



**BUSINESS
SOLUTIONS**

SHRM
SUPER HEAT RECOVERY MULTI



EXCELLENCE IN
SEASONAL EFFICIENCY



SHRM-e

THE TOSHIBA SHRM-e, FOR A WHOLE RANGE OF INNOVATIONS

e The new Toshiba SHRM-e puts the emphasis on evolution driving excellence in energy savings, expansion in capacity line up and enhancement in applications. Together, they offer professionals and users faster design, installation and commissioning, outstanding seasonal efficiency at lower operation cost, and superior air comfort with enhanced quality and reliability.

High efficiency and low operation costs

Full of Toshiba innovation, the new SHRM-e achieves an ESEER (European Seasonal Energy Efficiency Ratio) of 8 and above in most capacities. Toshiba's unique combination of twin rotary compressors and all inverter driven control, can adjust the operating speed of the compressors in steps of just 0,1 Hz. This technology when combined with SHRM-e all new 3-row heat exchanger and Toshiba's "intelligent flow" technology ensures both maximum system performance and even capacity distribution throughout the entire system.

Exceptional quality and reliability

The SHRM-e's innovative dual vane technology reduces variances between the vane and roller, while its unique Diamond Like Carbon Coating technology offers outstanding wear resistance. Together, these further optimise performance, efficiency, durability and reliability. SHRM-e's sophisticated oil management control ensures optimum oil levels inside each compressor and using Toshiba's dedicated oil balance line control, which can actively transfer oil from one CDU to another, ensures total reliability for the entire system.



NEW INNOVATIVE HEAT RECOVERY WITH SIMULTANEOUS HEATING AND COOLING SOLUTION FOR LARGE BUILDINGS

Superior air comfort

The SHRM-e's Automatic Temperature Control system sets minimum and maximum temperatures and maintains air at the desired temperature. Toshiba's new Dual Set Point function instructs the system to stop operation and change mode once the maximum or minimum temperature has been reached. The system allows continuous heating, even during external defrost, while the new soft cooling mode offers personalized airflow for enhanced cool comfort. The SHRM-e also features individual on/off temperature control via remote control, when multiple indoor units are connected to a single flow selector box.

Flexible design and quick installation

With its new multi-flow selector units, the SHRM-e expands capacity line up with fewer connections for faster and simpler installation. It also offers extended piping length and operating temperature range for a more flexible design. Improved external static pressure allows flexible unit positioning, whilst Toshiba's unique Wave Tool app enables remote monitoring of CDU operations, an industry first.

SUSTAINABLE DEVELOPMENT

Toshiba is dedicated to designing products and solutions with an ever lower impact on the environment and reduced energy consumption. Our long-standing commitment to sustainable development enables us to anticipate the European climate and energy package requirements for 2030.



CREATING BENEFITS AROUND COMFORT

e BENEFITS FOR THE USER

Infinite comfort...

Achieved by fully controllable room temperature, a perfect alternative to traditional heating & cooling systems

Infinite efficiency...

Low operating costs thanks to reduced installation costs and very high levels of efficiency via optimal load adjustment

Infinite integration...

