation, the unit also offers high grade internal LED lighting and an illuminated backlit header panel to ensure maximum product exposure. A digital energy management device and thermostat ensures the temperature remains stable.

Key features

- Digital energy management device and thermostat ensures accurate temperature maintenance and energy efficiency
- Frost-free operation
- Heated doors ensure no fogging or condensation
- Also available in double door variant **SR**

Sources:

www.emerson.com/en-gb/
www.energypartners.co.za
www.glacierdoors.co.za
<https://staycold.co.za>



Ann Baker-Keulemans is a highly experienced B2B and B2C journalist, writing on topics related to business, lifestyle, technology, and health, with extensive knowledge on the SA retail and wholesale landscape. She holds a Bachelor of Arts degree in English Literature (British and Commonwealth) and Media Studies and is a member of the Golden Key Honour Society. Contact annbk@wilkinsross.co.za | www.wilkinsrossglobal.com

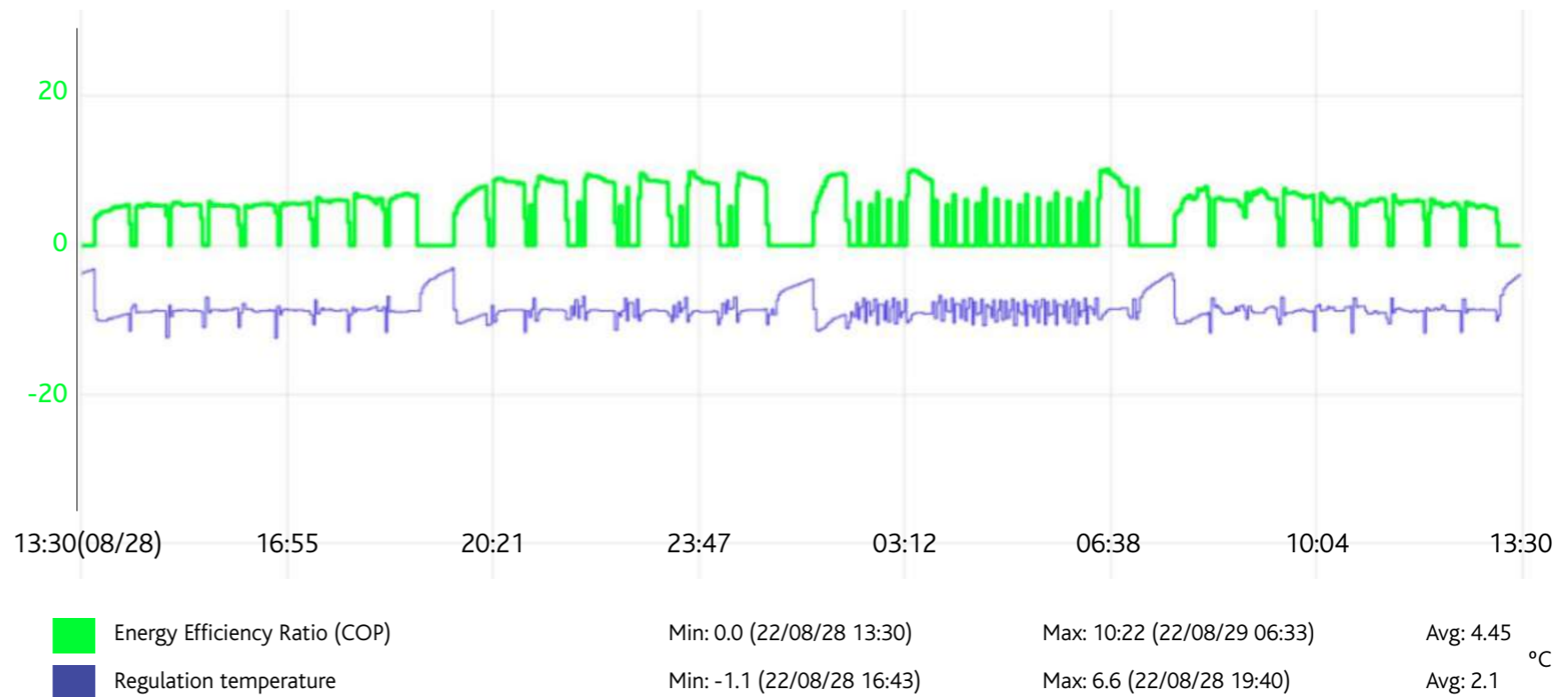
In 2016 Insulated Structures launched their first 410A Aqualoop system, which over time has been perfected to operate at maximum efficiency. Due to its efficiency and low maintenance cost, this system has been installed across South Africa and neighbouring countries, such as Botswana, Eswatini and Namibia.

With the harmful effects traditional refrigerants pose on the environment, and our responsibility as leader in high efficiency refrigeration systems, Insulated Structures in partnership commenced developing the GreenLoop system in November 2020. R290 was the chosen refrigerant due to its ODP value, as well as its thermos physical properties.

The decision did not come without challenges!



The limitation of the refrigerant charge meant that new evaporator coils had to be developed and manufactured. The design was tested and perfected in laboratory conditions in our Cape Town factory. The COP results and temperature compliance achieved exceeded our expectations.



Celtisridge Spar and Tops, a Spar North Rand Div., invited Insulated Structures in April 2021 to tender on their existing store to be revamped. The scope of work included new equipment such as Cold and Freezer Rooms, Cabinets, Airshield Glass Doors fitted to the cabinets and a new Aqualoop refrigeration plant.

Our retail area solution to the customer was as follows:

- New 800 Series Upright Fruit and Veg Cabinets.
- New Lofty Upright Dairy and Coldrinks Cabinets.
- Refurbished Meat Upright Cabinets.
- Premium Airshield Doors fitted to all Uprights.
- Self-Contained Island Freezers.
- Newly developed GreenLoop Refrigeration Solution.

Insulated Structures was awarded the project after a successful presentation. The team installed energy meters to the existing refrigeration plant to monitor energy usage before and after revamp of the retail area and new refrigeration plant installation. The project was completed in different phases. The Greenloop simplified the installation and down time of the cabinets, due to the existing plant being R22 medium temperature and 404 low temperature Multiplex.



Images: Upright Cabinets fitted with Premium Airshield Glass Doors. Fitment of the mentioned doors reduces the energy usages by approximately 40%.

The energy results shown before and after yielded a total saving of 32,2% year on year between the traditional multiplex vs the GreenLoop system.

This was achieved by the ability of the DC compressor's variable speed capability to maintain setpoint, less defrost requirements due to the evaporator's efficiency and the fitment of Airshield Doors to the Upright Cabinets excluding the Fruit and Veg Cabinets.

Insulated Structures would like to thank the retailer, Mr Gabriel Goncalves, and Spar North Rand for the opportunity to work with them on this exciting project.



GET IN TOUCH WITH US
+27 (0)11 462 2130



QUERY? SEND US A MAIL
sales@insulated.co.za



VISIT OUR WEBSITE
www.insulatedstructures.co.za