




# TRAINING 2024

SUPPORTED BY:



The **ACR &**  
**HEAT PUMP**  
**Trainee**  
Of The Year  
**Awards**  
5th December 2024

**Leeds Marriott Hotel**  
4 Trevelyan Square, Boar Lane, Leeds

To enter  scan here

**HEADLINE SPONSOR**



**SPONSORS**



# Training! Who needs it?

**Neil Roberts**, Senior Technical Sales Manager at Climalife in the UK & President of the British Refrigeration Association, discusses the significance of training, noting that it is more than just an initial step; it should be a lifelong learning experience to ensure our knowledge is at the level it needs to be to deliver the quality of service our customers deserve.

**Throughout our lives we have all received training, it's the 'fast track' to learn current best practices and the foundation to push beyond our current understanding and shape the future. Whether it be by formal or informal means, we have all benefitted by increasing our knowledge or learnt new skills from others who already have the knowledge or skills, and most importantly, are willing to share their expertise.**

When we talk about training there is a tendency to focus on the pipeline of new talent joining the industry, but training is not just for the young and inexperienced, learning should be a constant in everyone's lives.

The industry is currently going through a period of rapid change, and it could be argued that training today is more important than ever to ensure everyone has the right knowledge to use the best technologies, to install and maintain systems to operate at their peak performance and to know how to do all this safely.

As we move towards technologies that deliver the goal of lower and lower environmental impact, most refrigerants used will either have a degree of flammability, high pressure or toxicity. For many refrigeration technicians, handling these types of products will be new, and training therefore essential.

The arguments for the need for training are very compelling, so surely with so much training needed everything must be good, but this is sadly not the case.

Go to any industry gathering today and it won't be long before somebody brings up the subject of training. Not enough apprentices, lack of training establishments, relevancy of the course are all comments I have heard. Many associations such as the British Refrigeration Association (BRA), Institute of Refrigeration (IOR), etc. have groups discussing the issues within the industry and are collaborating to explore options to move forward.

For example, trying to get school leavers interested in coming to the RACHP industry via the IOR Fantastic Fridges initiative, promoting STEM Ambassadors to visit schools and overcoming the practical difficulties to open up the T Level route.

Although the focus often falls on the low numbers of apprentices coming through, one major concern is the lack of trainers. The IOR published a guidance note in February (GNET15) on how to get into teaching based on input from experience trainers and teachers. It outlines the benefits and process for becoming a professional RACHP trainer and points out you don't need a prior teaching qualification or academic qualifications to get started, these can be gained

whilst on the job with support from the college.


Understandably not everyone will want or be able to go into a full teaching role, but many could still play an important part. I have been fortunate that my employer, Climalife, has allowed me to visit colleges over the last 3 years and explain about using, choosing and the legislation affecting refrigerants. The gratitude from colleges and students is amazing and I'm sure the many other people who do similar sessions feel the same. If you want to give something back to industry and can spare a few hours to speak with students on your specialist subject, or just about what the RACHP industry has meant to you, then reach out to your nearest college offering RACHP training or contact one of the industry associations who will be able to provide contacts.

I said at the beginning that training is not just for the young and inexperienced, often in our industry there is a 'learn on the job attitude' and this can sometimes be a problem as technology, standards and



**Neil Roberts, Senior Technical Sales Manager at Climalife in the UK & President of the British Refrigeration Association**

legislation do change, so unless you keep up to date with these changes, you may find what was OK several years ago is now at best not good practice and at worst illegal.

So, let's all rethink our attitudes to training, it's not just something we do to get us started, it should be a lifelong learning experience to ensure our knowledge is at the level it needs to be to deliver the quality of service our customers deserve. And don't forget, giving back to industry is just as important as receiving, so make time to share your knowledge and experience with others. 

## climalife®

For information regarding this article please contact:  
Mel Summers, Marketing Manager, Climalife UK.  
Tel: +44 117 980 2520 or Email: [msummers@climalife.dehon.com](mailto:msummers@climalife.dehon.com)

# We need safety AND performance

While there is now an intense (and understandable) focus on safety across the sector, we must also keep our eye on quality, says **Chris Major**, head of quality at the Building Engineering Services Association (BESA).

**The Building Safety Act is already having a profound impact on everything our industry does – even for smaller firms who may not have any direct involvement in higher risk buildings (HRBs).**

Supply chains are taking their leads from tier one contractors who are resetting their project and planning processes to ensure they meet the new compliance requirements – and they want their suppliers to do the same on every project.

Demonstrating technical and professional competence is, therefore, rising to the top of most managers' in-trays with the inevitable consequences for training and recruitment. Industry bodies like BESA are pivoting to ensure they can meet members' needs and assuage their concerns.

We are identifying where the skills gaps are, setting up the necessary training and streamlining methods for qualified firms to provide evidence of their skills and competence via registration schemes like REFCOM<sup>1</sup> and through initiatives like the digitisation of SKILLcard<sup>2</sup>.

However, this is not just about compliance. The industry's latest acronym SKEB captures the full breadth of this challenge. That's 'Skills Knowledge Experience and Behaviours' in case you didn't know!

## State of mind

Ensuring safety is as much about a state of mind (behaviour

and experience) as it is about having the technical skills to deliver a project properly. And we are all having to ask ourselves the big question that was recently posed on the BESA podcast @Behind the Built Environment<sup>3</sup> by the healthcare expert **Dr Phil Webb**: "Why do you build things?"

"If you are building just for profit and in a way that means you will not be sued for poor design, then why bother?" he said.

"However, if you are building because you want to improve the standard of the built environment for the benefit of all – including mitigating the impact of climate change and making people safer, healthier, and happier, then you deserve to get a return on your investment."

In other words, if you are just trying to meet rules what kind of building are you going to deliver? Consider net zero targets. The ideal building for low carbon is a sealed box with little or no ventilation – completely unliveable. So, why would you bother building such a thing...but people are.

Training needs to be focused on compliance, yes, but also on good engineering outcomes that deliver wider health and wellbeing benefits for our industry's customer – the building user.

Several building services contractors have taken the opportunity created by the Act to re-focus their training

on wider goals. Compliance is only achievable if your whole workforce fully understands their roles and responsibilities, and to that end some firms are taking the opportunity presented by the Act to address all the gaps in their skills and experience, so their people become, simply put, better at their jobs.

This filters down into our sector's specialisms, such as refrigeration and air conditioning.

BESA recently reminded the industry about growing safety risks posed by the increased use of flammable refrigerant gases, such as R290 (propane), in air conditioning and heat pump systems.

The Association's latest technical bulletin (TB57)<sup>4</sup> points out that there are currently no UK regulations governing the purchase and installation of systems using R290 because, as a hydrocarbon, it falls outside the scope of the F-Gas Regulations.

Under new European Union rules, stationary split air conditioning and heat pump equipment with capacities below 12kW will be required to use F-gases with a GWP below 150 from the start of 2027. For larger systems, the GWP will have to be below 750.

## Source

1. [www.refcom.org.uk](http://www.refcom.org.uk)
2. [www.skillcard.org.uk](http://www.skillcard.org.uk)
3. [www.thebesa.com/the-besa-podcast](http://www.thebesa.com/the-besa-podcast)
4. [www.thebesa.com/besa-member-support/technical#technical-bulletins](http://www.thebesa.com/besa-member-support/technical#technical-bulletins)
5. <https://besa.academy/local/intellicart/view.php?id=40>
6. [www.thebesa.com/besa-academy](http://www.thebesa.com/besa-academy)



**Chris Major**, head of quality at the BESA

This means the most commonly used refrigerants in these systems will be phased out to be replaced by R290 in many smaller systems, and just because there are no specific rules governing this flammable gas, should not mean that the UK industry sits back and carries on regardless.

