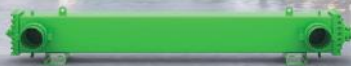


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samsung.com/windfree

*ASHRAE (the American Society of Heating, Refrigerating, and Air-Conditioning Engineers) defines "Still Air" as air currents moving at speeds below 0.15 m/s, with no cold drafts.



Welcome to the August / September edition of ACR Journal. Seeing many of you at the National Air Conditioning, Refrigeration and Heat Pump Awards in Manchester was a pleasure. I heard many comments about how many new 'younger' faces were there, which, I'm sure you will agree, can only be a good thing for our industry. Please take a look at the awards coverage in the accompanying supplement.



In this edition, we feature the RACHP Skills final that had a facelift this year and took place during the InstallerSHOW at the NEC. Congratulations to all the competitors for such a good demonstration of skills under pressure. Furthermore, Soleco explains how to reduce equipment vibrations, Verv demonstrates why innovative smart isolators might be a cost-saving benefit for energy consumption, and Bitzer looks at natural refrigerant R290.

I hope you enjoy this edition.

Andy



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Refrigerant diving licence 'will save many lives'

The Building Engineering Services Association (BESA) has welcomed the launch of the United Nations Refrigerant Driving Licence (RDL) scheme to help improve worldwide safety standards in air conditioning and refrigeration.

More than a decade in the making, the scheme was launched at a conferThe Building Engineering Services

Association (BESA) has welcomed the launch of the United Nations Refrigerant Driving Licence (RDL) scheme to help improve worldwide safety standards in air conditioning and refrigeration.

More than a decade in the making, the scheme was launched at a conference for signatories to the Montreal Protocol hosted by the UN Environment Programme (UNEP) in Bangkok. It aims to help developing nations achieve higher competence standards in safe refrigerant handling through training and accreditation of operatives.

BESA, which operates UK refrigerant management registration scheme REFCOM, said the timing was significant because of the rapid growth in the use of new 'alternative' refrigerant gases. These are designed to replace traditional global warming equivalents but are often more flammable so require users to have more stringent safety training.

The association's technical director, Graeme Fox, was one of the founders of the RDL scheme and hailed its launch as a "significant development for the worldwide refrigerant industry that will save many lives".

"A lot of countries do not enjoy the training and technical infrastructure we take for granted in Europe and the rest of the developed world," said Fox, who is also president of the Institute of Refrigeration. "Many of those countries still want to progress and adopt more environmentally friendly refrigerants. However, the speed of the transition to new gases is causing some very serious safety issues and there have already been several deaths caused by the mishandling of these substances."

The European Union is currently debating a further strengthening of its F-Gas regulations, which would lead to an even faster pace of change away from higher global warming potential (GWP) gases to flammable alternatives. Changes in large developed markets are quickly reflected in other parts of the world as manufacturers adapt their production strategies.

The African industry is concerned that it is being used as a 'guinea pig' to test refrigerant transition, and the U-3ARC, which represents companies in all 54 African states, called for a halt to their introduction until technicians were properly trained. It said the risks were "enormous" and that "the protection of the environment only makes sense if the human being, who is at its centre, benefits from it".

Fox said this showed how important the RDL scheme would be and urged the industry to share its expertise and resources to upskill the global workforce. He also asked regulators to be patient as efforts were stepped up to raise standards.



BITZER and Beijer Ref extend partnership

Leading wholesale group Beijer Ref and compressor specialist BITZER have extended their long-term partnership agreement by a further year.

Beijer Ref operates a network of 143 branches across the Asia-Pacific region, North America, Africa and Europe. Bitzer supplies the group with refrigeration and air conditioning components, as well as offering support through training and education.

Martin Büchsel, Chief Sales and Marketing Officer at BITZER, said: "We are delighted about the successful partnership with a partner as strong as Beijer Ref. The joint benefits are evident for our customers worldwide: an extensive product selection, high regional availability and short delivery.

"Together, we want to support our customers in finding suitable energy-efficient solutions, for example by using natural refrigerants."



Beijer Ref CEO Christopher Norbye, left, and Martin Büchsel of Bitzer

BCIA in step with Teenage Cancer Trust

The Building Controls Industry Association (BCIA) is asking members to support its nominated charity for 2023, the Teenage Cancer Trust.



Taking inspiration from the TCT's 15,000 step challenge, which represents the amount of steps per day the average TCT nurse walks, the BCIA would like its members to collectively complete 5million steps and help raise £25,000 for the charity.

Every day, seven young people aged 13-24 hear the words "you have cancer". They will each need specialised nursing care and support to get them through it. Teenage Cancer Trust is the only UK charity dedicated to meeting this vital need.

The awards event in May formed the centrepiece of the BCIA's fundraising with £5,602 raised on the evening, including £500 from the BCIA in lieu of development costs for its Market Information Service. All donations and activities can be linked to the BCIA JustGiving page so TCT can benefit from Gift Aid.

<https://www.justgiving.com/page/bcia2023>

Starfrost partners with Scan American

Starfrost has appointed Scan American Corporation as its exclusive agent in North America.

The partnership, which covers the USA and Canada, is said to be a significant step in Starfrost's global expansion strategy, which focuses on delivering high performance freezing and chilling systems that are tailored to the specific requirements of its clients.

"We are delighted to be partnering with Scan American Corporation," said Robert Long, managing director at Starfrost. "Their understanding of the North American food

processing industry and their reputation for exceeding expectations make them an ideal partner for us. We are confident that their sales expertise and dedication to service and aftercare will have great long-term success.

"Our partnership with Scan American Corporation is just one more example of Starfrost's commitment to providing our customers with the best possible solutions to their freezing and chilling needs."

"We are excited to represent Starfrost in North America," said Ben Parker, Scan American's managing director. "Their range of innovative freezing and chilling



equipment is perfectly suited to the needs of the North American food processing industry. We look forward to working closely with Starfrost to bring these cutting-edge technologies to our customers and help them achieve their goals."

IGD joins Safe Monitoring Group

UK manufacturer International Gas Detectors (IGD) has become part of Safe Monitoring Group.

Founded in 1917, Stockport-based IGD manufactures gas detection systems for over 700 gases and vapours, supplied to the global safety market.

IGD and other group members, including Samon, will collaborate in areas such as R&D, marketing, procurement, sales and service. Clients of IGD and the other members of Safe Monitoring Group will have access to a wider range of products and services, to support their needs in current and new applications.

Andrew Collier, Managing Director of IGD, said: "I am thrilled to be a part of Safe Monitoring Group, this is a really exciting time for everyone involved. Joining with the group not only helps accelerate both IGD and other members' development and growth; it also allows access to complementary products and markets."

Alexander Larsson, CEO of Safe Monitoring Group, added: "I have got to know IGD during the past year and I'm really impressed with their professional product and system offering together with the wide service offering in UK. I'm looking forward to expanding the business together with the management of IGD. Safe Monitoring Group will continue our expansion in new geographies and applications by organic growth and an ambitious acquisition agenda."

As of the 31st May, IGD has successfully joined Safe Monitoring Group, with company directors re-investing in the group and becoming shareholders.

<https://safemonitoringgroup.com>



safe monitoring group



Dave McCoy
Service Director

Andrew Collier
Managing Director

Colin Peake
Sales Director

Warehouse expansion supports growth, says Samsung



Samsung Climate Solutions says an expansion in warehouse and team capacity is supporting the company's growth.

A new warehouse operated by XPO Logistics in Leicester, offers approximately 150,000ft of which Samsung currently occupies approximately 50% with room to expand. It has four times the inbound-outbound capacity than previous locations, receiving 95% of the stock direct from factories and 5% top-up from EU.

In order to provide customer service to match in the increase in warehouse capacity there has also been a large increase in the technical, operations and sales teams.

Steve Fleming, Head of Climate Solutions UK & Ireland, said: "Our team has grown from 19 when I joined to 67 by the end of this year in 2023. We want to provide the best end-to-end customer service possible to match our ambitious growth plan. Our commitment to the customer is to recruit the very best people across all areas of the business in order to provide the quality of service to match the quality of our product."

Samsung also has access to meeting rooms within the Leicester warehouse and will soon be welcoming customers for onsite meetings.



Vent hygiene register backs charity



The ventilation hygiene industry's newly rebranded certification scheme, Vent Hygiene Register (VHR), has started fundraising for the 186-year-old charity Hospitality Action.

The charity supports anyone employed in the hospitality sector who is suffering financial hardship, physical and mental health problems, and other challenges. It has distributed more than £3m and provided emotional support to over 200,000 UK workers since the pandemic with more than 10,000 grants given to households.

VHR, which is managed by the Building Engineering Services Association (BESA), is a growing digital database for notifying work in compliance with the industry standard TR19 Grease Specification, Fire Risk Management of Grease Accumulation within Kitchen Extraction Systems. This work plays a key role in reducing fire risks in buildings to protect people and property – and is particularly important for the health and safety of commercial kitchen staff.

VHR is intended to become the ventilation hygiene equivalent of the mandatory Gas Safe Register, which transformed the safety of gas installation work in the UK, and another BESA safety register, REFCOM, which plays a central role in the safe handling of refrigerant gas in the air conditioning and refrigeration sectors.

www.hospitalityaction.org.uk

Kooltech opens Cambridge branch

Air conditioning, refrigeration and heat pump distributor Kooltech has opened a branch in Bar Hill, near Cambridge

The new 3115 square foot premises—including a trade counter, offices and warehouse—will supply Mitsubishi Electric air conditioning and heat pumps, refrigeration equipment, and associated installation and service materials to specialist contractors in the area.

Jonathan Brown, Kooltech commercial director, said: “This new branch will stock air conditioning and refrigeration units as well as low carbon heating technologies. It’s part of our ongoing growth and continuing investment in sustainable heating and we’re pleased to grow our business in this wonderful part of the country.