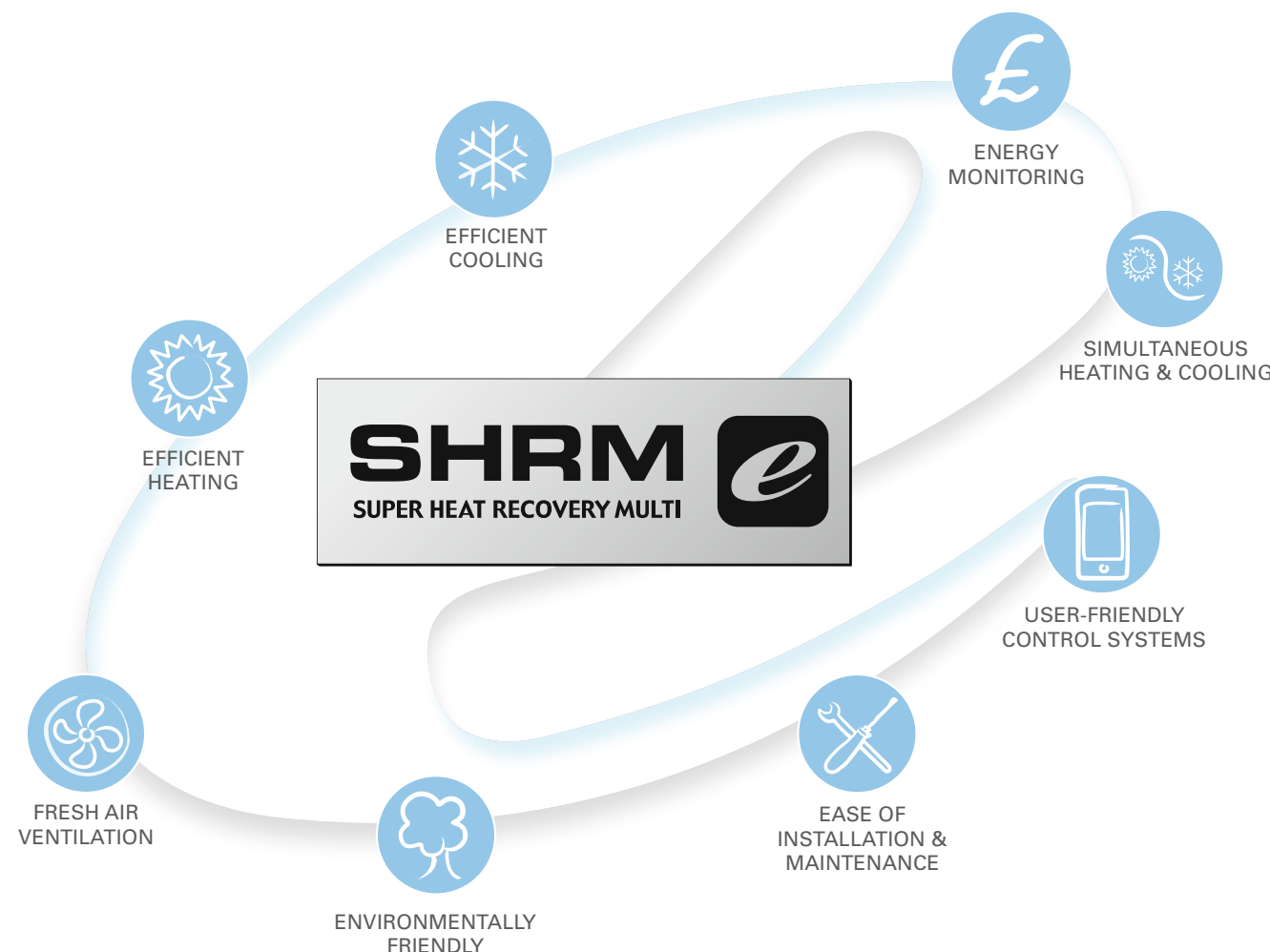
Cooling, heating and fresh air ventilation, all perfectly and conveniently attuned to one another within a single system – and so easy to use!

Infinite reliability...

Hassle-free operation based upon decades of experience and intensive testing program for all systems

Infinite transparency...

Clearly defined billing so you can quickly review energy costs and consumption



e BENEFITS FOR THE CONSULTANT

Absolute customisation...

A wide range of products ensure that the customers' requirements are fully addressed

Absolute validation...

SHRM-e is EUROVENT certified and adheres to all current European legislations

Absolute control...

Fully integrated controls network, allowing unlimited access to the system controls and its operation

Absolute flexibility...

A high degree of system flexibility, aided by a fully flexible piping specification and an extremely compact modular design

Simplified design...

TOSHIBA DESIGN AIRS software makes the selection of a system's components simple

e BENEFITS FOR THE INSTALLER

So simple...

One supplier – one point of contact for a total solution: cooling, heating, hot water, ventilation & controls

So versatile...

Maximized installation flexibility

So convenient...

Easy access for all service and maintenance needs

So professional...

Intensive training and instruction offered by local TOSHIBA trained experts

So assessable...

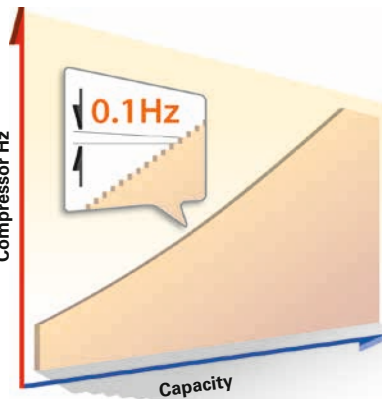
Simplified and swift commissioning assisted by the all new Wave Tool App

HIGH EFFICIENCY AND LOW OPERATION COSTS

INNOVATIVE COMPRESSOR TECHNOLOGY

Toshiba's infinitely variable inverter driven control can continually adjust the operating speed of the compressors in real time. This ensures that the capacity output precisely matches end user demand.