## Responsible

We are, therefore, calling for all technicians and engineers working on R290 systems to receive appropriate specialised training<sup>5</sup> for handling flammable refrigerants – and most responsible firms are already making sure that happens.

There is safety training available through the BESA Academy<sup>6</sup> to ensure operatives can continue to work with these new gases, which are highly effective refrigerants that provide low GWP, high heat transfer performance, and low-pressure ratios which in turn cause fewer leaks.

So, safety AND great performance – that's the aim.

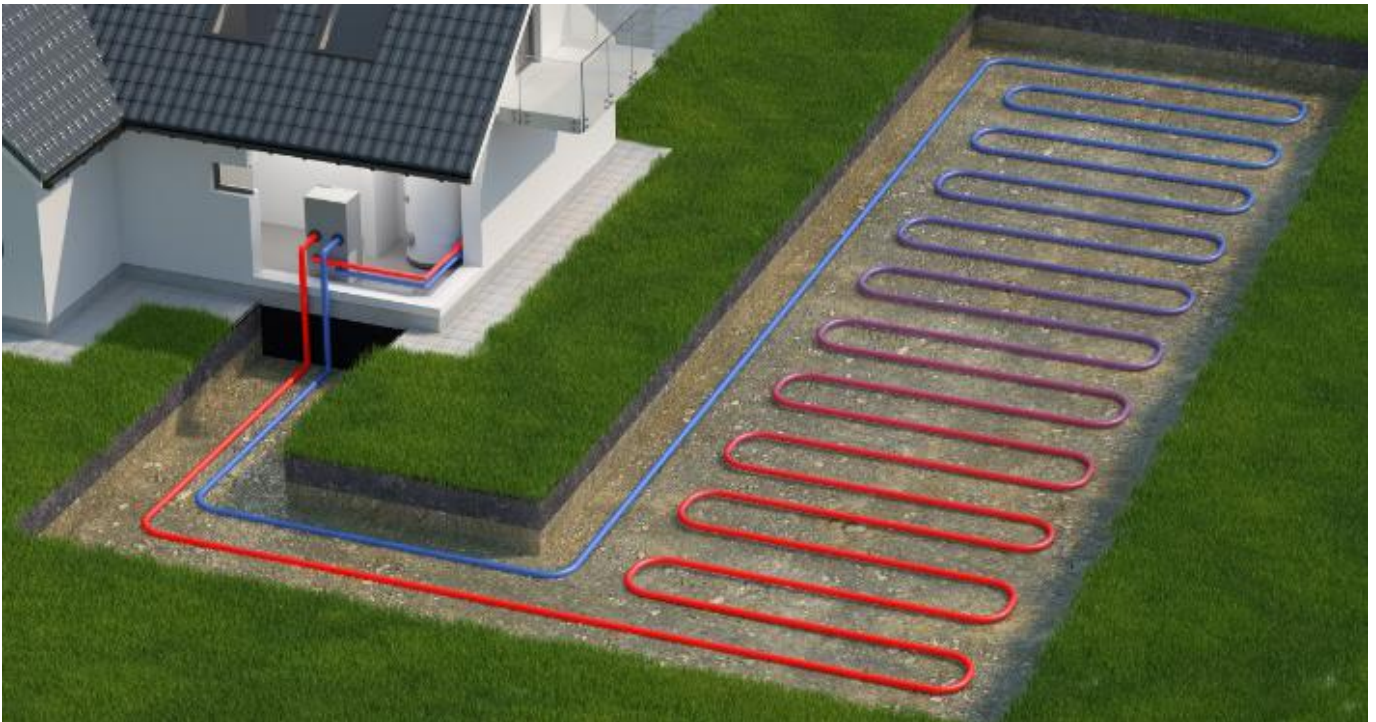
[www.thebesa.com](http://www.thebesa.com)

# The learning solution for building services engineers

Browse our range of courses and free CPD, plus get advice on careers, apprenticeships and much more.



Exclusive discounts on courses for BESA members.  
**[thebesa.com/besa-academy](https://thebesa.com/besa-academy)**



# GSHPA launches CPD-accredited 'Heat Pumps for Engineers' online course with significant discounts for members

A comprehensive online course designed to enhance the skills and knowledge of engineers in the rapidly growing field of ground source heat pumps.

**The Ground Source Heat Pump Association (GSHPA) is excited to announce the launch of a member offer for its online Continuing Professional Development (CPD) accredited course, "Heat Pumps for Engineers".**

The "Heat Pumps for Engineers" course covers a wide range of topics essential for understanding and implementing ground source heat pump technology. The curriculum includes an in-depth exploration of system design, installation, and maintenance, providing engineers with the tools they need to excel in this environmentally critical sector.

One of the standout features of this course is its accessibility. Offered entirely online, it allows

participants to learn at their own pace, making it ideal for busy professionals. Additionally, the course is accredited for CPD, ensuring that it meets the high standards required for professional development in the engineering field.

To promote the course and support its members, the GSHPA is offering an exceptional discount. While the standard price of the course is £1,920.00 (including VAT), GSHPA members can enrol for just £360.00 (including VAT), representing a saving of over £1,500.00. This significant discount underscores the association's commitment to supporting its members and promoting the adoption of sustainable heating technologies.

"We are thrilled to offer this


course at such a substantial discount to our members," said **Laura Bishop**, GSHPA Chair. "Ground source heat pumps are crucial in our transition to sustainable energy, and it is vital that engineers have access to high-quality education and training. By making this course more affordable, we hope to empower more professionals to join us in advancing this important technology."

The GSHPA encourages all engineers interested in ground source heat pumps to take advantage of this opportunity. By completing the course, participants will not only enhance their professional skills but also contribute to the broader goal of reducing carbon emissions and promoting sustainable energy solutions.

For more information about the "Heat Pumps for Engineers" course and to enrol to take advantage of this offer please contact **stephen.bielby@gshpa.org.uk** or scan the QR code below.



**GSHPA**  
GROUND SOURCE HEAT PUMP ASSOCIATION

Don't miss this chance to advance your career and contribute to a greener future with the GSHPA's online course. 

# Understanding Refrigerants

**Tony Lathery**, Chair of the Heat Pump Association Technical Working Group, explains the importance of refrigerant awareness when it comes to heat pump installations.

## Introduction

Refrigerants are vital for the efficient operation of heat pumps. They circulate through the heat pump system, absorbing and releasing heat to facilitate the transfer of thermal energy. Every heat pump uses either chemical or natural refrigerants.

The choice of refrigerant gas and handling of such is important, not just for system performance and safety but also for the health of the planet. Whilst most heat pump installations will be monobloc and have a hermetically sealed refrigerant system, technicians breaking into a refrigerant circuit must have the appropriate qualifications. In addition, all those working on or with heat pumps should have a level of awareness of refrigerants to enable them to identify and manage leaks.

Many traditional refrigerants are composed of fluorinated gases that have a high global warming potential (GWP). The EU's F-Gas regulations, which were recently revised, effective from March 2024, require a significant phase-down and quota reduction to mitigate the environmental impact. In Great Britain, DEFRA published an F-Gas Assessment report in

December 2022, with industry discussions taking place the following year. Whilst the July General Election has delayed the consultation, the UK will likely follow a similar path to the EU.