“Non-domestic buildings account for around 22% of emissions from buildings and 4% of all UK greenhouse gas emissions. The UK, and the East Anglia region, cannot hit our collective net zero targets without sustainable commercial heating solutions and this facility has the potential to boost the rollout of commercial heat pumps in the area.”

Situated just off the M11 and A14, the full branch address is Unit 1A, Gateway, Bar Hill, Cambridge CB23 8SQ.

The Grade A sustainable building has an EPC rating of A+. The site is committed to achieving the Planet Mark Development Certification, ensuring it is a future-proofed, low carbon and energy-efficient build. Features include efficient insulation, internal and external LED lighting, and Mitsubishi Electric heating and cooling with heat recovery ventilation. The building utilises natural light and has solar panels of the roof, as well as car charging points in the car park.



The Kooltech Cambridge team

Diane Drummond chairs BESA Scotland

Diane Drummond, managing director of B-DACS Air Conditioning, has been elected chair of the Building Engineering Services Association (BESA) Scotland for 2023/24.

She has been a director of B-DACS, which installs, maintains, and repairs commercial ventilation and air conditioning systems throughout Scotland, since it was founded 20 years ago by her husband Brian.

She previously worked in the retail sector for 15 years before switching to banking where she rose to a senior management role at Lloyds. She left in 2012 to go full-time at B-DACS where she was able to apply her business experience overseeing the day-to-day operations and financial management of the Glasgow-based firm.

“The bank gave me the leadership and people management skills which have shaped the way we run B-DACS today,” she said. “I was very fortunate to have some fabulous mentors who guided me.

“I have a real passion for learning and every day is different. I love the flexibility the role brings, and I like the fact we can make changes and implement ideas that benefit both employees and customers.”

BESA membership director Rebecca Fox welcomed Drummond’s election and said she was looking forward to working with her to further strengthen the association’s presence in Scotland.

“We are very proud to be the only built environment trade association that represents every part

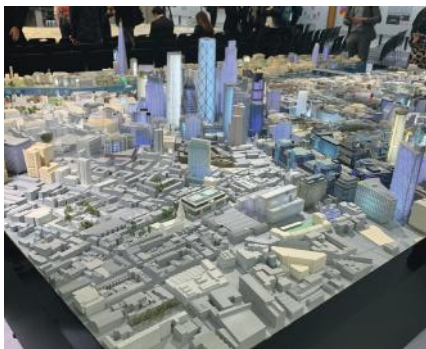
of the UK,” said Fox. “We have a particularly strong heritage in Scotland and Diane is the latest in a long line of motivated and experienced business people who have been prepared to take on the role for the benefit of our members and the wider industry.”



Carrier features in London Tall Buildings Survey

Carrier has been recognised in the 10th annual London Tall Buildings Survey for its air conditioning solution for 22 Bishopsgate.

Published by New London Architecture (NLA), the report provides the latest data



A 3D model from the survey launch event showing 22 Bishopsgate, centre right

and analysis on the contribution being made by tall buildings to a more compact and sustainable London.

Carrier supplied four AquaEdge 19XRV centrifugal chillers for 22 Bishopsgate, each delivering 4MW of cooling with efficiency levels as high as 6.8 European Efficiency Rating (EER). Equipped with Greenspeed intelligence variable speed drives, the chillers constantly match cooling output to the building’s heat load, optimising comfort, reducing energy consumption and minimising impact on the environment.

Neil Hitching, Carrier HVAC EU Northern Europe Marketing Director, said: “While previous surveys focused on the pipeline of tall buildings planned for London, the spotlight this year is on sustainability

and how towers can deliver lower carbon emissions, be more sustainable and support high quality environments for occupants.

“Alongside improvements to the building fabric and use of renewable energy systems such as solar photovoltaic, high-efficiency air conditioning has a key role to play in reducing carbon emissions and supporting occupant wellbeing. Carrier’s solution for 22 Bishopsgate is an excellent example of how modern, high-performance systems contribute to more sustainable high-rise buildings, and in turn help transform cities.”

The NLA London Tall Buildings Survey 2023: Sustainable Skylines can be downloaded at <https://nla.london/insights/london-tall-buildings-survey-2023-sustainable-skylines>.

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Pinder moves to plug skills gap

Pinder Cooling & Heating has introduced a new internal training programme to help address what it sees as a growing industry skills shortage.

The Bradford-based commercial refrigeration and air conditioning specialist has launched modular training for its HVAC engineers and says it already reduced client recalls by 50%.

Technical service engineer Mick Holian, who is heading up the project, said: "The industry is facing a significant skills gap as the number of people retiring outpaces new entrants. This is only going to get worse as current engineers get closer to retirement age. I'm doing what I can by passing on my experience to the next generation of engineers.

"There is a shortage of training resources on the ground. The 5-Day standard F-Gas (Cat 1) qualification allows an engineer to work on refrigeration & air conditioning systems, but it cannot possibly prepare them for the complexity of some modern HVAC systems.

"By improving the training opportunities we're better preparing our engineers for what they will see in the field. It's better for everybody: improved development for the engineer, improved productivity for the company and most importantly, it reduces time and money costs for the customer at a time when costs are rising."

Andrew Pinder, who founded the business in 2016, said: "Mick has a wealth of knowledge from 42 years in the industry and it would be



Mick Holian is leading the training for Pinder Cooling & Heating

a shame to not take advantage of that to further develop our team. The training is already paying off with improved first-time fix rates, 50% fewer recalls, improved productivity and less overtime. It's also had a positive impact on engineers being comfortable asking for help when they don't know how to resolve an issue."

The training aims to cover all aspects of air conditioning and refrigeration, including controls, wiring diagrams, refrigeration processes and function of parts, service tips and diagnosis methods.

J S Wright seals affordable housing contract



How the Thamesview House development will look

Mechanical and electrical building services provider J S Wright has secured a contract worth more than £2.5 million for a major new development of all-affordable housing in Surrey.

The Birmingham-based company is to design and build the mechanical services for all 97 apartments and communal spaces at Thamesview House on Felix Road, Walton-on-Thames.

The £20 million scheme is being built with staggered heights from six to nine storeys by housebuilder The Hill Group for affordable housing provider PA Housing. It will replace an outdated existing nine-storey residential block comprising 64 homes built in 1972.

Thamesview House will bring the number of new apartments J S Wright and Hill are working together on to over 1,000.

The company will design and install air source heat pumps (ASHP) at Thamesview House. The project will also include a mechanical ventilation heat recovery (MVHR) system, which recovers outgoing air from each apartment to heat incoming fresh air, and building management controls including a pre-payment billing system for each apartment's energy use.

BFFF named Best Trade Organisation

The British Frozen Food Federation (BFFF) won the Best Trade Organisation category at the Food Management Today Awards in London.

The award recognised the federation for its work to maintain and promote high product and professional standards in the frozen food industry, engage with and challenge the government when necessary, and actively help its members to face issues as they arise.

Rupert Ashby, chief executive of the BFFF, said: "I am incredibly proud of the entire team for their hard work to make us the best trade organisation, which has rightly been recognised with this brilliant award. Since stating my role at the BFFF last year, I have been impressed to see the amount of work that is put into supporting our members.



"Each and every one of our staff go above and beyond to ensure that our membership is properly supported with guidance,

training, events and detailed information on all policy and information which has a bearing on the frozen food industry."

Star offers guidance on natural options

As the UK cooling industry awaits the outcome of ongoing F-Gas negotiations, Star Refrigeration has emphasised the importance of informed decision-making with regard to selecting natural refrigerant options.

The company says its guidance aims to strike a balance between compliance, competitiveness and long-term efficiency, encouraging customers to consider their operational and business needs in order to select the optimum solution.

Rob Lamb, Star's Sales and Marketing Director, said: "We've seen increased interest in natural refrigerant solutions following the EU's draft F-Gas Regulation proposal which further restricts the production and consumption of synthetic fluids with high global warming potentials. This has predominantly resulted in an increased interest in the use of CO₂ and ammonia across a wide

range of applications, temperature and capacities. There is no silver bullet that suits all these applications and while CO₂ is suitable for some applications, ammonia is better suited for others. In some cases, a combined approach may be the optimal solution.

"It is crucial for businesses to carefully assess the technical, safety and costs implications associated with each option and choose the most suitable refrigerant and technology accordingly."

While the EU's final decision to the proposed F-Gas Regulation is not yet known, it is expected that the life-expectancy of hydrofluorocarbons (HFCs) and their blends will be shortened and that regulations to restrict their use through quotas and bans will be accelerated. Although the UK is not legally bound to adhere to the proposed update post-Brexit, the government is likely to follow much if not all of what the EU's decides in order to ensure compliance with the Montreal Protocol and its own net zero emissions law.

Refrigeration plant owners are said to be looking for alternatives to HFCs to stay ahead of legislative requirements and avoid possible refrigerant price increases as the result of an accelerated phase-down. Star has released a guide highlighting factors to consider when considering the use of CO₂ and ammonia. This takes into account cooling capacity, budget constraints, safety protocols, and long-term operational efficiency. The guide offers impartial advice on the opportunities and challenges facing businesses seeking to switch to a more sustainable cooling solution.

To find out more about the characteristics of CO₂ and ammonia and their respective advantages for different applications, visit: <https://www.star-ref.co.uk/smart-thinking/the-future-of-refrigeration-long-term-refrigerants/>



Rob Lamb of Star Refrigeration

Starring role for SMI's thermal liners

Thermal roll cage liners produced by Seymour Manufacturing International (SMI) enjoyed a starring role in a Channel 4 TV show. The liners, used by the Co-op to transport bananas to their stores in prime condition, featured in a recent episode of Supermarkets Unwrapped.