The advantages of this control are further optimised by incorporating Toshiba's twin rotary compressors. These which enable the SHRM-e system to achieve maximum performance and class- leading ESEER values.



INFINITE VARIABLE CONTROL

This feature has been continually evolved and developed, since its inception by TOSHIBA engineers back in 2004 with the original SMMS system. The control has the ability to adjust the compressor rotational speed in a near

seamless 0,1 Hz steps. This control when matched with TOSHIBA's newest and latest Twin Rotary compressors, allows the system to respond precisely to the capacity needs of the end user, whilst minimizing energy losses.

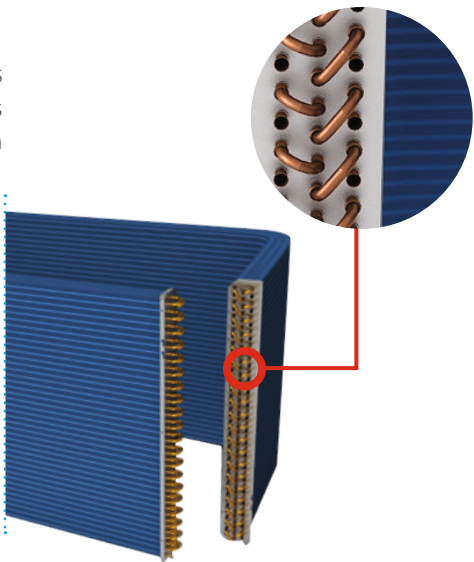
ADVANCED HEAT EXCHANGER

Toshiba's new 3-row heat exchanger design, with reduced pipe size from 8 mm to 7 mm and increased total number of passes, improves both system performance and efficiency.

While the 3-row heat exchanger design allows the CDU to automatically select the most suitable heat exchanger size, precisely matching the indoor

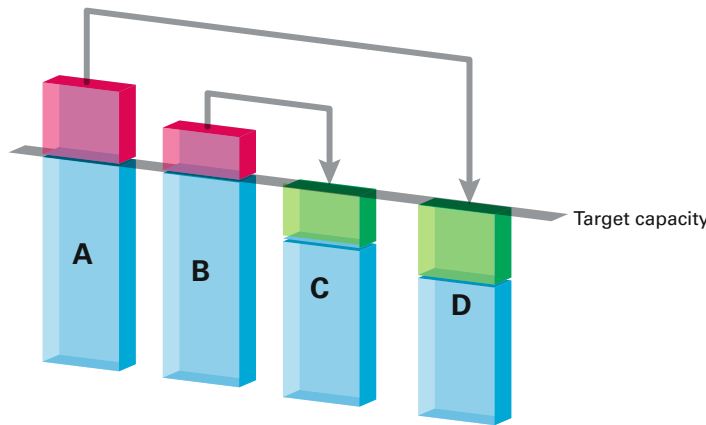
capacity load, its 4-sided design ensures maximum possible flow rate across the entire coil, maximising system efficiency.

Surface area the total pipe increased by
13%
3-row heat exchanger



INTELLIGENT FLOW TECHNOLOGY

The unique IFT control continually adjusts the operation of both indoor and outdoor units, based on the feedback from multiple sensors. While the refrigerant flow to each indoor unit is precisely controlled by the outdoor unit, ensuring even capacity distribution throughout the system, the evaporative and condensing temperature is automatically adjusted to maintain optimum indoor room temperature, regardless of the unit's load or its physical distance from the outdoor unit.



Excess capacity in units A & B can be re-distributed to units C & D, ensuring perfect operation throughout the entire system. Toshiba "IFT" technology ensures that any surplus capacity can be re-distributed in order to achieve optimum performance and efficiency throughout the entire system.

MAXIMUM PART LOAD AND FULL LOAD EFFICIENCIES

ESEER

Over 7.0 ESEER for all capacity range



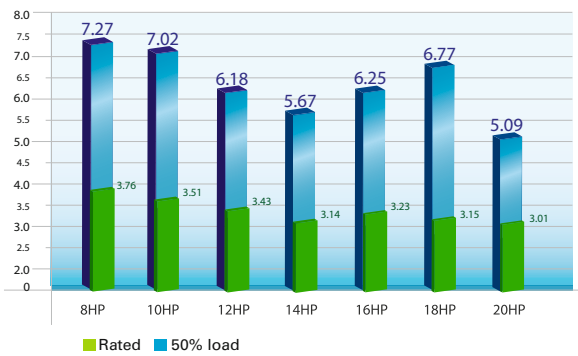
Utilizing the new highly efficient core technologies has resulted in greater energy efficiency and performance