Growing environmental concerns and regulatory pressures are shifting the manufacturers' focus towards low GWP refrigerants, including Non-F-Gas options, sometimes referred to as 'natural refrigerants'. This change presents a unique challenge for installers, with awareness of the properties and factors affecting the choice of refrigerants becoming increasingly significant.

## Key factors to consider when working with refrigerants:

### 1. Minimising environmental impact

Many traditional F-Gas refrigerants have a high GWP, exacerbating climate change if leaked into the atmosphere. For instance, Hydrofluorocarbons (HFCs), commonly used in older systems, can have a GWP thousands of times greater than carbon dioxide. The move to low GWP refrigerants contributes to worldwide efforts to limit global warming.



### 2. Ensuring safety

Safety is paramount when handling refrigerant gases. Some refrigerants like Ammonia are toxic, while others, such as R290, have a higher flammability rating than F-Gases. Many low GWP refrigerants are classified as 'flammable' or 'highly flammable', so it's crucial to consider siting and clearance requirements when installing. The HPA advocates for comprehensive training to ensure safe handling and reduce risks for installers and end-users alike.

### 3. Efficient performance and responsible maintenance

The performance of a heat pump is directly influenced by the thermodynamic properties of its refrigerant. Efficient refrigerants enhance energy savings and reduce operational costs. Installers who break the hermetic seal when undergoing maintenance of heat pumps must hold formal training qualifications, whether that be an F-Gas qualification and/or Flammable refrigerant qualification.

### 4. Technological advancements and changing requirements

The landscape of refrigerants is evolving, with the phase-out of high-GWP F-Gas. This is leading to innovation in new refrigerants, systems and requirements. This dynamic environment requires ongoing education and adaptation by installers to ensure compliance and optimal performance. The HPA was proud to support installers with a free webinar on refrigerant




**Tony Lathery**, Chair of the Heat Pump Association Technical Working Group

awareness and a presentation at the Installer Show in June. We will continue to support the industry going forward.

## Conclusion

To address the challenges posed by refrigerants, the HPA calls for:

- Mandatory awareness of both F-Gas and Non-F-Gas Flammable refrigerants to be held by all heat pump installers, and an overview must be included in all training courses.
- Technicians installing split-refrigerant heat pump systems or breaking the hermetic seal of a heat pump for maintenance, must hold a formal qualification on understanding the properties and applications of the type of refrigerant that they are handling, be that F-Gas or flammable.

Refrigerant awareness is essential for the successful deployment of heat pumps. It ensures environmental protection, safety, regulatory compliance, and optimal performance. By promoting education and qualifications, the HPA aims to support installers with the necessary knowledge and skills to navigate the complexities of modern refrigerants, supporting the transition to low-carbon heating systems. 

[www.heatpumps.org.uk](http://www.heatpumps.org.uk)



# Your Training Solutions



**INNOVATIVE LEARNING  
SUPPORTING YOUR FUTURE**

- Wide range of RACHP courses
- Fast track NVQ diplomas
- Real working systems for hands on learning
- Remote learning options
- Bespoke courses designed to meet your needs.

**Contact us now**



... helping you to prepare for a changing industry

Call: 01282 452152  
Email: [info@prtc.co.uk](mailto:info@prtc.co.uk)  
Visit: [www.prtc.co.uk](http://www.prtc.co.uk)

**THE ACR JOURNAL**  
Essential Information for the Air Conditioning and Refrigeration Industry

**HEAT PUMPS TODAY**  
ESSENTIAL INFORMATION FOR INSTALLERS



**TRAINING 2024**

SUPPORTED BY:



**BE A PART OF OUR 2025 TRAINING SUPPLEMENT!**

please contact Victoria Brown  
on 01778 395029 or email  
[victoria.brown@warnersgroup.co.uk](mailto:victoria.brown@warnersgroup.co.uk)

**BOOK YOUR TABLE TODAY!**

**NATIONAL  
ACR & HEAT PUMP  
AWARDS  
2025  
6th MARCH**



Scan to book a table



Scan to enter

THANK YOU TO OUR SPONSORS



To book and enter NOW visit [www.acrjournal.uk/information/national-acr-heat-pump-awards](http://www.acrjournal.uk/information/national-acr-heat-pump-awards)  
or email Hayley Comey on [hayleyc@warnersgroup.co.uk](mailto:hayleyc@warnersgroup.co.uk)



# An appetite for training – IOR masterclasses support the next generation of Technicians

**Miriam Rodway**, CEO at Institute of Refrigeration (IOR), discusses the response of the industry to their new free Masterclasses.



**With training and skills one of the biggest issues for the refrigeration air conditioning and heat pump (RACHP) industry today, the Institute of Refrigeration's new free Masterclasses are already having a positive impact.**

Aimed at students, trainees and anyone wishing to refresh their knowledge the IOR Masterclasses are free online sessions led by RACHP experts on some of the sector's fundamental topics.

One of the primary goals of the masterclasses is to support vocational college students, particularly apprentices, by aiding in their training and exam preparation. The online classes provide an opportunity to review fundamental concepts and explore more challenging topics, such as first principles and calculations. And with a growing library of free recordings the IOR Masterclasses allow anyone to dip back in and refresh their knowledge at any time. There are already six IOR Masterclasses available online which cover topics including

heat pumps, pressure enthalpy charts and energy efficiency and optimisation and a further four planned for later this year.

Talking about the response of industry to the IOR Masterclasses, IOR CEO Miriam said "Supporting colleges and employers to address skills shortages is one of the most important things that we need to do in the industry. This is an investment not just in today's technicians but also in the future." She added "We have been very impressed with how colleges tutors have responded - setting up live classroom sessions to watch and reinforce their teaching. IOR is in a unique position to draw on the practical expertise of our members and our members are always happy to share their knowledge with those new to the sector - it's a win-win!"


The IOR Masterclasses are led by senior technicians working in the field and provide a crucial link between college-led learning and on-site practice. The topics chosen were decided based on feedback from trainers and from apprenticeship exam subjects. Miriam says "Masterclasses by their very nature support what has been taught in the classroom, but they also aim to bring to life the topics which have been studied. Field technicians are great at demonstrating to students how theoretical learning can be effectively applied in real-life situations."

As well as offering a Question and Answer session at the end of each session with the speaker, the IOR Masterclasses have been met with great enthusiasm from trainers noting their value to students and how well they enhance the curriculum.

Martin O'Brien of the Technological University Dublin said "Thanks to Ian Fisher FlnstR and the Institute of Refrigeration UK for the excellent webinar on heat pump maintenance. It tied in perfectly for today's lecture for Phase 6 Refrigeration."

If your appetite for training has been whetted, you can join one of our future masterclasses - these include:

- Press fittings for RACHP – 5 September 2024. This talk will explain best practice with hints and tips for using press fittings.
- Refrigerant glide and P-H charts – 24 October 2024. This presentation will provide an opportunity to get a deeper understanding of refrigerant glide and P-H charts and ask questions on this topic.
- Air-cooled condensers principle of operation – 14 November 2024. This talk will explain what engineers need to know about air-cooled condensers' principle of operation.
- The correct siting of air-cooled condensers and air-cooled chillers – 5 December 2024. This presentation will cover essential information for

engineers regarding the proper placement of air-cooled condensers and air-cooled chillers. 

