The Renewable Solutions Provider

Making a World of Difference

Living Environment Systems

MITSUBISHI ELECTRIC

Cooling | Heating | Ventilation | Controls

Everyone involved in the construction industry faces challenges that demand efficient and sustainable buildings

The good news is that many of the solutions needed are affordable, scalable and available right now

Working towards a better use of energy in buildings

A strong commitment to the environment remains a long-term goal of Mitsubishi Electric under its global framework for realising a sustainable planet - Environmental Vision 2021.

In the UK, this vision translates into our Green Gateway philosophy which is central to the way we do business. With this initiative, we are seeking to use our position as a manufacturer of key technologies to increase awareness and improve energy use in the built environment.

By constantly challenging everyone involved to combat the issues we all face and encourage constructive dialogue throughout the industry, we aim to help everyone address their energy use and to work towards a more sustainable future.

The energy drivers affecting buildings

There is now a pressing need to address rising fuel prices, climate change and energy security, and the UK Government continues to introduce tough legislation to help, but clearly, this can only go so far. To make a real difference, everyone involved in the built environment has to work together to ensure that we all make better use of energy.

Buildings currently accounting for over 40% of energy consumption and carbon emissions in the UK, so improving the level of efficiency is of paramount importance. By addressing the largest draw on energy - the way we heat, cool and ventilate our buildings - even the smallest improvement will have a significant effect in reducing total energy consumption and help to lower bills. There are several key regulations and planning considerations affecting the construction industry with the primary ones at the moment being:

- F-Gas regulations - These affect refrigerant gases and are designed to reduce the global warming potential of equipment
- MEES - Minimum Energy Efficiency Standards place a legal requirement that buildings meet specific levels of energy efficiency
- Permitted Development - With denser built environments and mixed-use buildings comes the need to tackle plant size, location and noise levels
- WELL Building standard - Quickly becoming the norm, these measure, certify and monitor features of the built environment that impact health and well-being

Other legislation and guidelines such as BREEAM; Part L & Part F; SAP; EpC; EPBD and more will also have an impact. Mitsubishi Electric can help assist in understanding these often complex issues, by providing free, downloadable CPD-Accredited guides or presentations.

Adopting the right approach

Creating sustainable buildings should be the ultimate goal of all involved in the built environment, not only to safeguard our future and preserve energy resources, but also to significantly reduce the on-going running costs of each and every building.

We recognise it can no longer be right to apply more and more heating or cooling equipment to a leaky building. It's far more important to reduce the need for energy consumption through ensuring properties are first and foremost thermally efficient, before installing zero or low carbon technologies that meet the demand with the least amount of energy.

We firmly believe the way to optimum efficiency is through a 'Lean, Mean, Green' approach that examines how best to achieve the right heating, cooling, ventilation and control solutions for each individual building:

Lean	Reduce the need for energy consumption
Mean	Deploy the most energy efficient products
Green	Incorporate low and zero carbon technologies

Our advanced range meets the demand for energy efficient solutions

With a reputation for excellence, Mitsubishi Electric Living Environment Systems offer a pioneering range of cooling, heating, ventilation and controls solutions.

Our systems provide accurate, controlled, energy efficient comfort all year round - designed to match the needs of any building and meet the demand for efficiency. Manufactured to exacting standards and supported with the highest level of pre and after sales service, our comprehensive range is second to none.

Energy Efficient Air Conditioning

Modern buildings are filled with heat generating office equipment and lighting, which presents a problem for anyone trying to maintain a stable and comfortable internal environment for staff and customers.

At the same time, the pressure is on to find ways of reducing the impact on the built environment and the challenge is to deliver heating, cooling and ventilation systems that provide complete flexibility of design and control, whilst maximising energy efficiency.

At Mitsubishi Electric, we have developed air conditioning solutions that utilise sustainable energy resources to keep power consumption to a minimum, whilst providing the highest levels of comfort available.The company's advanced range of air conditioning models includes the popular M Series and Mr Slim split systems, as well as the market leading City Multi VRF (Variable Refrigerant Flow) system. VRF systems can simultaneously heat and cool different spaces to balance energy use across a building and today, hot water can often be supplied from the same system.

The construction industry also faces pressure to move to refrigerants with a low global warming potential (GWP) which has seen significant price rises in R410A and the move to new lower-GWP R32 in both our M Series and Mr Slim air conditioning ranges.

Unique R32 Hybrid VRF

Moving to R32 in VRF systems though proves more challenging and so far, no manufacturer has been able to deliver a large VRF system using the low GWP refrigerant… **until now**.

City Multi Hybrid VRF is a 2-pipe heat recovery VRF system that uses R32 refrigerant between the outdoor condenser and the Hybrid Branch Controller (HBC) with water between the HBC and indoor units. You can install and design it as VRF whilst enjoying the features of a Chiller system. Whatever the application or the size of a building, our comprehensive range is designed to provide the ultimate in energy efficiency and constant comfort for all - and to do so in a responsible manner.