Presenter Jimmy Doherty visited one of Co-op's largest UK distribution centres, where he met the company's technical director Andrew Donkin. "Bananas hate the cold," Andrew explained. "If they get too cold it stops them ripening properly. And if they get too hot they will virtually explode, and ripen too quickly."

He revealed how the temperature of the bananas was maintained at optimum levels for transport by using the 'lovely' temperature control shrouds, made by SMI. Viewers saw how the bananas are loaded into the cages before the shrouds – containing SMI's award-winning Tempromaterial – are sealed and zipped shut.

Telford-based Seymour Manufacturing International (SMI) has had a continued relationship with the Co-op for more than



SMI's thermal roll cage liners featured on Channel Four's Supermarkets Unwrapped show, with presenter Jimmy Doherty, right, and Co-op technical director Andrew Donkin

35 years. The latest deal saw the supply of over 1,000 Tempromaterial thermal roll cage liners which not only keep fresh bananas in the best possible condition for customers, but

also reduce food waste. A new design was used with improved thermal properties, compared with previous roll cage liners sold in the past.

DK delivering sweet savings for fruit firm

Yorkshire-based DK Heat Recovery says its technology is delivering savings of almost £20,000 a year annum for a Staffordshire fruit business.

As the second anniversary of the installation of Dearnsdale Fruit's heat recovery system approaches, the team at DK has recalculated the savings based on the current fuel price cap as £19,596 and over 230,000 kWh per annum by harnessing waste heat from its cold store.



The DK Heat Recovery tank at Dearnsdale Fruit

The recovered heat is used for showers for Dearnsdale's team of 600 and in its pack house. The savings also equate to an annual reduction of 48 tonnes of carbon.

DK Heat Recovery engineering manager, David Haughton, liaised with installer Spiral Cool on the project: He said: "The heat recovery system that we supplied was a 3000-litre storage tank with five internal heat exchangers that are capable of generating over 1800 litres of free hot water per hour.

"Unlike plate heat exchangers, the twin wall design of the heat recovery exchangers comply with EN1717, which is a requirement for all potable water use."

Scott Price from Spiral Cool added: "Even with the plant running at 10% and the tank without its insulation fitted, the water temperature reached 46°C."

Based in Beverley, East Yorkshire, with a satellite office in Peterborough, DK Heat Recovery is the sole UK agent of DK Kaelteanlagen's heat recovery systems and is supported by a network of installers and refrigeration engineers nationwide. It was established in 2012 by Nigel Upson and David Haughton and has installed heat recovery systems for food manufacturers, supermarkets, farm shops, butchers and garden centres over the last decade.

The systems are said to be suitable for use in any business that has refrigeration plant and a requirement for hot water or space heating.



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TOOLS TALK

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Rechargeable Li-Ion battery as standard, that provides superior performance as well as saving on operating costs with a rubber keypad that provides positive actuation, as well as giving the user tactile feedback. AUTOMATIC and MANUAL reset modes - manual reset allows for fine tuning and precise compensation for background CO₂.

The BOSCH IR LD 1.0 is designed for ease of use with an ergonomic ambidextrous design, reinforced with a

TPU over mould. It comes with a carry case, spare filters, battery charger and a 2-year warranty.

EN14624 TEST RESULTS

Static lower detection limit (g/a) ¹	4 g/a
Dynamic lower detection limit (g/a) ¹	5 g/a
Dynamic lower detection limit in a contaminated environment (g/a) ¹	10 g/a
Response time (s) ¹	<1 sec
Zeroing time (s) ^{2,3}	-
Recovery time (s) ²	35 sec

- 1 Grams per year
- 2 seconds
- 3 Not applicable. Subject to change

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<https://diversitech.global/product/bosch-ir-ld-10-co2-leak-detector> or contact our sales team on sales@diversitech.com



SPECIFICATIONS	
Dimensions (L x W x H)	218 x 83 x 51 mm
Probe length	413mm
Weight	452 grams
Sensor life	Approximately 5 years (under normal usage)
Warm up time	Normally 50-60 seconds (90 seconds MAX)
Ultimate sensitivity	<2 g/yr
Power supply	Li-Ion rechargeable cell
Battery life (per charge)	8 hours
Recharge time	≤ 3 hours
Operating temperature & humidity	-20oC to 50oC – 95% RH MAX
IP rating	IP51



GOOD VIBRATIONS

Awad Ahmed, Project Engineer R&D at Soleco, on the importance of selecting the right dampers for different HVAC applications.

The use of an HVAC system is essential for regulating temperature, humidity and air quality, increasingly essential factors for the health of the environment. In order for the system to be efficient, it is important to consider some factors that can affect its correct functioning such as, for example, the mechanical vibrations produced.

The vibrations generated by machinery installed in residential buildings or workplaces can be a source of disturbance and significantly reduce people's well-being. The UNI 9614 standard sets precise limits on the acceptable values of these vibrations depending on the types of rooms and buildings. In particular, the following uses are identified: critical areas, homes, offices and factories.

Critical areas identify structures such as hospital operating rooms or technical rooms where precision work is carried out. It is essential to stay below these limits of acceptability to ensure adequate comfort and avoid legal disputes that can culminate in costly adjustment work. Furthermore,

vibrations from uninsulated machinery can be transmitted to rigid connections such as pipes and beams generating structural noise and significantly reducing the useful life of the equipment.

Different frequencies

In residential buildings the most problematic vibrations are often generated by air conditioning systems which can be isolated with the application of anti-vibration supports. The vibrations of these units are produced by rotating components such as fans, compressors and motors. These vibrations have very different frequencies and for correct isolation it is important to carry out studies and/or surveys.

The selection of an incorrect vibration damper can lead the isolated system to have natural frequencies close to the forcing frequencies, generating local or global resonance phenomena. For the isolation of the low frequencies generated by fans it is not sufficient to use bearings but it is necessary to provide high deflection



Awad Ahmed

spring systems, while for the isolation of the forcings with higher frequencies (generally above 25 Hz) it is possible to provide elastomer vibration dampers.

Soleco, an Italian company that has been producing anti-vibration mounts for over 50 years, provides a targeted consultancy service in order to select the correct anti-vibration mount for the type of installation required. In this way the isolation of the frequencies is ensured.

If the installation takes place on the roof, the technical construction standards require that systems and non-structural elements are verified, together with their connections to the structure, for the seismic



action corresponding to each of the limit states considered. Therefore, when using standard vibration dampers, it is essential to analyse the seismic action of the project and foresee any containment brackets.

The containment brackets can lead to various problems, including dilation of the processing time and high costs for ad hoc design. To overcome these problems, Soleco offers its range of anti-seismic antivibration mounts, which at the same time isolate mechanical vibrations and guarantee seismic anchoring to the unit. The selection of anti-seismic devices is carried out by the Soleco technical office which checks the loads and the insulation factor.

Professional advice

The strength of Soleco products is the seismic qualification obtained at the Milan Polytechnic following tests according to ANSI-ASHRAE 171/2008 standards and validated by Lloyd's Register.



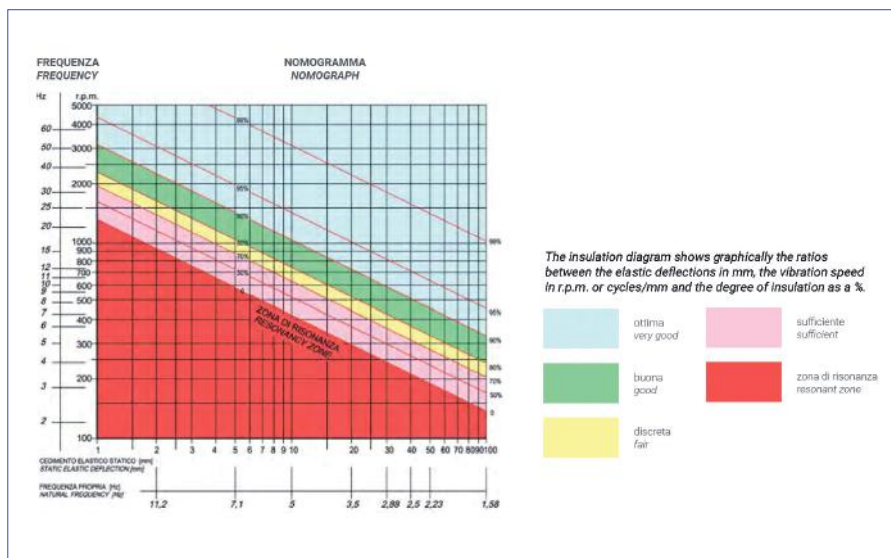
Manufacturers and installers should rely on the advice of professionals for the choice of vibration dampers in order to obtain maximum insulation and provide suitable systems according to the regulations. Soleco provides its customers with a free

anti-vibration selection and analysis service. Selections can concern a single machine or an entire range of machines.

Many manufacturers rely on Soleco's kit service to reduce the running costs of these accessories. Through modern analysis systems Soleco is able to subdivide and categorise a huge number of machines by selecting the best set of vibration dampers for each category. The anti-vibration kits are supplied with manuals, screws and accessories such as anchoring brackets and jacks.

The company also guarantees after-sales assistance, on-site consultancy and, when necessary, carries out vibrometric measurements to identify the best solution. Experience and continuous research allow Soleco to satisfy increasingly specific requests for those who work in the sector, guaranteeing quality and innovation.

For more information visit www.solecosrl.com



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Why using Smart Isolators is a smart move

By Luke Miller, Senior Machine Learning Engineer at Verv.

Having faced a winter of record-high energy prices and soaring inflation, minimising energy bills is front of mind for many businesses around the UK. Energy monitoring and management is crucial in the fight against these high energy costs - by understanding how much energy your business uses, you can make informed decisions about how to reduce your energy consumption and save money on your utility bills.