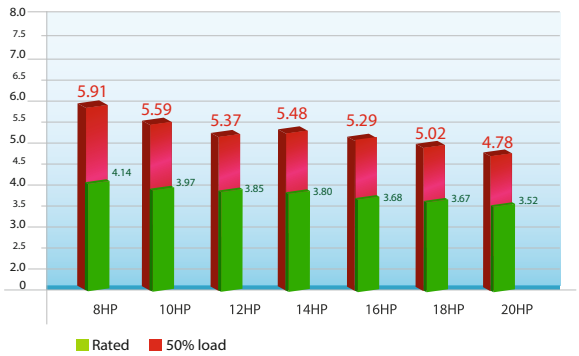
Thanks to Toshiba's unique twin rotary compressor, re-designed heat exchanger and "intelligent flow" technology, the new SHRM-e achieves a ESEER of 8.17, the highest seasonal efficiency in the market.

Maximum efficiency is obtained under 50% part load conditions, under which VRF systems operate predominantly. The expert use and evolution of Toshiba's core technologies have allowed the new SHRM-e system to achieve the highest part load COP and EER in the industry.

EER



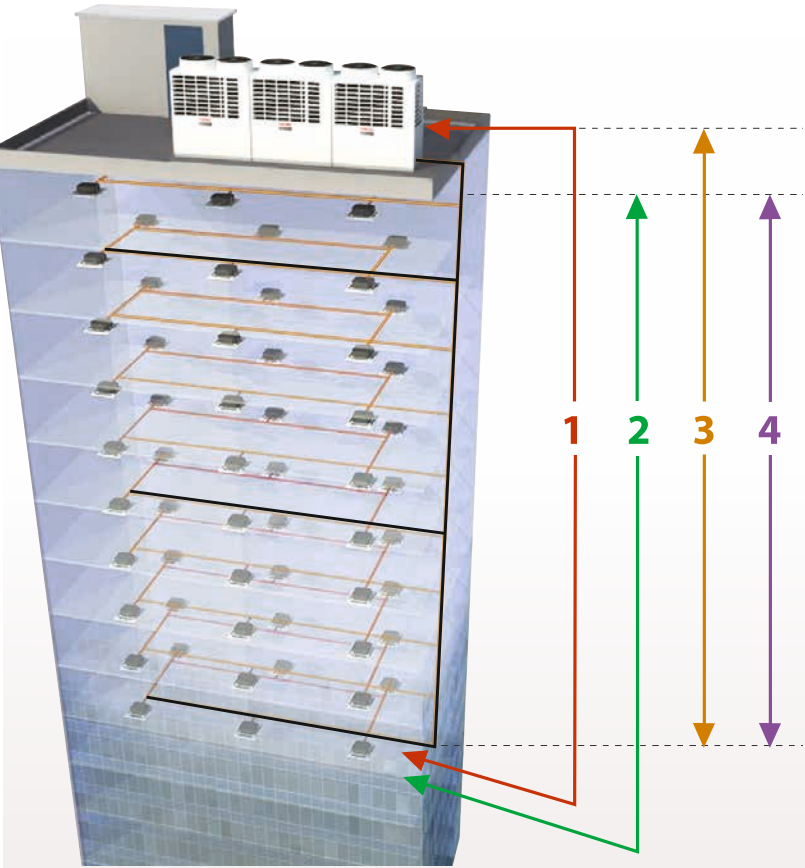
COP



FLEXIBLE DESIGN AND QUICK INSTALLATION

PIPING DESIGN FLEXIBILITY

Toshiba's piping technology makes them one of the industries leaders in system flexibility and ease of installation and with the new SHRM-e system, the level of flexibility has increased further, giving more options to the contractor and installer alike.



* Above 34HP combination
** It is 70 m for normal time, and has some specific conditions for 90 m, 50 m if piping length between Indoor units is more than 3 m
*** It is allowed only if you use the Multi port FS unit

1 Total piping length

Applied with Toshiba's unique and greatly improved technology, SHRM-e can reach up to 1,000 meters maximum piping length.

Total piping length
1,000 m*



2 Farthest equivalent length

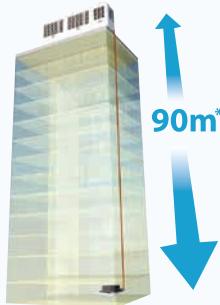
The maximum equivalent distance between the outdoor unit and the farthest indoor unit tops at 235 meters, a best-in-class for the industry.