View our recorded library and register for future IOR Masterclasses at [www.ior.org.uk/masterclasses](http://www.ior.org.uk/masterclasses)



Following the great success of the masterclasses, the Institute will be covering even more topics in 2025. If you are a student or a teacher and would like to get additional information and expertise on a specific subject, please let the IOR know. Equally, if you are a technician and would like to get involved in this initiative and present a masterclass in the new year on a subject that hasn't been covered so far, contact us with your ideas at [www.ior.org.uk/about/contact-us](http://www.ior.org.uk/about/contact-us).

[www.ior.org.uk](http://www.ior.org.uk)



# Non-flammable replacement for R404A & R507 with GWP less than 750

RS-51 (R470B) is a non-flammable drop-in replacement for R404A and R507 with a Global Warming Potential (GWP) less than 20% of R404A with similar thermodynamic performance.

**RS-51 (R470B) provides an easy and straightforward retrofit option to replace R404A and R507 in existing equipment at low cost.**

No changes to lubricant and minimal modifications to hardware are necessary so that the overall costs of conversions are kept to a minimum, and purchase of new equipment is avoided. RS-51 (R470B) has similar properties to R404A including Coefficient of Performance, cooling capacity, pressures, discharge temperature, energy efficiency and others.

The much lower direct GWP of RS-51 (R470B) means that users will achieve a lower carbon footprint which is a major benefit under the European Union's F Gas regulations.

**Global warming potential**

The European Union F Gas regulations focus on the direct GWPs of refrigerants so that the lower the GWP of a refrigerant the more of that refrigerant can

be sold & used. RS-51 (R470B) has been developed as a very low GWP replacement for R404A and R507 with the lowest GWP of any non-flammable alternative to R404A on the market. The GWP of RS-51 (R470B) is approximately 45% less than R448A and R449A.

**Performance Characteristics**

- Global Warming Potential less than 20% of R404A
- GWP approx. 45% less than R448A and R449A
- Higher efficiency than R448A & R449A
- Non-flammable & low toxicity
- Suitable in OEM & retrofit applications
- Similar discharge temperature to R404A
- Minimal changes to hardware
- Compatible with lubricants used with R404A and R507
- Similar cooling capacity and energy efficiency to R404A
- Mass flow equivalent to R448A & R449A
- Zero Ozone Depletion Potential



Refrigeration system formerly operating with R507 retrofitted to RS-51 (R470B)

**Applications**

RS-51 (R470B) can replace R404A and R507 in many of the applications where these refrigerants are found including supermarkets, cold stores, freezers, ice machines, refrigerated transport, beer cellars, freezer cabinets, transportation of foodstuffs, freeze dryers, environmental test chambers and others.

**Lubricants**

RS-51 (R470B) is compatible with the same (POE) lubricants which are commonly used with R404A and R507, so that there is no need to change the oil when converting from R404A and R507 to RS-51 (R470B).

**Safety**

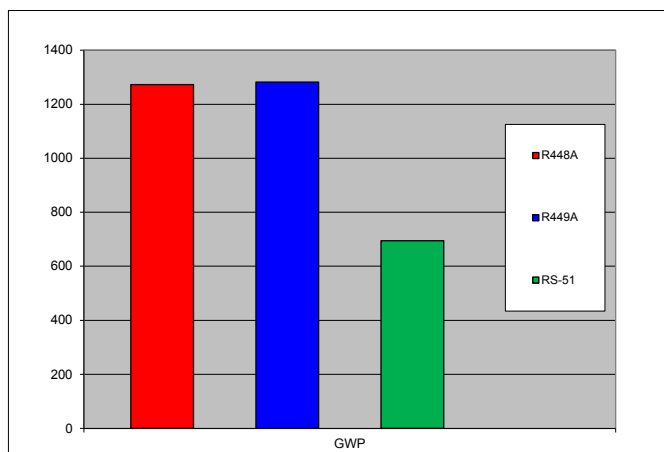
RS-51 (R470B) is non-flammable under all conditions of fractionation as per ASHRAE

Standard 34. The components of RS-51 (R470B) have been subjected to toxicity tests carried out by Alternative Fluorocarbons Environmental Acceptability Study (AFEAS), and have been declared to be of low toxicity.

**Servicing**

Because RS-51 (R470B) is a blend, it should be charged into the system in the liquid as opposed to vapour form. When converting from R404A or R507 to RS-51 (R470B), minimal hardware changes are needed. RS-51 (R470B) has a lower flow rate than R404A and R507, so there is may be a need to adjust or change the expansion device during a retrofit.

**Global Warming Potential**



To read more about RS-51 visit: [www.refsols.com/RS-51.htm](http://www.refsols.com/RS-51.htm)

# Case study - The new refrigeration facility of Star Drive (Intermarché)



During 2020, 14 Intermarchés in the Paris region have teamed up to develop an automated and robotic online order preparation system: the Star Drive project. This project, which cost just over 5 million with 14 co-shareholders, is based in the Neuilly-sur-Marne business area (93). The Star Drive concept ensures order preparation three times faster than on the shelf.

Thus, in order to offer fresh and frozen products, the creation of refrigerated and deep-frozen chambers on almost the entire deposit was required.

Jérôme Bedel, refrigeration officer and manager of the company J.airFROID based in Noisy Le Grand (93) was selected to carry out all the refrigeration installations.

As a specialist in refrigerants FRAMACOLD carried out an analysis of the need of its client J.airFROID. FRAMACOLD then advised in the choice of the refrigerant RS-51 (R470B) and then followed in the implementation of the fluid for the two new positive and negative Star Drive plants.

## Description of facilities

Positive plant	Negative plant
RIVACOLD RV4C2754 Power of 115 kW 4 Compressors BITZER 6HE-28Y-40P Refrigerant RS-51 (R470B) 300kg	RIVACOLD RV4C2756 Power of 50 kW 3 Compressors BITZER 4HE-18Y-40P Refrigerant RS-51 (R470B) 130kg

## The choice

Rivacold France's two new power plants were initially designed for R407F (whose GWP is from 1825). However, to meet several priorities including environmental, the refrigeration company J.airFROID, supported by FRAMACOLD, opted for the use of a fluid that responds more optimally to the F-Gas regulations, the RS-51 (whose GWP is 746).

**Positive point:** The warranty of RIVACOLD France installations remains maintained over 2 years with RS-51 fluid (R470B).

The choice of CO<sub>2</sub> was not retained because it does not fall within the objectives in terms of cost and overall efficiency.

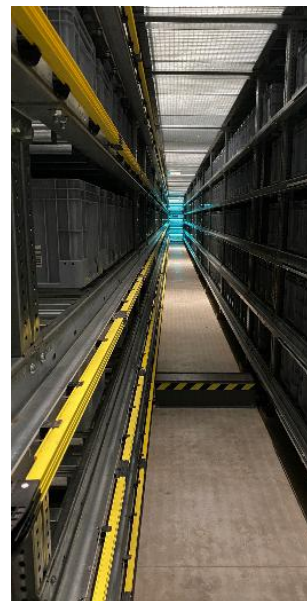
J.airFROID and its customer Star Drive therefore opt for the RS-51 (R470B), one solution at a time:

- Economic:
  - Competitive installation price
  - Simple annual maintenance
  - Reduced energy bill
- Robust, reliable and secure:
  - Proven technology (low pressure)
  - Very low risk of cold production stoppages

A project including multiple cold specialists: RIVACOLD France, J.airFROID and FRAMACOLD

- Reduced hazardous product handling: Non-flammability (A1)
  - Long-term response to the challenges of the F-Gas regulation:
    - Assured fluid availability until after 2030 thanks to its very low GWP
  - A 11.393
  - B -2754.4
  - C 273.14
- Range from -60 to +90 °C  
Slip: 20K
- The data has thus been introduced into the regulator for a global management of the exchangers and in particular the regulators taking into account the need for cold and the slippage of the fluid.

