

October 2016

**Mitsubishi Electric introduces a new eco-friendly  
technology**

## **THE FIRST HYBRID AIR-CONDITIONING SYSTEM IN THE WORLD**

***Mitsubishi Electric, a recognized leading global technology leader, introduced hybrid systems for the air-conditioning industry through a ground-breaking innovation. The brand provides not only high energy efficiency and ideal comfort but also benefits of easy and cost-effective assembly processes with “Hybrid City Multi Systems” signalling its latest innovation in terms of eco-friendly technologies which shall pave the way for shaping the future. Distinguished as the first and only system in the world using water to transport energy for heating spaces, equipped with a heat recovery unit and capable of providing heating and cooling functions simultaneously with the help of an infrastructure comprised of only two pipes, “Mitsubishi Electric Hybrid City Multi Systems” shall make significant contributions to reducing carbon emissions and operating costs.***

The diminishing energy sources and rapid increase in fuel costs make it indispensable to develop cost effective heating and cooling technologies with low carbon emissions. In that respect, eco-friendly inventions and innovative solutions become increasingly important. Continuing to make new achievements in its history full of the “first”, the “fastest” and the “biggest” innovations in the world since its incorporation in 1921, Mitsubishi Electric has had another stunning achievement with hybrid air-conditioning systems, its latest innovation in terms of eco-friendly technologies.

As a company that makes progress to be a global, leading green company, Mitsubishi Electric expands the scope of eco-friendly practices with low carbon emissions thanks to “Hybrid City Multi Systems” which is a ground-breaking innovation unparalleled in the world. Acting based on the mission to develop renewable solutions and technologies that shall shape the future, the brand shall reduce carbon emissions for a better world with “Hybrid City Multi (HVRF) Systems” in addition to promoting its compliance with new regulations enacted for that purpose.

Recognized as the latest achievement attained for conventional heating and cooling technologies, “Hybrid City Multi (HVRF) Systems” come with the matchless two-pipe technology combined with water most creative to make it possible to perform heating and cooling functions simultaneously with a heat recovery unit in addition to providing optimum comfort and efficiency. The system provides the benefit of high energy efficiency and ideal comfort as well as easy and cost-effective assembly.

### **Ideal air-conditioning meeting different requirements simultaneously...**

Providing ideal air-conditioning opportunities meeting different requirements simultaneously, this new technology enables indoor units of the same system to perform heating and cooling functions for different sections simultaneously thanks to the special two-pipe system designed by Mitsubishi Electric. Contrary to conventional systems, those transitions do not prevent the functioning of the system. Thus, the system effectively prevents potential interruptions in heating and cooling functions arising from changing the operating mode of the system with a view to maximizing customer satisfaction.

HVRF Systems provide modern heating and cooling solutions for office buildings, hotels, healthcare institutions, hospitals, schools, residential buildings, shopping malls and other commercial buildings. This innovative technology uses heat recovery functions to offer efficient heating and cooling services simultaneously for such spaces as meeting rooms, office areas and system rooms all year long. It provides maximum comfort by responding to different air-conditioning requirements of different spaces such as clinics, patient rooms and staff rooms simultaneously. The fact that the system is capable of performing independent setting and simultaneous heating-cooling functions offer hotel guests the freedom to opt for the operating mode of the air-conditioner based on their preferences. Perfect air-conditioning services add to the comfort of guests by creating an ideal space for accommodation.

### **High energy efficiency**

The two-pipe heat recovery technology designed by Mitsubishi Electric maximizes energy efficiency in case of requirement for activating both cooling and heating functions of indoor units connected to a single system. The waste energy created by an indoor unit performing cooling functions is transferred to the indoor unit that shall perform heating functions by using Hybrid Branch Controller (HBC) instead of being discharged from the outdoor unit which, in turn, maximizes the system efficiency.

### **Easy and cost-effective assembly**

Hybrid City Multi (HVRF) Systems have a simplified a two-pipe design that provides easy, fast and cost-effective assembly opportunities for mechanical service suppliers. Thanks to the matchless two-pipe heat recovery system designed by Mitsubishi Electric, the requirement for pipes and connection equipment is reduced considerably when compared to the conventional for-pipe water systems. HVRF Systems do not require additional circulation pumps, accumulation tanks, control and automation panels etc. as would be the case with chiller and boiler systems. All of the valves, pumps and heat exchangers are available in HBC units in this system leading to important savings in terms of investment costs.