R32

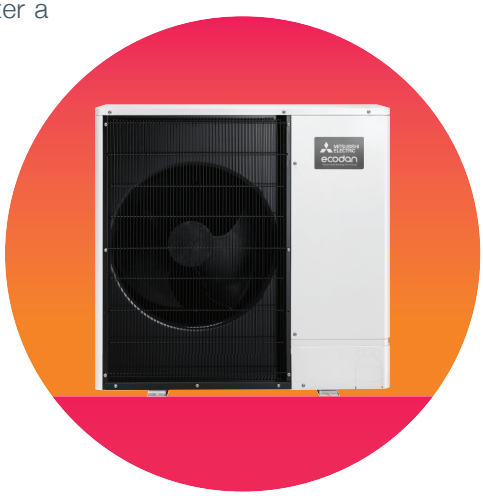
Renewable Heating

Rising energy bills, the need to reduce carbon emissions and the raft of challenging legislation are driving the demand for alternative forms of heating to improve energy efficiency.

Mitsubishi Electric has used its expertise and pivotal technology to develop renewable solutions to address these issues head on, with our advanced range of Ecodan air source heat pumps. The MCS approved, award-winning Ecodan has been specifically designed and optimised for the UK's conditions, with capabilities that have been independently proven in year-long trials with the Energy Saving Trust.

The award winning Ecodan heat pump range is suitable for both small and large projects and delivers effective, low carbon heating and hot water. Ecodan heat pumps provide a simple, renewable solution that rivals traditional heating systems.

Ideal for almost any type of home - old or new, and suitable for commercial buildings such as schools, showrooms and offices, and now increasingly used for community heating schemes, Mitsubishi Electric has a renewable Ecodan model to suit just about any situation. With a UK-built cylinder and self-learning controls, the residential system is available as a packaged or component solution, optimised to provide all the heating and hot water a home needs, whatever the weather.



Ecodan also qualifies for the Government's Domestic Renewable Heat Incentive, which makes the system even more viable for the majority of homes.

With independent monobloc and split units from 4kW, right up to systems capable of delivering 960kW of renewable heating, which can also work in conjunction with traditional heating systems, Ecodan is leading the way in the renewable heating market for both the residential and commercial sectors

ecodan®
Renewable Heating Technology

Chillers

Mitsubishi Electric has manufactured chillers for over 40 years and in 2015 combined this extensive experience with advanced component technology from the commercial air conditioning sector to produce the e-series modular chiller range.

Later that year Mitsubishi Electric purchased Climaveneta, enhancing our product line up and marking our full scale entry into the chiller market. Climaveneta is a strong European brand supported by 45 years of customer trust and high quality production, and its range of energy-saving, low-noise and innovative chiller technology further expands the application and customisation capabilities we are now able to offer.

e-series Modular Range

Chiller systems have been used for decades to deliver controlled cooling to buildings, but with increasing pressure on energy efficiency and running costs, we now need a low-carbon, cost effective option.

Comprising of Cooling Only and Heat Pump models, Mitsubishi Electric's e-series modular chiller range are available 'off-the-shelf' to deliver the perfect solution for both comfort and process cooling applications.

Traditional Range

CLIMAVENETA
SUSTAINABLE COMFORT

Our new generation of traditional water chillers are designed for comfort and process cooling applications are fully customisable and are suitable for a wide range of applications.

Modern multi–function buildings, shopping centres, large business centres and process cooling are just some of the examples where increased comfort and precision control are required. Our traditional range can easily deliver this and be readily integrated into some of the most complex building systems.

IT Cooling

Complex IT Environments are often characterised by variable cooling loads, which require a high cooling capacity at full load in order to allow the IT equipment to operate correctly when it is most needed.

With our IT cooling systems, both efficiency and reliability are paramount throughout all the stages of research, design and manufacturing. By using this approach along with over 50 years of manufacturing experience within the IT cooling sector, we are able to offer tailor made IT Cooling solutions, designed to keep temperature and humidity precise and constant even with very wide load variations, ensuring the correct room conditions all year round.

RC IT Cooling Systems

The need for high sensible cooling and close control of both temperatures and humidity in critical IT environments has never been higher. The RC IT Cooling range consists of perimeter cooling units, plus rack and door cooling solutions that have been designed to fulfill this requirement.

Delivering precise temperature and humidity control whilst reducing operational costs in the process through the use of highly efficient technology, our range of Computer Room Air Conditioning (CRAC) units have been designed to cool new and existing IT rooms efficiently and effectively.

Close Control VRF System

Mitsubishi Electric's Close Control System (PFD-P-VM-E) is specifically designed for computer rooms, laboratories etc, where a need for high sensible cooling and precise control of temperature and humidity is required.