## The implementation



The new installation set up by J.airFROID in the summer 2020, consists of 21 evaporators spread over 8 positive cold rooms and 4 evaporators spread over 2 rooms and 2 negative furniture.

In August, both plants were directly loaded to RS-51 (R470B). The Danfoss electronic control was set manually by the refrigeration system as the RS-51 (R470B) was not in the plc tables. To carry out this operation, FRAMACOLD communicated the Antoine coefficients of the rosé point of the RS-51 fluid (R470B) or:

## Monitoring the installation after more than 6 months

After several months of operation, the plants are working perfectly. The Star Drive customer is totally satisfied with both positive and negative installations!

Today, new projects are being studied to develop the Star Drive concept in other regions.

## The FRAMACOLD conclusion

The RS-51 with its GWP of 746 or 80% lower than the R404A is the retrofit gas to be preferred in new installations and maintenance. With characteristics close to R404A, RS-51 (R470B), a non-flammable A1, goes beyond the requirements of the F-Gas Regulation imposing a 79% reduction in CO<sub>2</sub> equivalent tons quotas. 🇫🇷

**RS-51 is the retrofit fluid for R404A, A1 non-flammable, lowest GWP on the market, almost half the GWP of R448/8 for an assured availability after 2030!**

# 5 reasons it's the perfect time for heating technicians to diversify into heat pumps

**Malcolm Farrow**, head of public affairs at OFTEC, discusses that heat pumps are set to play a crucial role in the UK's transition to low-carbon heating solutions, and the compelling reasons why diversifying into heat pump installations is a smart decision.

## Heat pumps will play a key role in the UK's transition to low carbon heating and the market is ripe for opportunity.

We're seeing growing interest in training and over 2,000 technicians have completed our courses since we launched. From policy updates to a demand for skills, here are five reasons you should consider diversifying into heat pump installations this year.

### 1. New government and new net zero drive

During the election campaign, the new Secretary of State for Energy Security and Net Zero Ed Miliband described Britain's heat pump takeup as 'absolutely miserable compared to other countries'. He outlined the need to make the technology economically worthwhile for people and emphasised the importance of 'working with the private sector to actually install heat pumps'. It's clear there is huge appetite and opportunity for technicians to diversify into this technology.

### 2. Changes to the Boiler Upgrade Scheme

Recent changes to the Boiler Upgrade Scheme (BUS) under the previous government removed the requirement to have no outstanding recommendations for loft and cavity wall installation on a

property's Energy Performance Certificate to secure funding for a heat pump. There was some controversy when this was announced and we shared concerns that this could potentially create confusion for end users. However, this is a problem with application of policy rather than the principle. Fundamentally, removing take up barriers for consumers is positive as it's the role of competent technicians to then advise what's suitable for any given property.

Ed Miliband has recognised the value of BUS as a 'carrot' approach rather than a 'stick'. At the time of writing, there haven't been any further announcements but BUS funding will likely continue help to drive take up of heat pumps and grow the market for technicians.

### 3. Heat pump installers are in high demand

As the heat pump market grows, there continues to be a chronic shortage of installers. Skills are in huge demand and technicians who have heat pump qualifications will be well placed to grow their business as this industry expands.

The existing target of 600,000 heat pump installations a year by 2028 has yet to be reached. There are currently an estimated 3,000 heat pump installers and there were 55,000 heat pump

sales last year. Simply put, the UK needs significantly more qualified heat pump installers.

### 4. Position yourself for a multi technology future

Heat pumps have a central role to play in the transition to low carbon heating. However, it won't be the only technology we need to achieve our net zero commitments. This is particularly true off the gas grid where housing stock can sometimes mean it isn't practical to install a heat pump.

For technicians who specialise in liquid fuels, diversifying into heat pumps means you will be equipped to advise consumers and install the most suitable technology. You will be able to tap into both markets and will be uniquely placed to grow as a business.


### 5. Training is now more accessible

An increasing number of training centres now run OFTEC's heat pump training courses, which include both theoretical and practical assessments across different heat pump products. The courses are run through OFTEC's existing training provider network and you can find a local provider and book your training through the OFTEC website. There's also information on the prerequisites for the courses.



**Malcolm Farrow**, head of public affairs at OFTEC

Technicians who complete the course can apply for MCS certification to install heat pumps through the Boiler Upgrade Scheme once they've met the prerequisites. They will also be able to self-certify their own installations as being compliant with Building Regulations.

For technicians in high demand, it's understandably difficult to find time for training in new technologies. However, the market is changing and the heat pump industry will continue to develop. Technicians who diversify will be able to grow their business and support the UK's transition to cleaner technologies. Otherwise, the risk is you may be left behind. 



[www.oftec.co.uk](http://www.oftec.co.uk)

# Expand your business with OFTEC heat pump training and registration

Demand for heat pumps is growing, so now is the perfect time to take full advantage with OFTEC's heat pump training courses.

Scopes of registration:

- OFT21-504A - Installation, commissioning and servicing of air source heat pumps.
- OFT21-504G - Installation, commissioning and servicing of ground source heat pumps.
- OFT21-504D - Design of heat pump systems.

On completion, heating businesses can access OFTEC's heat pump CPS and MCS registration schemes, allowing you to undertake installations funded by the Boiler Upgrade Scheme and putting your business in prime position to benefit from the growth of the heat pump market.



To find out more, or to apply scan the QR code or visit the OFTEC website.

[www.oftec.org](http://www.oftec.org)





# There's an Ecodan for every home

The NEW Ecodan air source heat pump is setting new standards for performance and sustainability. Using R290 with a Global Warming Potential of only 3 and offering flow temperatures of up to 75°C, Ecodan offers flexible application. Available in 5kW, 6kW, and 8kW sizes.

[ecodan.me.uk/R290ACR0924](https://ecodan.me.uk/R290ACR0924)