Verv offers a clever solution to monitor and manage your energy usage: the Smart Isolator. Our devices provide real-time information about your energy usage of connected appliances, allowing you to track your consumption and identify areas where you can make changes to reduce it.

Our hardware is a unique retrofit replacement for any appliance that uses an isolator, providing a smart, modern upgrade to legacy switchgear. Once installed, data profiling the electrical harmonics of the equipment is immediately transmitted to Verv's Cloud Platform, where it is stored, analysed and presented on a mobile app (or web). There, you can explore your energy usage for each appliance from the point at which it was on-boarded in the app, identify periods of low efficiency,

and set up automatic scheduling for turning appliances off... ideal if your business has periods of low demand (such as overnight closure).

Annually, almost 40 billion kWh^[1] of electrical energy* is used nationally by businesses on heating, cooling and humidification, a figure that is set to grow in the future as we deploy more low-carbon technologies such as heat pumps. So it will come as no surprise that many of our customers have attached their Verv Smart Isolators to air conditioning systems.

However, our hardware is compatible with most commercial equipment including coolers/fridges, dishwashers, air handling units, EV chargers, electrostatic precipitators, and so on. In fact, over 10 billion kWh^[2] are used per year on electrically-cooled storage alone in England and Wales, accounting for 12.7% of the total electricity used in business (excluding industrial processes). As we look to grow our business in new ways, we are actively engaging with potential customers who would benefit from optimising their energy usage on the storage of non-perishable goods, for example.

The platform is also API enabled, allowing data to be accessed and



Luke Miller

integrated with Net Zero or carbon tracking reporting tools for further optimisation. This means that users can make data-informed decisions for optimising their air conditioning usage across buildings, measure their return on investment and take active steps to reach their Net Zero goals.

What is clear from our market research is that many businesses are suffering with devices that use a lot of energy day and night, even on standby, with no practical method to manage that problem that is now costing them a hefty sum. At Verv, we strive to cater for these needs directly by providing an energy monitoring and management device that enables businesses to reduce their bills and, simultaneously, their carbon footprint. 🌱



* Excludes non-electrical sources such as direct gas burning for heating.
 [1] Business Energy Statistical Summary (Department of Business, Energy and Industrial Strategy)
 [2] Building Energy Efficiency Survey, Overarching Report (BEES, 2016)

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The benefits of prefabricated modular data centres



Russell Bulley, Senior Application Engineer, AC Power, at Vertiv, explores an evolution for the sector.

The global data centre industry is experiencing a profound shift as it responds to the escalating demand for digital services from hyperscalers and enterprises worldwide. To keep pace with this ever-increasing demand and evolving requirements, data centres are undergoing a remarkable transformation - evolving into more efficient and adaptive infrastructures and assuming the role of central hubs for hybrid networks, connecting and facilitating the seamless flow of data.

A key enabler of this transformation is the growing adoption of standardised construction, which offers numerous benefits for data centre operators. Standardisation - ranging from modular components, such as skids supporting

power and cooling systems, to fully-fledged prefabricated data centres - will become the default approach not just for the enterprise, but also for hyperscalers and edge computing. In this article, we will explore the driving forces behind their adoption, with an emphasis on the critical aspect of cooling, carbon reduction and cost efficiencies.

Exploring the rise of prefabricated modular data centres

The need for speedy scalability and easy deployment in the realm of data centres has become increasingly prominent in recent years. And as technology continues to advance, businesses leverage data-driven operations, and energy costs

continue to rise, the demand for flexible and energy-efficient data centre solutions has surged.

It's certain that prefabricated facilities are a compelling solution to address the challenges posed by traditional data centre construction when IT space is needed quickly. These modular designs integrate critical components such as advanced cooling systems and power distribution within controlled factory conditions. This kind of manufacturing environment allows for meticulous quality control and off-site testing so that each module meets stringent performance standards before being deployed to the final location.

Why prefabrication makes sense

One of the key advantages of prefabricated modular data centres is their accelerated construction timeline versus traditional data centre construction. By leveraging off-site fabrication and assembly, these modular units can be commissioned and deployed rapidly. The factory environment enables parallel construction processes, significantly reducing the time required for on-site assembly and integration. At the same time, assembly staff are repeating skills on concurrent projects, honing those skills and finding better installation solutions. This expedited deployment allows businesses to quickly respond to changing needs, such as sudden increases in data processing requirements or the establishment of new IT locations.

Prefabricated modular data centres can be delivered with security already in place. As the units are constructed off-site and then transported to the final location, security measures can





be implemented during the manufacturing process. By integrating security during the initial construction phase, operators can avoid potential vulnerabilities or delays associated with retrofitting security measures after the data centre is installed. This proactive approach enhances the overall reliability and integrity of the data centre, mitigating risks from the outset and enabling the immediate protection of critical infrastructure.

Again, for speed, the building works of modular data centres can be undertaken at the same time that the unit is being constructed off-site. This approach saves time and increases efficiency, as various components and systems can be fabricated simultaneously. For example, electrical and mechanical works can progress alongside the construction of the modular unit, reducing overall project duration, and design and installation can be certified by an independent body in the factory before dispatch, endorsing compliance with industry standards and regulations. Operators can test and inspect the data centre at the factory before it is dispatched, further enhancing quality and functionality.

Cooling systems play a vital role in maintaining data centre uptime and allowing maximum operating efficiency. But it also uses a substantial amount of energy, accounting for up to 40%¹ of a data

centre's total energy bill. Prefabricated facilities are designed to incorporate cutting-edge cooling technologies, which can reduce energy and water consumption while improving overall operating costs. By integrating these solutions during the manufacturing process, the data centre operators can seamlessly integrate the cooling systems and optimise them for effectiveness.

As well as efficiencies during initial set up and installation, prefabricated modular data centres simplify maintenance processes which can be made available from a single vendor if the majority of components are supplied by that vendor. With the modular approach, replacement parts are readily available and by minimising service issues and optimising maintenance procedures, operational reliability can be enhanced - leading to improved customer satisfaction.

Ultimately, with all of the benefits outlined above, prefabricated data centres have a positive impact on Total Cost of Ownership (TCO), which is critical in an economic environment where budgets are limited. The modular nature of these data centres enables organisations to scale their infrastructure in line with demand, eliminating the need for excessive upfront investment and avoiding overprovisioning by utilising modular components such as cooling systems that can be expanded as the IT load increases over time.

Demand driven by different trends in different regions

It's important to note that the reasons for the adoption of prefabricated modular data centre solutions vary across different regions, depending on specific market conditions and trends. In EMEA for example, major hyperscalers are driving the adoption of these solutions, particularly in remote areas where larger standardised modules can be easily deployed; Africa is experiencing significant growth in data centre capacity, with increasing adoption of prefabricated solutions aligned with data privacy laws; North America benefits from the speed and ease of deployment, helping organisations meet unprecedented capacity demand; Latin America is establishing itself as an emerging market for these solutions, whilst the Asia-Pacific region faces challenges due to a shortage of skilled labour and preferences for traditional data centre builds.

Regardless of the differences between territories, it's an exciting time ahead for the industry and businesses alike. The demand for prefabricated modular data centres represents a significant shift in the data centre industry, driven by the common need for scalability and rapid deployment as proven by a survey from Omdia² which revealed that 52% of companies operating their own data centres already use prefabricated modular data centre technology, with 99% stating that it would be part of their future strategy. 🌐

¹ <https://www.datacenterdynamics.com/en/magazines/cooling-transformation/>

² <https://omdia.tech.informa.com/pr/2022-jan/omdia-finds-50-of-enterprises-are-well-advanced-in-the-shift-to-create-sustainable-it>

The potential of propane as a refrigerant



Kevin Glass, Managing Director of BITZER UK

With F-Gas restrictions on fluorinated refrigerants tightening, the focus is falling on alternatives that could play a mainstream role in the future. Propane is a proven refrigerant with low GWP and excellent efficiency. Kevin Glass, Managing Director of BITZER UK, highlights its potential.

Propane is back in the spotlight as a major potential alternative refrigerant for the future. Harnessing it safely depends on correct application and handling, and mitigating the known risks through effective system design and operation.

Designated R290, propane is a colourless, odourless gas that belongs to the hydrocarbon family. It is a highly efficient refrigerant and has gained popularity in recent years due to its excellent thermodynamic properties and low environmental impact.

Its low global warming potential (GWP) of 3 and zero ozone depletion potential (ODP) make it a viable alternative to conventional refrigerants with high GWP values. It can be used in several refrigeration and air conditioning applications, including commercial, residential, and industrial settings.

It is commonly used in small-scale systems, such as refrigerators, freezers, and packaged air conditioning units. However, it can also be used in larger commercial and industrial refrigeration applications, such as food storage and processing, the chemical industry, and cold storage.



BITZER offers a comprehensive product portfolio for use with flammable refrigerants, such as the CSH compact screw compressor.



The SCHAUFLEER Academy provides onsite and remote courses to equip people with the knowledge and skills needed to work safely with propane

Flammable refrigerants

Under ISO 817, refrigerants are classified into categories A and B: category A includes non-toxic substances, and category B includes toxic refrigerants. Flammability is classified under four groups, where 1 is non-flammable, 2L is flammable with slow flame spread, 2 is flammable, and 3 highly flammable.

Within the A3 classification, the most important substances used as refrigerants are hydrocarbons such as propane, propene (R1270), isobutane (R600a), butane (R600) and ethane (R170). All have a long history in refrigeration and air conditioning and provided a model for the development of many of the new synthetic refrigerants.