Farthest equivalent length
200 m



3 Height between outdoor unit and indoor unit

Another industry best-in-class feature is the maximum vertical distance between the outdoor and indoor units, which can extend up to 90 meters. SHRM-e's enhanced piping capabilities results in more benefits for system design and installation flexibility, as well as lower installation costs.



4 Piping design flexibility "FS unit-FSU"

Farthest pipe from FS unit-Indoor unit
50 m***



As the SHRM-e multi-flow selector and indoor unit can be as far as 50 meters apart, the refrigerant piping can be lengthened, offering more flexibility in design to make every space both more comfortable and attractive.

SINGLE & MULTI-FLOW SELECTOR FOR INCREASED FLEXIBILITY

The latest generation single port flow selector unit increases the design flexibility of the system, offering longer distances of up to 50m between FS box and indoor units for example, where noise level is of paramount importance and connection of up to 8 indoor units onto one individual FS box.

SHRM-e New single port FS unit



FS Box to indoor unit up to 50 m

Previous model Single FS unit



Max 15m

The use of multi-flow selector units increases the design flexibility of the system, offering the same overall capacity and allows much faster and simpler installation, while layout design is more flexible, thanks to simplified branch and branch connections. Reducing the length of the branches also allows increased capacity. This configuration is available with either group or individual remote control.

SHRM-e New multi port FS unit



x6 branch

x4 branch

NEAR FIELD TECHNOLOGY AND WAVE TOOL, ALL YOUR DATA WITHIN REACH



With Near Field Communication (NFC), the SHRM-e is the first in the industry to allow remote monitoring of CDU operations. Using NFC technology, Read and Write data is exchanged wirelessly between the unit and a smartphone (Android, OS, 5.0) for remote commissioning and operations data checking.



**Product data
System data
Fault history
Test operation results**
(Android, Apple)



Less time needed for system configuration and maintenance operations

SOFTWARE DESIGN AIRS MAKES IT EASIER

The new "AIRS" software has been fully redesigned, with a user-friendly interface allowing novice and expert users alike to create simple, yet detailed VRF system schematics. It is highly versatile, allowing the level of detail to be tailored to suit customer requirements.

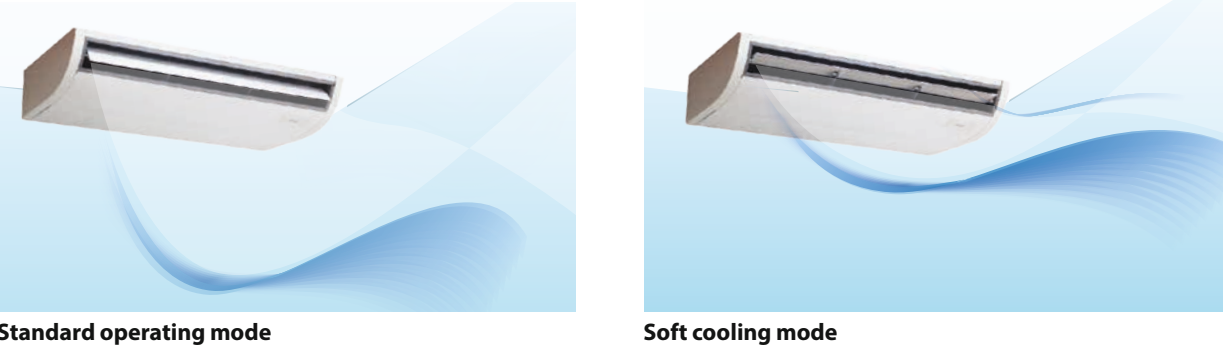
The software also allows the user to specify pricing strategy and create additional interim reports, including any diagrams and schematics required. Final detailed reports can then be produced and sent to customers in PDF format or in more complex files, such as AutoCAD DXF, allowing simple integration into their existing software packages.



SUPERIOR AIR COMFORT

COOL COMFORT WITH SOFT COOLING MODE

The development of the soft cooling mode provides a new level for cool comfort. You will have the freedom to personalize the air flow intensity, angle and direction directly from the remote control and enjoy the indoor environment at the right temperature without being directly exposed to the cold draft.