Because of the need for close control 24 hours a day, 365 days a year, an inverter driven compressor has been incorporated into the outdoor unit, maximising the energy efficiency of the PFD series. It can also be connected to a computer network using our AE-200E controller, in order to monitor and provide remote email alarms.

Fresh Air Ventilation

Poor indoor air quality can be attributed to many problems inside a building. Excess humidity causes dampness, rot and mould, whilst pollutants are known to be a major cause of damaging health issues such as Asthma and Eczema. Stale air is also believed to lead to a loss in productivity and low morale.

With more and more buildings being built extremely airtight, and with increasingly strict legislation, the need for an effective solution such as mechanical ventilation, which is also energy efficient, make Mitsubishi Electric systems the ideal solution. Systems include single and multi-room Mechanical Ventilation with Heat Recovery (MVHR) units and medium to large scale ventilation solutions including Air Handling Units (AHU's). All systems have been designed to provide the best ventilation solution for the chosen application by delivering the required amount of fresh air, whilst extracting the right amount of stale air, in the most energy efficient way possible.

Lossnay MVHR (Mechanical Ventilation with Heat recovery)

The Lossnay system has perfected the recovery of energy that would have otherwise been wasted. It does this by either warming or cooling incoming air using the unique Lossnay ultra-thin paper core technology which is constructed in a corrugated form and layered in alterative directions, a feature which makes Mitsubishi Electric MVHR units extremely energy efficient. The Lossnay range of units have been developed to suit both commercial and domestic applications and benefit from heat recovery technology, ensuring effective fresh air ventilation whatever the type of building.

Air Handling Units

CLIMAVENETA
SUSTAINABLE COMFORT

Packaged Air Handling Units (AHUs) are designed to provide a tempered fresh air supply into commercial buildings. They work in conjunction with the buildings air conditioning system to provide occupants with a fresh and comfortable environment. The technology behind the Climaveneta Wizard AHU includes a highly efficient heat recovery thermal wheel to transfer heat between the supply and return air. By capturing and reusing this heat before it leaves the building, substantial energy savings can be made. This technology can also provide free cooling and benefits from fully integrated, intelligent controls.

Optimum Control Solutions

High level, intelligent control is of paramount importance to sustain comfortable working and living environments that are both energy and cost efficient.

Operating any heating, cooling or ventilation system without the right level of control can prove a costly waste of energy to any business. Therefore the ability to respond to the individual requirements of any building is vital.

Systems must be able to react to a variety of factors such as room size, usage and occupancy levels, as well as compensate for any heat loads generated by electronic equipment and lighting. Intelligent control will enable that. The right controls take building performance to the next level. With them, building systems become more responsive, easier to automate, monitor and maintain and less costly to operate in the long-term. The right controls can deliver a cost-effective solution that helps manage, monitor and report on the performance of all building services systems.

Mitsubishi Electric has been dedicated to producing energy efficient technology for over ninety years. Controls are an essential part of that. We have a long heritage in factory automation where the company leads the field in providing controls that enhance productivity, efficiency and energy use. We have taken this extensive knowledge and experience and transferred it to the heart of our building services equipment.

We were also one of the first manufactures to provide an open gateway to our products to make integration easier for our customers. This enables direct connection of equipment into many common building energy management system (BEMS) platforms.

Recently, Mitsubishi Electric has developed Internet-based building controls that put information on building performance wherever users need it most and wireless technology that makes retro-fitting into existing buildings so much easier.

Control technology is now widely available for buildings of all sizes, so it is possible to access the benefits whatever the scale or scope of your project. From a simple hand-held controller to a centralised BEMS, Mitsubishi Electric puts its customers in control.

Support every step of the way

From responsible and sustainable manufacturing, right through to our comprehensive recycling programme - which reclaims 99.1% of all materials, Mitsubishi Electric is committed to ensuring that our products deliver the most energy efficient performance whilst minimising the impact on our environment.

At Mitsubishi Electric, not only have we developed an innovative range of cooling, heating, ventilation and control solutions, we have also examined how we support the market throughout the complete lifecycle of our products - literally from cradle to grave.

Whether in pre-sales design and specification, installation and maintenance support, right through to our recycling programme, we can offer solutions that deliver the quality and excellence you would expect to help make a world of difference.

We realise that we can play an important role in helping to create a better understanding of the impact on energy use that building services will have throughout the life of a building.

We actively seek collaboration and dialogue with all parties involved in planning, designing, procuring, constructing and managing buildings, as we see this as the best way to ensure needs are translated into the right solutions.

Early engagement in the design process of both new-build and retro-fit projects, allows customers to confidently apply and control cooling, heating and ventilation within their individual projects.