By definition, group A3 refrigerants are highly flammable. They can be ignited at concentrations as low as 2% and as high as 10% in air. Within this range, ignition can be achieved by the spark of a light switch, a steel tool falling on a concrete floor or statically charged work clothes, resulting in deflagration or explosion. Combustion products are mainly carbon dioxide and water, and in themselves harmless.

Effectively mitigating and managing the flammability risk is the key to the safe application of propane, and other hydrocarbon refrigerants.

Application

Use of flammable refrigerants has a long history in household appliances and commercial refrigeration. Towards the end of the 19th century, the use of non-toxic, highly flammable hydrocarbons became widespread due to their good thermodynamic properties, along with ammonia, sulphur dioxide and carbon dioxide.

Propane is well suited to use in commercial refrigeration, air conditioning and heat pump applications. Boiling at -42°C , it can cover evaporating temperatures of -40°C and higher. When propane is compressed, it is possible to achieve usefully large temperature ranges.

R290 has a high cooling capacity, which means it can remove a large amount of heat in a short amount of time. It also has a high coefficient of performance (COP), reducing the amount of energy used to create a given cooling effect and cutting running costs. With rising energy prices, this is obviously highly attractive.



SPEEDLITE ELV52: BITZER's ultra-efficient scroll compressor for transport air conditioning will also be suitable for use with refrigerant R-290.

Pressure levels and refrigerating capacity with propane are similar to R-22, and its temperature behaviour is as favourable as R-134a, combining these excellent properties of the two refrigerants without their environmental downsides.

There are no particular problems with materials compatibility. In contrast to ammonia, copper materials can be used, allowing propane to be used in semi-hermetic and hermetic compressors. Common mineral oils can be used as a lubricant over a wide application range, while polyol ester (POE) and polyalpha olefin (PAO) lubricants offer even more favourable properties.

Safety

Propane-based refrigeration systems must be designed and installed with safety features that minimise the risk of fire and explosion. Such features may include (but are not limited to) pressure relief valves, flame arrestors, and leak detection systems.

System design must comply with all relevant regulations and standards relating to maximum permitted charge size for the specific application, and mandatory risk mitigation measures.

Detailed guidance on using propane and other flammable refrigerants is provided by REFCOM in its Guidance Note: <https://www.refcom.org.uk/media/1157/bra-guide-to-flammable-refrigerants-issue-1-oct-12.pdf>

Only suitably qualified and trained operatives are permitted to handle R-290 as a refrigerant, which in the UK means successful completion of the City & Guilds 6187-21 hydrocarbon handling qualification. Safe handling includes use of appropriate personal protective equipment (PPE) such as goggles, a portable gas detector and anti-electrostatic gloves.

When installing propane-based refrigeration systems, it is essential to follow all relevant local and national codes and standards. This ensures safe installation, operation, and maintenance. Post-installation, regular inspections are important to ensure continued safe and efficient operation.

Support and efficient system components

BITZER has a comprehensive support programme for system designers and installers working with flammable refrigerants. This includes guidelines on safe application, and a practical training program held at the SCHAUFLEER Academy in Germany (see box).

On the equipment side, our specialist high performance compressors and system components are approved for use with flammable refrigerants such as R-290, in a wide range of refrigeration, air conditioning and heat pump applications.

These include reciprocating compressors and compact screw compressors for air

conditioning or process cooling, and system components such as oil separators, liquid receivers, condensers, and evaporators.

To further enhance efficiency, ECOLINE reciprocating compressors can be supplied with mechanical capacity control to match output to cooling load.

By using an IQ module, it is also possible to connect propane systems to the BITZER Digital Network (BDN) for detailed performance analysis and remote diagnosis, saving time and money and helping to support safety.

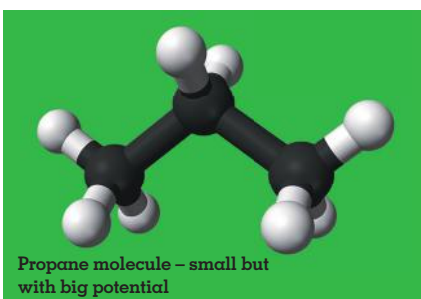
Future outlook

In many applications, propane is a viable alternative to conventional refrigerants with high GWP values, offering high cooling capacity, high efficiency, and low environmental impact.

As the world moves towards more sustainable and environmentally acceptable solutions, use of propane as a refrigerant is expected to increase, particularly in commercial and industrial applications.

The evolving regulatory framework will obviously play a key role, as F-gas regulations limit use of traditional fluids and restrictions on the use of alternatives such as flammable refrigerants are reviewed to permit greater use, subject to effective risk mitigation.

With significant research and development under way, new and improved propane-based refrigeration systems are expected to become available, providing even more efficient and cost-effective cooling solutions. 🇪🇺



Training

Regular refresher training is recommended for system designers, installers and maintenance staff working with flammable refrigerants such as propane.

The SCHAUFLEER Academy in Rottenburg-Ergenzingen provides both onsite and remote courses designed to equip operatives with the knowledge and skills needed to work safely and efficiently.

For more details: www.trainings-events.bitzer.de

BITZER guidance on propane systems is provided here: www.bitzer.de/shared_media/documentation/at-660-1.pdf?P=/doc/&N=at-660-1.pdf

BITZER Refrigerant Report Online

This annually updated report has become a key reference for refrigeration professionals working across many disciplines. It provides current, reliable information on all commonly used refrigerants and those showing potential for the future.

The latest version (Issue 21) has been significantly expanded and includes up to date information on properties, specifications and regulations, as well as a quick reference table with filter function for refrigerants.

Access the report here: www.bitzer.de/shared_media/html/a-500-501/en-GB/index.html#index_content

Heat pumps on the rise

A-Gas Managing Director John Ormerod advises on the refrigerants to use when installing a heat pump system.

The Government has made it clear it wants big changes low carbon wise from us all by 2030, while the European Union is setting 2050 as a benchmark. If we are to meet the net-zero challenge millions of heat pumps will have to be installed by both dates and in turn this will mean a lot of work for installers.

Heat pumps are not only good for business but they are a superb low carbon fix, especially as the likes of district heating systems can be complex to manage once installed and hydrogen-based systems still have many question marks hanging over them. Add to this the rising cost of fossil fuels, and heat pumps will only grow in popularity.

With their high coefficient of performance heat pumps offer a winning formula in heating and cooling for commercial and domestic installations. They also reduce our carbon emissions and if the electricity powering them is from a sustainable source, then the heating and cooling provided can be deemed zero-carbon too.

With the latest changes to the F-Gas Regulation to be finalised it is not yet clear which refrigerants are going to dominate the heat pump sector. From a regulatory and an application point of view this is a journey where home is still a long way off.

Different challenges

Where refrigerants are concerned, the choice made by installers will depend on the job in question. The challenges in converting homes and buildings to heat pumps – when compared to heating from boilers – are many. They highlight the differences between new-build and existing housing stock and how different approaches in heat pump technology will be needed to achieve the best efficiency outcome.

For example, new-builds are ideal for low temperature heat pumps where underfloor heating can achieve great efficiencies. But existing housing with radiators needs purpose-designed high temperature heat pumps or larger radiators. Flats and multi-occupancy housing also bring additional



John Ormerod of A-Gas

complexity. It is also important to bear in mind that the best refrigerant for each application may be different if energy efficiency is to be maximised.

Ultra-low GWP refrigerants like R290 (propane) are becoming significant players in the heat pump market and in some instances are being pushed as the one-size-fits-all answer. Propane and other low GWP flammable refrigerants bring with their benefits a complexity of their own due to the safety concerns surrounding them.

In some applications this can be managed adequately but in other cases propane may not be the appropriate solution. This is where the air conditioning market is often overlooked. Most if not all air conditioning systems sold these days are heat pump-based and do a great job heating and cooling large spaces. Office accommodation is a good example of how this works well.

But where propane-based systems would not be permitted for safety reasons the use of non-flammable or low flammable refrigerants like R32 in these applications can facilitate the use of heat pumps.

R32 demonstrates excellent efficiency in heat pump systems, is a very stable refrigerant and is very difficult to ignite. Only a naked flame – and not a spark – will ignite this gas as there's not enough energy in the spark to do so. That aside, R32, like all refrigerants, should be handled with care.

For many years R410A has arguably been the refrigerant of choice in heat pumps but its high GWP means that its days are numbered as a virgin gas under the F-Gas phase-down. The good news is that

Reclaimed gases will be a way forward for many installers when servicing a heat pump system



for existing R410A-based systems there is reclaimed gas available on the market and this will be a way forward for many installers when servicing a heat pump system. As I explained in the last issue of ACR Journal, A-Gas reported a record year for the recovery and reclamation of refrigerants in 2022 and I expect the availability of used gases to grow.

Changing times

The recovery and reclamation of gases is a key pillar of lifecycle refrigerant management on the journey towards net-zero. It is clear that reducing leakage and recovering existing refrigerants for future re-use has a far greater impact on our climate than the substitution of lower global warming potential refrigerants alone.

Refrigerant sent to A-Gas reprocessing centres becomes fully reclaimed product and is returned to the market. Around the world, no kilogram of refrigerant once produced, should be allowed to go to the atmosphere. As an industry we need to do all we can to achieve this.

A-Gas, the world leader in the supply and lifecycle management of refrigerants and associated products and services, has

a strong track record in reclaiming and recycling gases through the use of A-Gas Rapid Recovery. With this F-Gas compliant on-site recovery service refrigerants can be removed easily and quickly by a mobile recovery unit.

Although we are living in challenging times in the heating and cooling industry, I believe that there will be plenty of reclaimed R410A and R32 available on the market and there should be no concerns about shortages of refrigerants for heat pump systems.