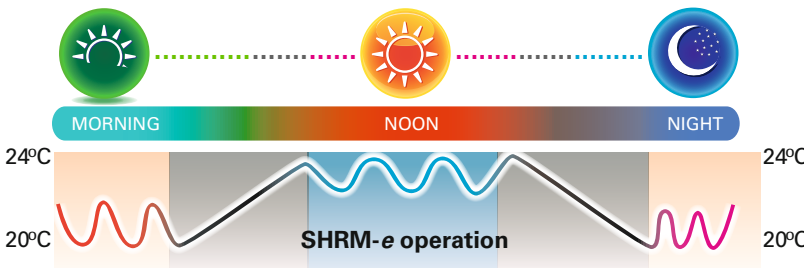
OPTIMISED HEATING OPERATIONS

The SHRM-e allows continuous heating, even during external defrost operations, thanks to the new hot gas bypass control. Indoor units will now operate continually, with only a minimal reduction in capacity output. This results in an uninterrupted flow of warm air, ensuring maximum comfort to the end user.



DUAL SET POINT FOR MORE PRECISION

The Dual Set Point increases the system's energy efficiency and reduces overall running costs, with longer periods of time in thermal off mode. Heating and cooling temperatures at which the indoor unit will begin to operate can now be individually selected giving maximum flexibility to the user.



SMART AUTOMATIC TEMPERATURE CONTROL SYSTEM

The SHRM-e's Automatic Temperature Control (ATC) system has been designed to enhance user comfort and reduce energy consumption. Each user can easily set minimum and maximum temperatures with the ATC, which automatically maintains the air at the desired temperature. Once the maximum temperature has been reached, the intelligent Dual Set Point function will tell the system to shut down and change mode to adjust the temperature to the minimum required, or vice versa. This enhances efficiency and reduces running costs, by extending the thermal off periods, when the unit stops between changes in heating and cooling mode.



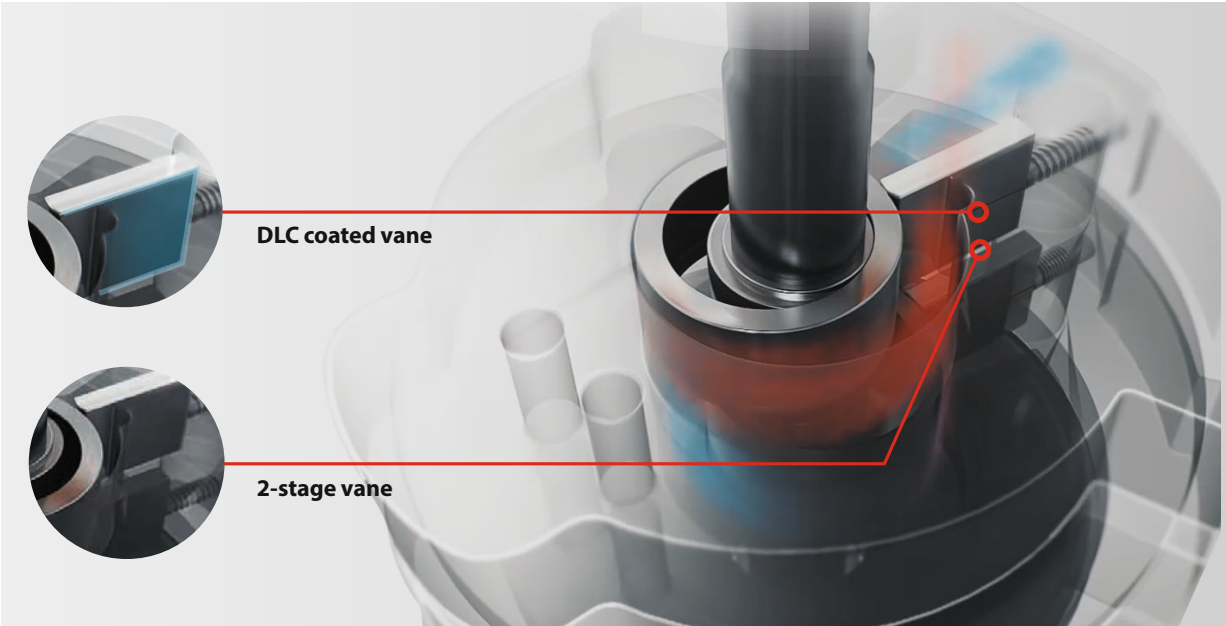
INNOVATIVE INDIVIDUAL ON/OFF AND TEMPERATURE CONTROL

The innovative Multi-flow Selector allows smart temperature control in each space via individual remote controls. This meets users' different temperature requirements for maximum comfort, and if rooms are empty, the unit can be switched off. This solution helps reduce energy waste, improve efficiency and save on overall costs.