Hybrid VRF outdoor units which might be distributed to a number of spaces allow for a visual and functional layout without the need for allocating a space for a special mechanical room and refrigerant groups that shall cover large volumes on the roof. The system eliminates the need for gas leak control and relevant equipment as it does not require refrigerant fluids in the spaces to be conditioned. This also offers an important cost advantage.

### **System equipment designed for different requirements**

HVRF System has a remarkable outdoor unit with inverter compressors and heat recovery function capable of performing heating and cooling functions simultaneously. It is perfect for all projects thanks to seven different capacity values ranging from 22.4 kW to 56.0 kW.

Hybrid Branch Controller (HBC), the most important of the innovative HVRF System, is used for providing connection between the outdoor unit and the indoor units. The heat transfer between the refrigerant fluid and water is made possible by the technology which marks a ground-breaking innovation developed by Mitsubishi Electric. Heat recovery between the indoor units of the same system allows for simultaneous heating and cooling operations.

HVRF System has four indoor unit models which are thin concealed ceiling unit (200 mm high), medium static pressure concealed ceiling unit (35/50/70/100/150 Pa static

pressure option), four-way ceiling cassette (low installed height for easy cleaning and i-see sensor option for energy efficiency) and medium static pressure concealed floor-standing unit (20/40/60 Pa static pressure option). There are 19 models and capacity options for six different capacities ranging from 1.7 kW to 5.6 kW.

### **Control from a single point**

HVRF System offers central remote control options making it possible to control up to 200 indoor units when used in combination with expansion controls in addition to independent control options which have an attractive and elegant design providing easy control opportunity. Thanks to those central remote controls, it is now possible to monitor and control systems located in distinct spaces from a single point.

### **About Mitsubishi Electric Corporation**

*With over 90 years of experience in providing reliable, high-quality products, Mitsubishi Electric Corporation is a recognized world leader in the manufacture, marketing and sales of electrical and electronic equipment used in information processing and communications, space development and satellite communications, consumer electronics, industrial technology, energy, transportation and building equipment. Embracing the spirit of its corporate statement, Changes for the Better, and its environmental statement, Eco Changes, Mitsubishi Electric endeavours to be a global, leading green company, enriching society with technology. The company recorded consolidated group sales of 4,394.3 billion yen (US\$ 38.8 billion\*) in the fiscal year ended March 31, 2016. For more information visit:*

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

*\* At an exchange rate of 113 yen to the US dollar, the rate given by the Tokyo Foreign Exchange Market on March 31, 2016.*

### **About Mitsubishi Electric Turkey Operations**

*Mitsubishi Electric concentrates on sales and after-sales services for HVAC systems, factory automation systems, CNC-Mechatronics systems and advanced robot technologies in Turkey. In addition, the company provides support for satellite, elevator, visual data systems, power sources and transportation-based infrastructure projects. Mitsubishi Electric, the acknowledged manufacturer of Turksat 4A and 4B satellites contributing to communication and broadcasting infrastructure of Turkey and neighbouring countries, is also recognized for the automation technology used for Marmaray project. Having incorporated a company for development and manufacturing of room air-conditioners in Turkey in April 2016, Mitsubishi Electric intends to start manufacturing operations in Manisa plant by January 2018. For more information visit: [www.mitsubishielectric.com.tr](http://www.mitsubishielectric.com.tr)*

### **About Mitsubishi Electric Turkey Air-Conditioning Systems**

*Mitsubishi Electric Turkey Air-Conditioning Systems division offers sales and after-sales services concerning heating, cooling, ventilation and hot water supply with room air-conditioners, commercial air-conditioners, City Multi VRF central system air-conditioners, heat pump systems, ventilation systems, control systems*

*and hand drying systems. It is distinguished with products of A, A+, A++ or A+++ classes for heating and cooling functions according to Seasonal Efficiency Criteria, “**MELCloud**” which is a cloud-based solution enabling control of air-conditioners via internet connection and “**Keşfetteam**” which is a technological survey service to determine the air-conditioner suitable for the relevant space and the ideal location for installation.*