A-Gas is proud to support customers on their journey to net-zero. A-Gas has pledged to reduce its own emissions by 50% by 2028 and by 2035 will be a net-zero company.

But more widely, it is estimated that if we are to rise to the net-zero challenge 19 million heat pumps will have to be installed in the UK by 2050. This is a staggering figure and one which will have a huge effect on the heating and cooling industry. With deadlines looming – gas boilers won't be allowed to be installed in new builds from 2025 onwards – change is happening rapidly.

The restrictions on the use of high GWP refrigerants affecting the industry through



The refrigerant for each application may be different if energy efficiency is to be maximised

the F-Gas regime will only get more severe. But in pure business terms heat pumps will open up new opportunities for installers and specifiers and I urge them to grab these with both hands. You can be sure there will be the right refrigerants available to fulfil your ambitions. 🚀



Talk to your supplier for the best advice on choosing the right refrigerant for a heat pump installation

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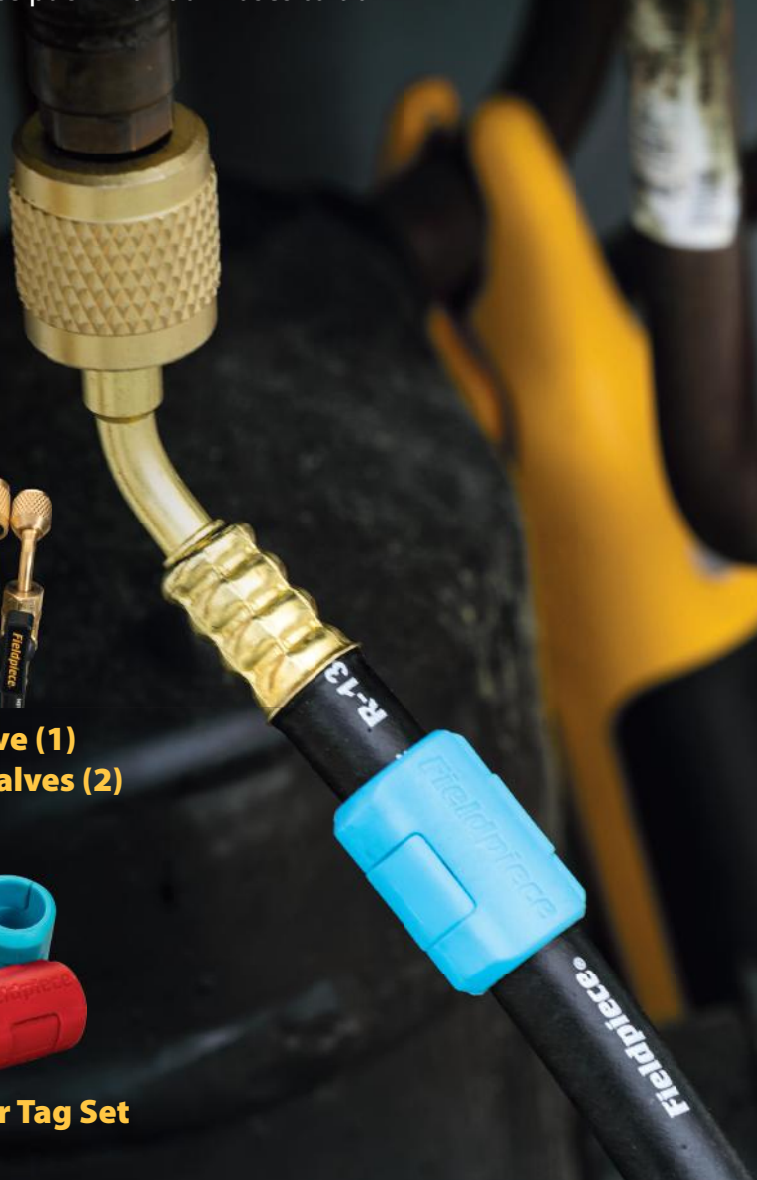
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Join the sustainable training journey now

Chris Riley says savvy heating engineers are adding renewable technology to their toolbox.

I meet many different people on the training courses we provide and these days I'm meeting around 500% more than we used to before the pandemic, as a large part of our heating, ventilation and air conditioning training is now done remotely.

But I know there is one group of people that I'm unlikely to meet – the heating engineers who have decided that there's enough life left in fossil fuel heating to last until they retire. And for now, they may well be right as gas boilers, like combustion engine cars, are likely to still be with us for a decade or two more.

But if you want a more sustainable and secure future for your business then you will be one of the thousands of heating engineers adding renewable heat pumps to your skillset.

A green heating revolution

For me, renewable heating will be a major part of the 'green' industrial revolution as all the market drivers start to align.

Firstly, legislation is forcing through change to make sure we do absolutely everything we can as a society to mitigate the disastrous effects on climate change.

Secondly, the technology already exists and modern, inverter-driven heat pumps have

now been proven in almost 15 years of use in all types of old, new, large and small homes from the Isle of Skye, to the Isle of Wight.

And this is where we as an industry need to come together to realise the third component on this drive for a sustainable future – creating and training the sustainable heating engineers needed.

Sustaining your business

At Mitsubishi Electric, we see this drive for sustainability as crucial to the ongoing success of both our business and our customers business. We believe it is vitally important for heating engineers to 'sustain' their business by developing the knowledge needed to include sustainable technologies in their toolbox.

We also know that there is a huge interest in the 'green' jobs of the future, so sustainability could be key to attracting new blood into the industry. Which is another important factor if we are ever to get anywhere near the Government's ambitious targets for 600,000 residential heat pump installs a year by 2030.

However, we also need make sure that people understand that we don't have to 'reinvent the wheel' as there are already



Chris Riley is a Technical Trainer at Mitsubishi Electric.

thousands of skilled plumbers and heating engineers in the marketplace. Many of these businesses are ready to acquire the skills for renewables and will also be ready to take on apprentices who can learn the skills to install heat pumps.

The opportunity is now

The other thing I find interesting is that the focus always seems to be on residential heating – which is undoubtedly where the major market will be in a few years' time. But that is also ignoring the more immediate opportunities to be found in the commercial heating sector, where many businesses are getting ahead of the curve and planning to remove gas from their estate.

They can see that the end of gas is upon us and anyone who cannot demonstrate an energy performance certificate (EPC) of C, or even B over the next 5 years, will be in danger of having a commercial building that cannot be let – in other words, a stranded asset.

So, an immediate opportunity for both renewable heating engineers and anyone seeking to get on this lucrative path is in answering the need from many businesses for sustainable heating as they all plan budgets to remove gas from their sites.

It's quite clear that gas is going the way of the dinosaurs, so for me it's time to become part of the future and join the sustainable heating industry. 🏠



TV presenter and architect George Clarke is Ecoda Ambassador

7 reasons to switch from propylene glycol to Coolflow DTX

Propylene glycol (monopropylene glycol, MPG) has for many years been the go-to glycol for use in food and beverage processing systems (or where there is a requirement for a non-toxic classification).

In 2010 Hydratech added Coolflow DTX to their range of process cooling fluids. DTX is a high-performance non-toxic heat transfer fluid that is based on ethylene glycol, blended with a detoxification additive. The game-changing fluid combines the thermal efficiency and low viscosity associated to ethylene glycol, with the non-toxic rating of propylene glycol.

Many market-leading companies in the food and beverage sector (and other applications where non-toxicity is a requirement) have made significant system efficiency, performance and energy saving gains by moving from propylene glycol to DTX. Here are 7 reasons why it's time to consider the switch.

1. Reduced energy costs

Comprehensive testing by Star Technical Services verified that DTX reduced energy costs by over 10% (tests were based on relatively low 2015 energy costs, so making a switch to DTX is even more favourable when factoring in today's energy prices).

Customers have reported improved performance and efficiency gains, alongside considerable energy/cost/CO₂ savings after retrofitting existing systems with DTX. Arla Foods has seen a 17% reduction in energy consumed by the main coolant circulation pumps and process cooling systems.

2. More cost effective per gallon than propylene glycol

Propylene glycol prices have fluctuated dramatically over the last 3 years. The cost saving benefits of dosing a new or existing system (retrofit) with DTX are particularly favourable in the current economic climate. For example - given the current rates - a potential saving of over 60% could be made if DTX replaced propylene glycol in a proposed 20,000 Litre system (protected to -15°C).

3. Reducing capital expenditure cost (CAPEX) at concept design phase

Customers have designed their refrigeration systems with Coolflow DTX in mind, allowing them to make considerable savings in hardware and capital expenditure.

Where DTX is specified at the design stage, savings can be achieved through downsizing of primary gas compressors, heat exchangers, circulation pumps & motors, and pipework.

4. Endorsed by market leaders

The list of Coolflow DTX adopters is now extensive and includes a host of well-known companies from the food and beverage sectors including, PepsiCo, Coca-Cola, Haribo, Diageo, Papa John's Pizza, McCain and BrewDog. DTX based coolants are also used in a variety of industrial and commercial sectors. Users and contractors from these sectors include, Aggreko, Daikin, BMW, Siemens and GE Aviation.

5. Core cost reductions

As well as the reduction in energy consumed, customers have also reported a noticeable reduction in running time and load on their primary refrigerant compressors, which they believe will considerably prolong the life span of their system.

Other cost reductions are achieved by increasing speed of heat transfer and production process, and minimising compressor loading and running hours.

6. Industry proven success

Hydratech have been formulating and manufacturing heat transfer fluids for over 25 years - utilising over 100 years combined experience in all aspects of cooling and heating applications.



Coolflow DTX has been specified and installed in thousands of RAC, HVAC and glycol chiller systems, including; process cooling, blast freezing, refrigeration, and air conditioning applications.

For over 15 years, leading refrigeration specialists such as J&E Hall, GEA and Star Refrigeration have been utilizing the operating benefits of DTX.