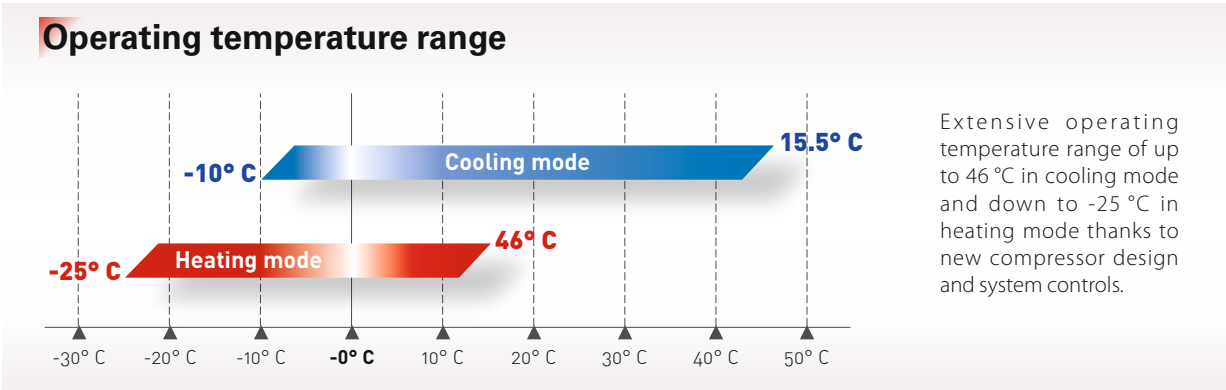


EXCEPTIONAL QUALITY AND RELIABILITY

MORE DURABLE WITH LEADING TWIN ROTARY COMPRESSOR TECHNOLOGY



The advanced technology used within SHRM-e results in a robust and durable system. The innovations made with Toshiba twin rotary compressor have resulted in an even stronger and more reliable system, extending the operational life and, thus, reducing the overall maintenance costs.

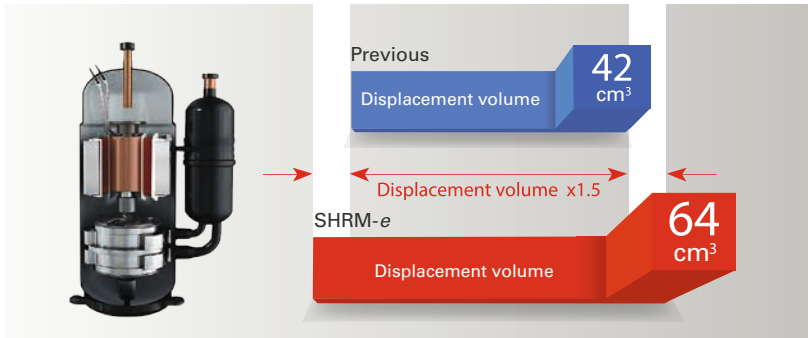


DEDICATED OIL MANAGEMENT

The Toshiba SHRM-e oil management control constantly monitors the real-time oil level inside each of the compressors. Based on these readings, the system can initiate various system oil retrieval controls and via the dedicated oil balance line between CDUs, the system can maintain the optimum amount of oil inside each compressor at all times.

WIDE RANGE COMPRESSOR

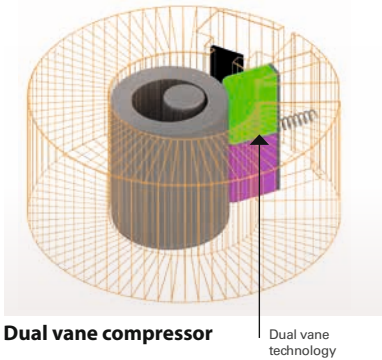
Using new cutting-edge technology, Toshiba's new twin rotary DC driven compressor can operate in a much wider range of rotational speed, giving increase performance, whilst maximising energy efficiencies.



DUAL VANE TECHNOLOGY FOR ENHANCED PERFORMANCE

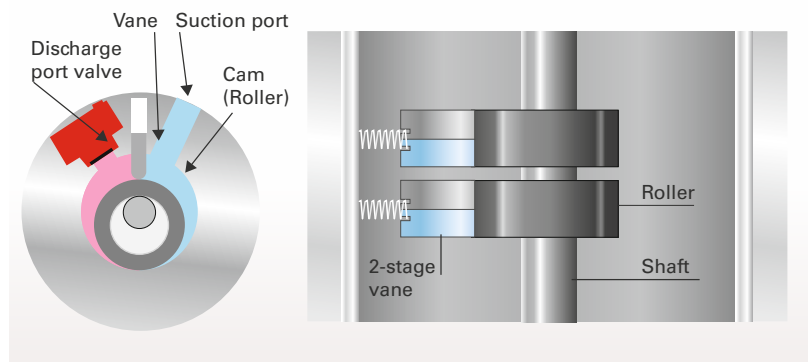
The all new dual vane technology reduces any variances in the contact area between the vane and roller, even when the compressor is operating at very high speeds.