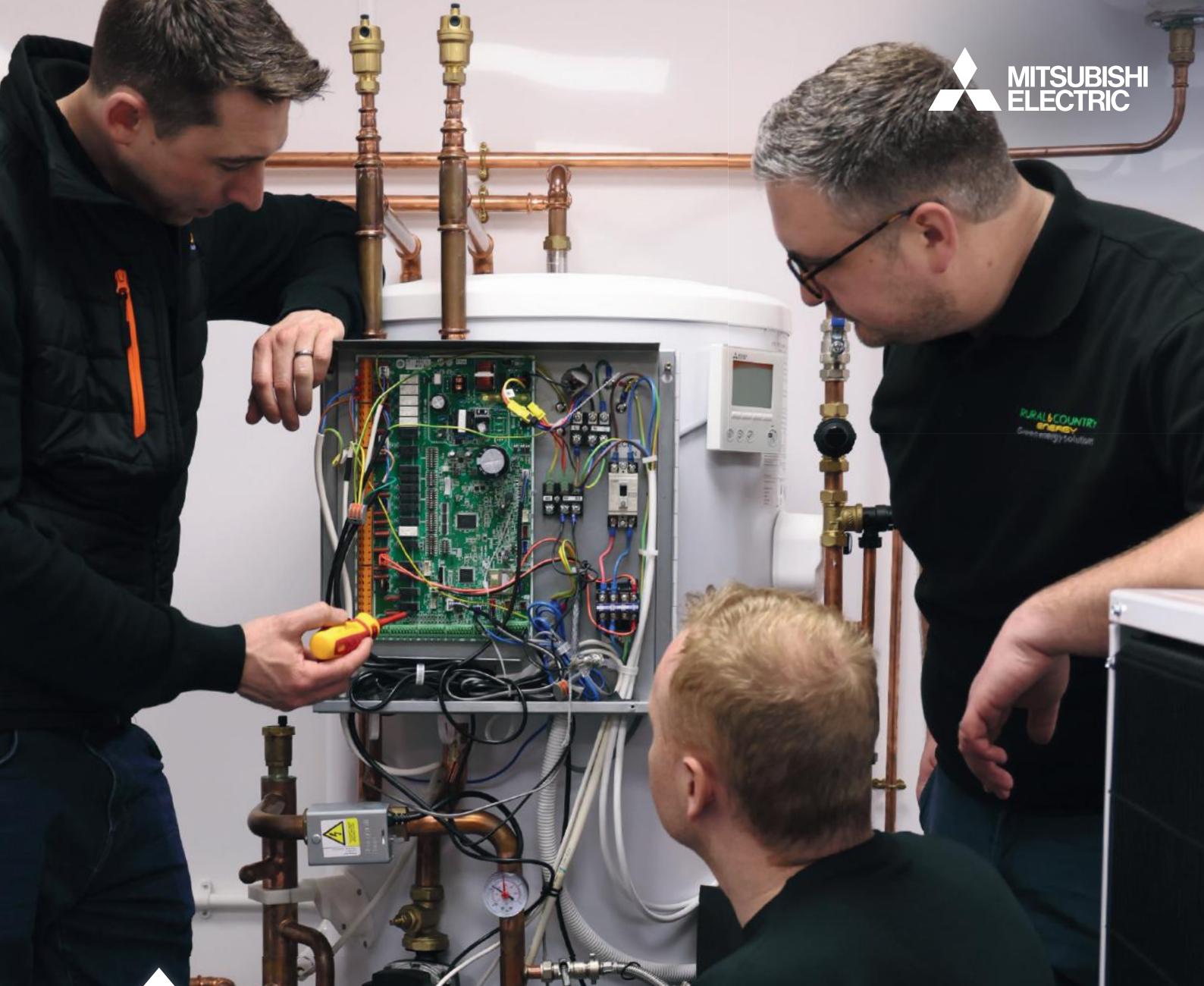
MANUFACTURED  
IN THE UK



NEW  
**R290**  
REFRIGERANT



**ecodan**<sup>®</sup>  
Renewable Heating Technology



# UPSKILL TO ecodan®

## Helping you to deliver net zero

As more and more homes switch to air source heat pumps, now is the time to invest in your business and partner with Mitsubishi Electric for success. Upskill to Ecodan via our online courses and get hands-on experience at our Livingston, Manchester or Hatfield Training Centres.

Made in Britain, to British standards, for British homes.



Find out more on why Mitsubishi Electric and Ecodan are the best choice for your business  
[ecodan.me.uk/ACR0824](https://ecodan.me.uk/ACR0824)



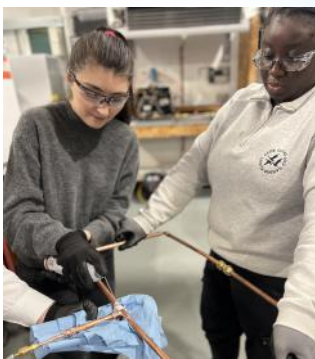
**BOOK  
YOUR  
TRAINING  
NOW**



# Discover your potential with Beijer Ref Academy:

## The future of refrigeration training

In the fast-evolving landscape of refrigeration and air-conditioning technology, staying ahead of the curve is paramount. At the Beijer Ref Academy, we are dedicated to empowering engineers and industry professionals with the skills and knowledge required to meet the challenges of tomorrow.



**Our academies offer a diverse range of comprehensive courses designed to enhance expertise in natural refrigerants and sustainable solutions.** These range from product specific training for manufacturers such as MHI, SCM Frigo and Danfoss through to engineering based courses, such as:

### 5-Day F-Gas Category 1:

Designed for engineers to meet legal qualifications for working on refrigeration, air conditioning, and heat pump systems. This course covers theory, practical lessons, and assessments, culminating in the City & Guilds 2079-11 F-Gas Category 1 qualification.

### 2-Day F-Gas Category 1:

Perfect for experienced engineers without an F-Gas certification, this course focuses on mastering safe refrigerant handling, leading to the City & Guilds 2079-11 certification.

### Introduction to CO<sub>2</sub> as a Refrigerant (2-Day):

Addressing CO<sub>2</sub>'s rising popularity due to its low Global Warming Potential, this course removes the mystique around CO<sub>2</sub> systems, awarding a Beijer Ref Academy Competency Certificate upon completion.

### Installing & Commissioning CO<sub>2</sub> Condensing Units (1-Day):

Provides hands-on training for engineers in CO<sub>2</sub>-based systems, including installation, commissioning, and fault diagnosis.

### Basic Refrigeration Electrics & Safe Isolation (1-Day):

Offers in-depth instruction on electrical systems related to refrigeration, emphasising safety and practical diagnostic skills.

### Hydrocarbon & Flammable Refrigerants (1-Day):

Covers safe management of HC refrigerants and leads to the City & Guilds 6287-21 certification.

### Online Courses:

- **Basics of Refrigeration or Air-Conditioning:** For non-engineers, this course explains fundamental refrigeration principles and components.
- **Chameleon (1-Day):** Enhances team dynamics and workplace relationships through specialised online workshops.

### Innovative Training Approaches

At the Beijer Ref Academy, we emphasise "hands-on" training over traditional classroom methods. Engineers engage directly with state-of-the-art equipment, ensuring they gain practical knowledge for real-world applications.

Our Wetherby facility houses 17 operational systems, including the SEC unit from SCM Frigo, CO<sub>2</sub> packs connected to multiple cabinet types, and MHI's CO<sub>2</sub>-based Q-ton hot water heat pump. Training courses are designed and delivered by a team of seven experts with extensive industry experience, ensuring that the curriculum is both current and comprehensive.

### Streamlined Course Management

Our user-friendly website, [www.beijerrefacademy.co.uk](http://www.beijerrefacademy.co.uk), streamlines course booking and management. Engineers can seamlessly browse available courses, check availability, book in real-time, and track their progress. This centralised platform also allows them to access their certification records, eliminating unnecessary paperwork.

### Exceptional Feedback and Satisfaction

Customer satisfaction is core to our mission. Post-course feedback underscores our

commitment to excellence, with the 5-Day F-Gas and Introduction to CO<sub>2</sub> courses receiving ratings of 9.5/10 and 9.9/10, respectively. Client testimonials further highlight the quality and effectiveness of our training:

"We will continue to use them as it is so easy to book a course and the feedback from the centre is second to none" - *Aqua Cooling*

"The engineers have also fully enjoyed their training; we have had no complaints and they have thrived under their training programme" - *Cool & Heat*

"We can certainly say, the Beijer Ref training was technically excellent, and the quality of their instructors were industry savvy and very knowledgeable" - *EJM Engineering*

In conclusion, Beijer Ref Academy not only equips engineers with the necessary skills but also inspires confidence in adopting sustainable refrigeration solutions. Join us in leading the change towards a greener future. Discover more and book your next course today at [www.beijerrefacademy.co.uk](http://www.beijerrefacademy.co.uk).