7. Comprehensive protection against corrosion, scale, and biological fouling

It would be easy to assume all glycol-based antifreeze solutions provide the same fluid and system protection, however, that is not the case.

Coolflow DTX is formulated with multi-metal and multi-function inhibitors, which exceed ASTM & BS corrosion standards. The formulation provides comprehensive long-term protection against corrosion, scaling, and biological fouling, helping to improve chiller efficiency, reduce maintenance and extend chiller system life.

To find out more about switching to Coolflow DTX, call Sam Hickson on 01792 586800 or email:

sam@hydratech.co.uk

www.hydratech.co.uk



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Qualifying months 3rd July - 31st August 2023.

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Adam Donges claims RACHP Skills crown

Adam Donges was crowned RACHP Skills champion following the UK final staged at InstallerSHOW in Birmingham.

Adam, aged 37, who works at Cosham Refrigeration and studies at City of Portsmouth College (tutor Shaun Creech), is mentored by his employer, Steven Burge, himself a former WorldSkills medal winner.

He was joined in the final by Scott Fosbury, 21, of Polar Air Conditioning and Glasgow Kelvin College (tutor Kevin Muldoon), Lucas Hays, 18, of HaysEnergy and City of Bath College (tutor Shaun Coleman), and Joseph Morris of RMS Refrigeration and City of Bath College (tutor Shaun Coleman).

The competition involved three tasks over three days:

- Refrigeration cold room installation and commissioning (9 hrs)
- AC/heat pump repair and commission (3 hrs)
- Fabricating a heat exchanger using flame brazing (3hrs)

The tasks encompass the skills and knowledge required, plus time management, communication, installation commissioning service maintenance, electrical testing and fault finding. Problem solving is built into all activities.

Registration for this year's event began in February and attracted entries from Glasgow Kelvin, Practical Refrigeration Training Centre Burnley, City of Bath College and City of Portsmouth College. During the qualifying



Adam Donges, right, with organiser Mark Forsyth, left, and Graeme Fox, BESA Head of Technical and IOR President

heat rounds, which commenced in April, Scott Fosbury scored highest.

Organiser Mark Forsyth said: "Normally the final would be in November and feature six finalists. However, in order to take advantage of InstallerSHOW's kind invitation to host the final free of charge at the NEC, everything was brought forward. The downside was that there was not enough space for six finalists, with only four able to be invited."

This was a special edition of the national competition as it was not governed by WorldSkills UK (WSUK) due to an organising partner not signing up to the COP terms in time. Coriolis International

organised the event with support from many sponsors, including:

- Climalife – gases, judges and awards
- Lawton Tubes – materials and main award for the winner and the winning college
- Fieldpiece – instruments and awards
- Fujitsu – AC heat pump product, workwear, judges and gifts
- ACRIB/IOR – judges and cash awards
- Diversitech – judges and tool gifts
- Bitzer – judges and gifts
- Mattair – judges and gifts
- TIS – judges and instruments
- Danfoss – judges
- Business Edge – judges
- AC Solutions – judges
- BL Refrigeration – judges
- Coolstop – judges
- BESA – judges
- Johnson Controls – judges
- Conex Banninger
- TIS & TIC – tool gifts
- Uniwipe – gifts
- Ideal – gifts



The four finalists, front, from left, Adam Donges, Scott Fosbury, Lucas Hays and Joseph Morris, flanked by judges, sponsors and supporters

Previous winner Luke Haile, now a WSUK squad competitor, performed a pressure test project on another stand. Luke won the national final last year and as he is age eligible, WSUK invited him into the international competition selection cycle heading to Lyon in 2024. 🇬🇧

VIKRANT BHATT, MANAGING DIRECTOR, BUILDING SERVICES DIVISION, ELTA FANS

Elta Fans has appointed **Vikrant Bhatt** as Managing Director of its Building Services Division.

Bhatt joined Elta Group in 2013 as Sales Manager for Fantech in New Zealand, where he progressed to director level before moving to Australia to oversee operations at Fantech across Victoria. Now, with over a decade's worth of experience, Bhatt is applying his knowledge to the UK.

He said: "When I visited the UK in 2022, I was pleasantly surprised with the country's level of progressiveness, especially regarding Building Regulations and the Approved Documents that help guide the industry. I was very impressed with the awareness of energy consumption in the building services sector.

"There is of course still work to be done. My mission is to educate the UK on the expanding capability of Elta Fans and its extensive offering of solution far beyond just fans, such as control systems, improved acoustics and AHUs."

Bhatt plans to establish streamlined processes internally and externally. He will also collaborate with David Millward, Elta Group Product Manager, to relaunch the Fan Selection Programme, allowing customers to choose the most suitable fans and ventilation systems for their specific requirements.

<https://eltafans.com/>



HANS CRAEN, HEAD OF GOVERNMENT AFFAIRS, A-GAS

Refrigerant specialist A-Gas has appointed **Hans Craen** as Head of Government Affairs Europe, advising the company on policy and regulatory procedure. He will represent A-Gas in its relationship with trade associations and will work with decision-makers involved in the EU and at a national level in the UK.

Craen is based in Brussels and has been employed in public affairs for the past two decades. With his background of working with trade associations he has gained wide experience of understanding the impact that policy has on business development. He is a former EU affairs coordinator for Hitachi and a senior vice-president for Kellen, a public affairs consultancy company. His experience includes sustainability-related issues, the circular economy and regulatory alignment – core policy areas for A-Gas as it looks to become a net-zero company by 2035.

He said: "I have always been interested in the business opportunities created by sustainability and green policies. This is at the heart of what we do at A-Gas and I am looking forward to being part of this development by ensuring that the company's goals are reflected in the relevant EU and national policies."

www.agas.com



KEVIN HARRISON-ELLIS, HEAD OF SALES, CLIVET GROUP UK

Clivet Group UK has welcomed **Kevin Harrison-Ellis** as Head of Sales.

His previous experience covers installing heat pumps and renewable technologies, branch manager at a wholesale business and various other management roles, including spells at Grant UK and Mitsubishi Heavy Industries.

He said: "I always set myself high goals and targets and I would like to see Clivet become a major player in the heat pump market in the UK by the start of 2024. Ambitious of course, but achievable with the product line-up we have."

<https://www.clivet.com/web/clivet.uk/clivet-uk-group>



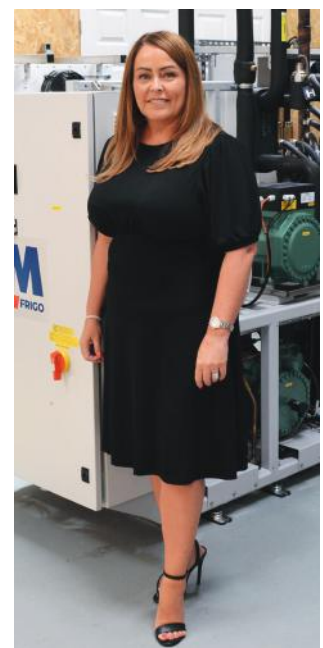
JULIE MURRAY, UK & IRELAND SALES MANAGER, AC ANCILLARIES, BEIJER REF

Julie Murray has joined Beijer Ref as UK and Ireland Sales Manager, AC Ancillaries.

She joins from distributor Kooltech, where she spent more than eight years, most recently as Regional Product Sales Manager. In addition to her extensive air conditioning and refrigeration wholesale knowledge, Julie is well known for her support of IOR Scotland. She served as chair for three years and currently holds the position of vice chair.

Hayley Cattell, Group Sales Director of Beijer Ref, said:

"I am really pleased that Julie was attracted to our business. She will be a great asset to the sales management team in support of all our wholesalers."



The Innovation Zone

The guide to what's new for ACR Journal readers, offering vital industry news.

To advertise your product in 'The Innovation Zone' section please contact victoria.brown@warnersgroup.co.uk

KING OF COMPRESSION – THE CONEX BÄNNINGER RIB-NUT

When it comes to compression the versatile Conex Compression fittings stand out from the crowd ensuring a permanently tight and secure connection without the need for sealant.

Launched in the 1950s, the uniquely designed rib-nut is tightened by a Conex compression spanner and it continues to be the leading brand in compression today.

Guaranteed against manufacturing defects for 25 years, the fittings are easy to use and provide compactness, strength, grip and effortless engagement. No hot works are required – they provide a permanent flame-free connection and are corrosion resistant.

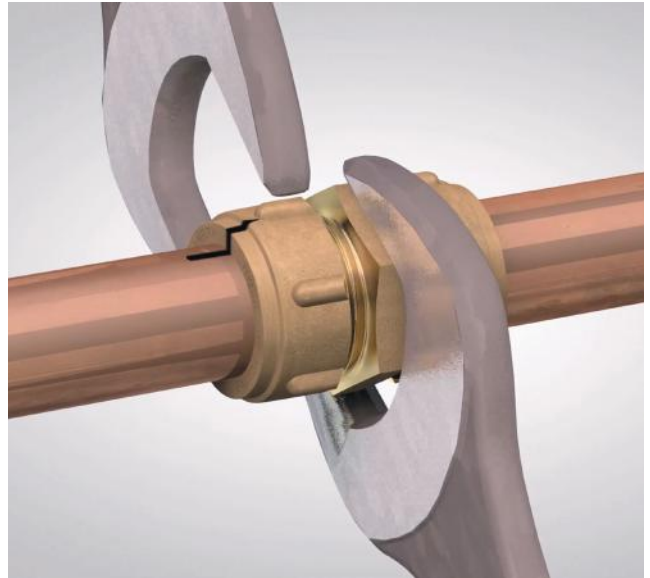
Manufactured from high-quality brass materials, the unique compression rib-nut can be used in a wide variety of domestic and commercial applications making it a truly versatile product. Its applications are many-fold including hot-or-cold drinking water, heating, solar and gas.