MELSmart™ Technical Services

For any building's services to run efficiently and effectively, it is essential that equipment is designed correctly, specified and installed to the highest standards, into building that are as thermally efficient as possible.

Ongoing service and maintenance programmes are crucial and should include effective monitoring and reporting through to a full plan for the end-of-life programme.

To maximise system performance and efficiency, Mitsubishi Electric offer an unrivalled, comprehensive range of technical services delivered through MELSmart. Our dedicated team are on hand 365 days a year to provide technical support at every stage.

Asset Management and Finance Services

The installation of heating, ventilation, cooling and controls within a building is a combination of ‘fixed asset’ and ‘soft costs’ - a mixture which in the past has been complex to package into a single finance plan.

In partnership with leading asset finance providers, Mitsubishi Electric is now able to offer competitive asset management and finance services with attractive packages that support capital expenditure budgets and the acceleration of programmes by the spreading of investment over periods of between 3-5 years.

Asset finance benefits customers by enabling them to:

- Replace depreciating assets, whilst benefiting from the paybacks of new technologies
- Access new working capital for the installation of new equipment so that cash reserves can be used elsewhere in the business
- Manage CAPEX budgets, cash flow and tax incentives in a joined-up, longer-term way

Removing the complexity of dealing with multiple contractors, Mitsubishi Electric asset management and finance solutions ensure that your organisation benefits from a minimum five-year ‘trouble free’ heating, cooling and ventilation proposition.

A network of professionals

In addition to our own nationwide sales force, Mitsubishi Electric have forged professional relationships with a range of Wholesalers and Value Added Resellers (VAR's) to provide customers with a comprehensive choice of suppliers across the UK.

As part of our commitment to supporting robust application of our leading technologies, a team of Consultant Sales professionals work nationally with mechanical building services specifiers and consultants to achieve early engagement in project design.

Clients are able to confidently apply heating, cooling, ventilation and controls within their individual projects with the emphasis on a solution-based philosophy to support ‘as-designed’ performance and efficiencies. This approach helps projects realise ‘as-specified’ performance and efficiency levels - all designed to achieve the most efficient and cost-effective outcome for the building operator, whilst reducing the overall environmental impact.

As initial designs move from the drawing board through planning, procurement, installation and commissioning, to on-going operation and use, we work closely with our customers to balance capital expenditure, system efficiencies, installation costs, control strategies and running costs.

Raising installation standards

Since 2005, Mitsubishi Electric have operated a renowned Partner Programme, enlisting a network of trusted partners to help raise industry standards and ensure customers receive a consistent, professional installation and after sales service to support our product.

Designed to raise industry standards, Mitsubishi Electric's Partner Programme assures end users of a consistently high level of installation and after sales service that supports our systems.

Our partners have aligned with us on one of two levels: Accredited Installer (AI) or a Business Solutions Partner (BSP) and we have worked with them to develop training, tools and support to help them demonstrate their high standards and grow their businesses.

In the quest to continue raising industry standards, we have now launched our new, highest status:

Diamond Quality Partner (DQP)
which we believe will take partnering to the next level.

As a DQP endorsed by Mitsubishi Electric, customers are assured of the highest level of service, installation and quality.

MITSUBISHI ELECTRIC
DIAMOND QUALITY PARTNER

DQP - A mark of excellence

The scheme is open to any company, regardless of size and whatever their spend. The primary principle of the Diamond Quality Partnership is excellence and only those committed to meeting the exacting standards can apply for DQP status.

This includes an independent audit of installation which validates professionalism in all aspects. Carried out by an independent industry expert, DQPs face a minimum of two audits per year.

Once completed, DQPs are able to use the audit to promote their professionalism and credibility to their own prospective customers, and we as the manufacturer are able to refer every DQP with confidence.

For prospective customers choosing to work with a DQP, they know they can expect to receive a level of installation and service support that is of the highest possible standard, fully compliant with F-Gas and other legislation, along with complete assurance that they will receive the best quality of aftercare.

MITSUBISHI ELECTRIC
Changes for the Better

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Note: The fuse rating is for guidance only. Please refer to the relevant databook for detailed specification. It is the responsibility of a qualified electrician/electrical engineer to select the correct cable size and fuse rating based on current regulation and site specific conditions. Mitsubishi Electric's air conditioning equipment and heat pump systems contain a fluorinated greenhouse gas, R410A (GWP:2088), R32 (GWP:675), R407C (GWP:1774) or R134a (GWP:1430). *These GWP values are based on Regulation (EU) No 517/2014 from IPCC 4th edition. In case of Regulation (EU) No.626/2011 from IPCC 3rd edition, these are as follows. R410A (GWP:1975), R32 (GWP:550), R407C (GWP:1650) or R134a (GWP:1300).

Effective as of August 2018

Green Gateway®
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Mitsubishi Electric UK's commitment to the environment

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