# BEIJER REF ACADEMY

## Training for a Sustainable Future

“Courses constructed  
by engineers  
for engineers”

See  
website for  
full list of  
courses  
available

### POPULAR COURSES

5 Day F-Gas Cat 1 2079-11

2 Day F-Gas Cat 1 2079-11

CO2 Introduction & Safe Handling

Hydrocarbons & Flammables

Basic Refrigeration Electrics

**0800 077 8436**

[academy@beijerref.co.uk](mailto:academy@beijerref.co.uk)

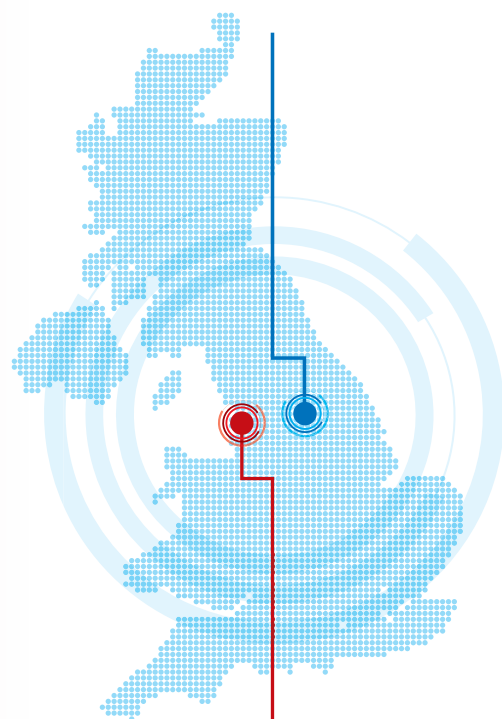
[www.beijerrefacademy.co.uk](http://www.beijerrefacademy.co.uk)

## THE AWARD WINNING TRAINING ACADEMY



TRAINING  
PROVIDER  
2023

**WETHERBY**  
West Yorkshire



**PRESTON**  
Lancashire



**TRAINING  
ACADEMY**





Inside the new training academy



Andrew Paddock, Carrier's Managing Director for UK and Nordic cutting the ribbon

# Mastering skills for the future at Carrier's new training academy

Carrier's new training academy is a testament to its commitment to building a skilled workforce capable of leading the way in intelligent climate and energy solutions.

## On Thursday 11th July, Carrier officially opened its new training academy at its service and rentals depot in Bracknell.

The new state-of-the-art facility reinforces Carrier's dedication to training and inspiring the next generation of engineers and technicians while helping to address the skills gap in the HVAC sector.

The training academy will provide trainee engineers and technicians with hands-on experience with Carrier's commercial product portfolio, including heat pumps, chillers, and air handling units.

To enhance their learning and understanding of total life cycle asset management, trainees can also gain skills in service repairs and upgrades, such as VFD (Variable Frequency Drives), refrigerant, compressor overhauls and controls, as well as modernisation and preventative and predictive maintenance.

Opening the academy is an important step towards Carrier's Environmental, Social & Governance (ESG) goal to

support its customers' shift towards sustainable solutions and avoid more than 1 gigaton of greenhouse gas emissions from their carbon footprint by 2030.

## Building a skilled workforce

"It's an exciting time for us. Opening our new training academy marks a significant milestone for Carrier and is a testament to our commitment to building a skilled workforce capable of leading the way in intelligent climate and energy solutions," said

**Andrew Paddock**, Managing Director Carrier Commercial HVAC UK and Nordics.

"The aim of our academy is to look at the skills needed for now and for the future. Without new talent and continual skill enhancement, it will be difficult to fully embrace the electrification of heating systems and meet net zero targets.

"Having expertly trained technicians will give our customers a high degree of confidence in our abilities to install, maintain, and manage

the life cycle of their equipment to the higher level."

## Practise makes perfect

During the grand opening, guests were able to tour the new facilities and see learning come to life with equipment demonstrations.

**Phil Treacher**, Carrier's Technical Manager, gave a detailed insight into the equipment available in the training academy.

"Currently in the training academy, we have a centrifugal

compressor which technicians can take apart and rebuild safely and accurately. We have VFDs and air-handling units which we can use to fault find, maintain, and service. There are also several simulators we can plug in and train technicians and engineers on how chillers work and simulate breakdowns.

"The beauty of the academy is that we can constantly bring in new equipment and continuously upskill our staff in a safe environment where they can practise with no pressure.



A tour of the facility

Then when they're out in the field, they can confidently provide our customers with the best possible service."

**Celebrating Carrier's apprentices**

Attendees also celebrated the achievements of Carrier's graduating apprentices who have progressed through the company's apprenticeship programme. Shortly after, guests then heard more about how Carrier is actively growing its apprenticeship programme with the recent appointment of a dedicated apprenticeship programme leader, Adele Watson, along with plans to recruit 20 new apprentices in the coming months.

"With the skills gap growing and the industry at risk of

losing a wealth of knowledge when our experienced technicians retire, it is crucial that we invest in training new talent," said **Adele Watson**, Apprenticeship Programme Lead UK.

"Our apprenticeship programme is designed to help young people master skills for the future so we can achieve sustainability and decarbonisation goals. Our new training academy and the wealth of HVAC experts we already have in the business, many of whom started their Carrier careers as apprentices, will be able to enrich our apprentices' learning with their years of experience and fill in all the HVAC-specific areas the learners do not cover at college."

**The vision for the future**

Over the coming months, Carrier will develop a training programme focused on educating its engineers about the adoption of new refrigerants, including R290, and invite customers and contract partners to experience exclusive training days at the new facility, further enhancing their awareness and understanding of Carrier's HVAC solutions.

**Sean Anderson**, Service Operations Director UK and Nordics, provided more insight into what the future looks like for the training academy. "Our new training facility is going to be completely scalable and we're already looking at ways to evolve it over the months and years ahead. Part

of our growth plan will be to offer existing engineers, not just from the HVAC world but other related sectors, with all the specific training about our equipment so they have all the tools they need to be successful with Carrier."

As well as training Carrier personnel, the academy can be utilised for Carrier's CIBSE-approved CPD training courses to support consultants, installers and end-users who wish to update their knowledge on key technical and legislative topics.