The unique ribbed cap-nut design allows tube versatility. This includes copper (to EN 1057), carbon steel (to EN 10305), stainless steel (to EN 10312) and plastic pipes (to BS EN 7291, EN 15875 and EN 15876)

The Conex Compression joint is based on the principle of compressing a spherical brass ring – formerly known as a cone – between two differing tapers in the cap-nut and fitting.

When the cap-nut is tightened to secure the joint, the compression ring changes form resulting in a perfect two-point seal that indents the tube on both sides of the contact.

Ged Grimes, UK and Ireland Business Unit Director, comments: "This seal ensures the compression joint can withstand pressures well in excess of those that it would be exposed to in normal usage."



For more information on Conex Bänninger's complete range of fittings and valves solutions, visit: www.conexbanninger.com

EUROVENT EXTENDS CLIVET ROOFTOP CERTIFICATION

Clivet has announced the extension of Eurovent certification for its rooftop systems up to 200kW.

The certification, which was already in place for nominal capacities up to 100kW, is now extended to all sizes up to 200kW following testing by the certification body in the approved laboratories (test rooms 7.1 and 7.2) at the new Clivet Innovation Centre.

The new facilities make it possible to test, verify and optimise rooftop systems up to 350kW and 60.000 m³/h of air flow.

To check the ongoing validity of certification, visit <https://www.eurovent-certification.com>

To see all Clivet's Eurovent certifications, visit <https://www.clivet.com/en/eurovent>

For further information, email enquiries@clivetgroup.co.uk



NEW ECOLINE 'UNLOCKS FULL CO₂ BENEFITS'

Compressor manufacturer BITZER says food manufacturers with large cooling requirements can now harness the full benefits of environmentally friendly carbon dioxide-based refrigeration following the release of its new high capacity Ecoline CO₂ unit.



The 8-cylinder reciprocating compressor for transcritical CO₂ applications is said to deliver outstanding energy efficiency and ultra-low global warming potential (GWP) in a compact footprint that is easy to integrate on site.

In the past, high cooling loads could only be delivered with transcritical CO₂ systems by using multiple smaller compressors to achieve the desired refrigeration output. The new Ecoline compressor enables large cooling loads to be met with a single unit, saving space, improving energy efficiency and performance, and simplifying service and maintenance.

Kevin Glass, Managing Director of BITZER UK, said: "Using transcritical CO₂ in large refrigeration systems has a number of advantages. It's a natural, non-toxic refrigerant which enables compact system dimensions, while future-proofing operators against changes in F-gas regulations, thereby ensuring regulatory compliance and protecting capital investment.

"The new 8-cylinder unit brings all these benefits together in a single, compact package that is even more energy efficient. For food manufacturers with large cooling loads, it's an excellent all-round solution."

email sales@bitzeruk.com

CONDAIR OFFERS AHU EVAPORATIVE COOLING CPDS

Condair is offering a CIBSE-approved CPD seminar. Using humidifiers for evaporative cooling in AHUs. The 45-minute presentation includes training on the psychrometrics of evaporative cooling, a review of the three main AHU strategies, analysis of three real-life case studies that employed these cooling strategies, and a comparison of the latest adiabatic humidifiers.



Dave Marshall-George, UK Sales Director, said: "A single adiabatic humidifier can provide up to 680kW of evaporative cooling to an AHU from as little as 0.3kW of consumed electrical energy. Their potential for delivering low energy cooling to an air handling unit is great and we frequently see this application being employed in modern AHU designs. This CPD is an invaluable chance for consultants and building designers to explore how humidifiers can be used in AHUs to take advantage of this low energy cooling method."

The presentation can be given in-house at a recipient's office, typically over a lunch period with refreshments supplied by Condair, or online via a webinar platform.

Bookings can be requested at www.condair.co.uk/CPD

BIG WELCOME FOR COMPACT SPINCHILLER⁴

Italian manufacturer Clivet has introduced SPINchiller⁴, a new compact air-cooled liquid chiller for outdoor installation, with multiscroll technology and R32 refrigerant.



SPINchiller⁴ (WSAT-YSC4) is available in two energy versions: Excellence (EXC) and Premium (PRM), with a capacity range from 720 to 939kW. It offers SEER values of up to 5.28 for the EXC version and up to 5.03 for the PRM version.

Key features include...

- Low environmental impact solution with R32 refrigerant
- 8 scroll compressors on 2 refrigeration circuits
- Low noise operation - the WSAT-YSC4 series offers 3 acoustic levels
- Maximum adaptability - up to 8 regulation capacity steps and wide operating range from +50°C to -18°C of external air temperature, are able to satisfy the requirement of multiple operating conditions.
- Compact Size - the space savings are an increasingly important aspect in the design of buildings. Thanks to the new layout, the WSAT-YSC4 units are among the most compact units on the market.
- Perfect for LEED

enquiries@clivetgroup.co.uk

<https://www.clivet.com/en/web/clivet.uk/>

ARMSTRONG FT ADDS NEW PRESSURISATION UNITS

Armstrong Fluid Technology has launched the 3760 range of pressurisation units for HVAC applications. For the consultant or M & E contractor, the range offers maximum flexibility and space saving options for a plantroom's specific needs, and for a facility manager, the range is designed to fit and forget.



The compact units are designed to maintain the minimum system pressure of sealed systems up to 300,000 litres with some models also offering combined vacuum degassing and automatic chemical dosing as needed.

Pressurisation only models are available for both floor and wall mounting, and floor-standing dual/multi models are also included in the range. Each unit combines a range of features to improve efficiency, save money, and reduce maintenance costs.

For more information on the full 3760 range, email ukhvacsales@armstrongfluidtechnology.com, tel: +44 (0)161 223 2223 or visit www.armstrongfluidtechnology.com

MULTICHILL JOINS AIREDALE LINE-UP

Airedale by Modine has introduced MultiChill, a modular, low-GWP, free-cooling heat pump chiller range to join its new series of cooling solutions.

With individual unit capacities between 53kW and 103kW, up to 16 MultiChill heat pump chillers can be connected on the same water circuit, delivering up to 1360kW of installed capacity. This can be done at the point of installation or with provision included for units to be added later, futureproofing installations against rising demand.

The part-load efficiency benefits are said to be further enhanced when installed in a modular configuration, with the system able to comfortably operate within 2-100% of available cooling capacity. Each unit can perfectly adjust its output with precise control delivered via a single advanced microprocessor.

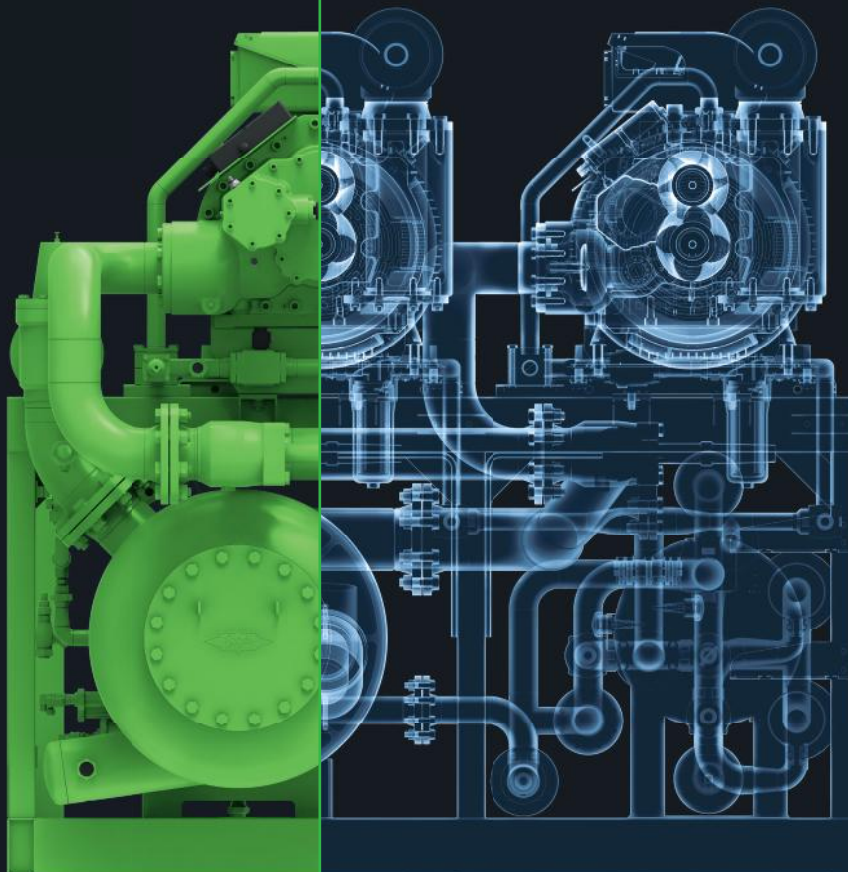
Optimised for lower GWP refrigerant R32 and available with free cooling technology, MultiChill delivers an SEER of up to 4.89 (cooling only) and a SCOP of up to 4.08 (heat pump).

www.airedale.com





DAS HERZ DER FRISCHE



ACP

NATURAL POWER: BITZER AMMONIA COMPRESSOR PACKS.

System safety is the easiest exercise for these power packs: Ammonia Compressor Packs (ACP) from BITZER offer maximum reliability – thanks to multiple compressors, sensors and other essential components within a single system. Their home territory: industrial ammonia refrigeration such as low and medium temperature applications in the food and beverages industry or in warehousing. And all this with high full- and part-load efficiency and low life cycle costs. Learn more at www.bitzer.de // www.bitzer-intelligentproducts.com



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