To find out more about Carrier's new training academy facility, please contact:

[www.carrier.com/commercial/en/uk/contact-us](http://www.carrier.com/commercial/en/uk/contact-us)

**Carrier**

# CARRIER TRAINING ACADEMY

RESPECT • INTEGRITY • INCLUSION • INNOVATION • EXCELLENCE

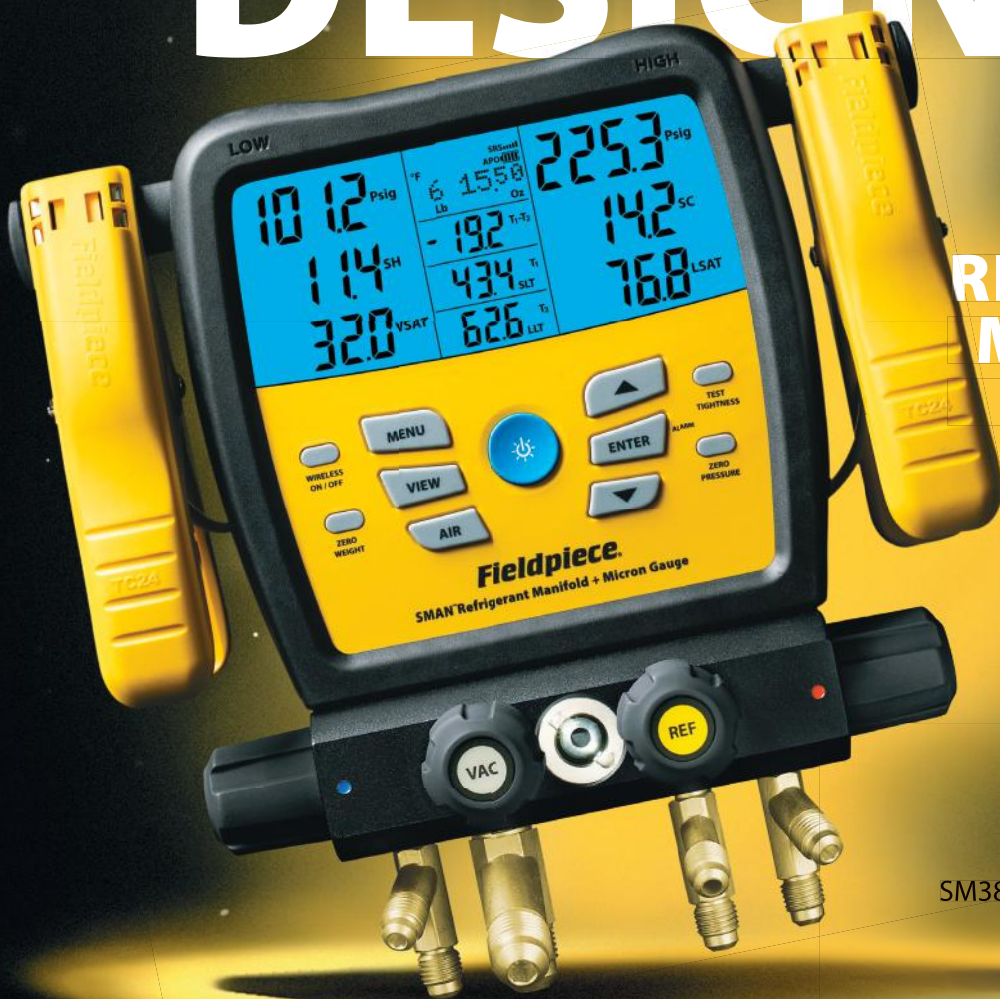
## MASTER SKILLS FOR THE FUTURE

- Chillers & Heat Pumps
- Service Solutions
- AHU & RTU

Development | Innovation | Learning | Knowledge | Growth | Excellence | Skills | Improvement | Competencies | Performance

Contact us

# RELIABLE, ACCURATE AND HEAVY DUTY DESIGN



REFRIGERANT  
MANIFOLD  
4-PORT  
SM480VINT



SM380VINT



## Discover our state-of-the-art manifold

Our SMAN® digital manifold (SM480VINT & SM380VINT) supports A1, A2L and A3 refrigerants, has a seamless integration with our Job Link® tools and is weather resistant. Work easier, faster and better with all the information you need in the palm of your hand.

# The first company in England to offer mobile heat pump installation training

Go Geothermal tells us about delivering classroom-based theory training in business premises and the use of a specially adapted trailer to deliver hands-on training in the installation of heat pumps.

**It is estimated that 50,000 installers are required to meet the government’s ambitious annual heat pump installation target of 600,000.**

It is for this reason that Go Geothermal has become first company in England to offer mobile heat pump installation training.

In addition to two heat pump training centres in the North-East and Midlands (a new sales office and showroom recently opened in the centre of Retford), the company is now able to take its training on the

road with the launch of its Go Green Academy, offering BPEC nationally accredited courses to those seeking to become heat pump installers.

It is designed to provide flexible training opportunities across the country and encourage the industry to gain the skills needed to decarbonise homes and buildings in line with UK plans to become Net Zero by 2050.

Go Geothermal will be able to deliver classroom-based theory training in business premises and then use a specially



The Go Green Academy trailer

adapted trailer parked outside to deliver hands-on training in the installation of heat pumps.

The trailer contains one of the company’s CTC brand of air source heat pumps, which are made in Sweden and which Go Geothermal has exclusive rights to in the UK.

One of the company’s newest products is the CTC 700 Series, a ground-breaking air source heat pump which provides

both heating and cooling and which uses R290 natural refrigerant to make it more environmentally friendly.

For more information on the Go Green Training Academy, the CTC 700 series air source heat pump or anything else related to Go Geothermal’s renewable energy products please call **01388 720228** or email [sales@gogeothermal.co.uk](mailto:sales@gogeothermal.co.uk)

## HEAT PUMP TRAINING

Our Go Green Academy offers nationally accredited courses to those seeking to become heat pump installers.

### Key Features:

- BPEC accredited heat pump training
- Theory and practical based using real CTC heat pumps
- Multiple centres throughout the UK
- Remote training also available
- BPEC Low Temperature Hot Water Heating Systems training



### CONTACT INFORMATION

Open to plumbers and heating engineers.  
 Call: **01388 720228**  
 Email: [training@gogeothermal.co.uk](mailto:training@gogeothermal.co.uk)  
 Or speak to your account manager today!

Visit now!



# ACR & HEAT PUMP REGIONAL EXHIBITION

26th September 2024

Leeds United Football Ground  
Elland Rd, Beeston, Leeds LS11 0ES

- SPEND A DAY NETWORKING WITH INDUSTRY PROFESSIONALS
- SHOWCASE YOUR LATEST PRODUCTS/PROJECTS

**BOOK  
YOUR  
STAND!**



**REGISTER  
FOR  
FREE!**



**VISITORS WILL AUTOMATICALLY BE INCLUDED WITHIN OUR POPULAR RAFFLE**

## PLATINUM SPONSORS

## GOLD SPONSORS

## SUPPORTERS



**IOR.org.uk**  
REFRIGERATION AIR CONDITIONING HEAT PUMPS



The Climalife Roadshow will also be open from 8am – 10am in the Jack Charlton Suite (West Stand). Refreshments and breakfast rolls will be available on arrival. You can register to attend at: <https://forms.office.com/e/rMhEAXrdfP>



One system does it all

# Job Link<sup>®</sup> System

## Link Your Tools



**DIGITAL MANIFOLDS**



**PSYCHROMETER**



**PIPE CLAMPS**



**MANOMETER**



**CLAMP METERS**



**REFRIGERANT SCALE**



**PRESSURE PROBES**



**VACUUM GAUGE**

Our new Job Link system application has new features that make working without interruptions even easier and more efficient. From viewing measurement results to processing work orders, the new Job Link app doesn't miss a thing.

- Easy and fast wireless connection of measuring devices
- Visualization of all measurement results
- Link your jobs
- Search, sort and exchange jobs
- Easily generate customer reports instantly with a personalized and professional look and feel
- Efficient planning of work orders
- Download the new Job Link<sup>®</sup> system



App for  
IOS



App for  
Android

[www.fieldpiece-europe.com](http://www.fieldpiece-europe.com)

# The learning solution for building services engineers

Browse our range of courses and free CPD, plus get advice on careers, apprenticeships and much more.



Exclusive discounts on courses for BESA members.  
**[thebesa.com/besa-academy](https://thebesa.com/besa-academy)**