This results in minimal compression losses inside the compressor, further optimising its performance, efficiency and reliability.



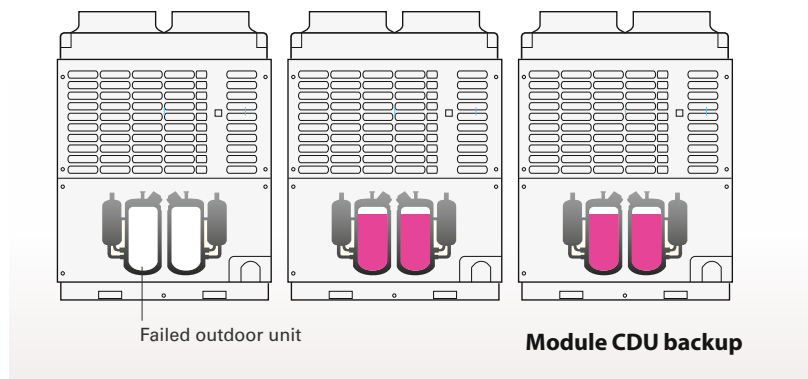
THE DIAMOND-LIKE CARBON

The new Toshiba Diamond Like Carbon Coating technology is unique to Toshiba VRF compressors. It covers the wear surfaces on compression vanes for outstanding hardness and wear resistance, enhancing both the compressor's performance and durability and confirming Toshiba's reputation of providing exceptional reliability.



MAXIMUM RELIABILITY WITH BACKUP OPERATION

For maximum reliability, ALL Inverter control can be adjusted to compensate for a failed compressor or header unit. In the unlikely event of a compressor failure, backup operation is available in both a single system or as a module. This provides reassurance to the end user that the system will continue to operate whatever the circumstance.



INDOOR UNITS AND ACCESSORIES

MULTIPLE DESIGN... COMPLETE SOLUTION

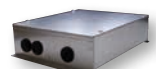
Model		HP kW	0.6 1.7	0.8 2.2	1.0 2.8	1.3 3.6	1.7 4.5	2.0 5.6	2.5 7.1	3.0 8.0	3.2 9.0	4.0 11.2	5.0 14.0	6.0 16.0	8.0 22.4	10.0 28
CASSETTE TYPES																
Compact 4-way cassette type (600x600) MMU-AP(...)MHI-E																
4-way cassette type MMU-AP(...)HPI-E																
2-way cassette type MMU-AP(...)VHI																
1-way cassette type MMU-AP(...)YH/SHI-E																
DUCT TYPES																
Slim duct type MMD-AP(...)SPHI-E																
Concealed duct type MMD-AP(...)BH(P)I-E																
Concealed duct high static pressure type MMD-AP(...)6HPI-E																
Fresh air intake indoor unit type MMD-AP(...)HFE																
Concealed duct high static pressure type MMD-AP(...)HP-EU																
CEILING TYPES																
MMC-AP(...)HPI-E																
HIGH WALL TYPES																
Series 4 MMK-AP(...)4MH(P)I-E																
Series 3 MMK-AP(...)3HI																
FLOOR STANDING TYPES																
Floor standing concealed type MML-AP(...)BHI-E																
Floor standing type MMF-AP(...)HI-E																
Console type MML-AP(...)NHI-E																

Model		Air flow rate / Air volume															
		m3/h	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	
Fresh air intake indoor unit type MMD-AP***HFE																	
Air to air heat exchanger with DX coil MMD-VN**2HEXIE																	
Air to air heat exchanger with DX coil humid filter MMD-VNK**2HEXIE																	
Air to air heat exchanger VN-M**0HIE																	

CONTROLS

INCREASING COMFORT LEVELS BY GETTING THE CONTROLS RIGHT

Comfort, economic efficiency and safety can be further maximised with modern control mechanisms. Whether wired or remotely controlled units, Web-based control devices or elegant touch screen systems, the important thing is to achieve the right temperature at the right time and in the right place! It's all about balance – and we've got it just right.

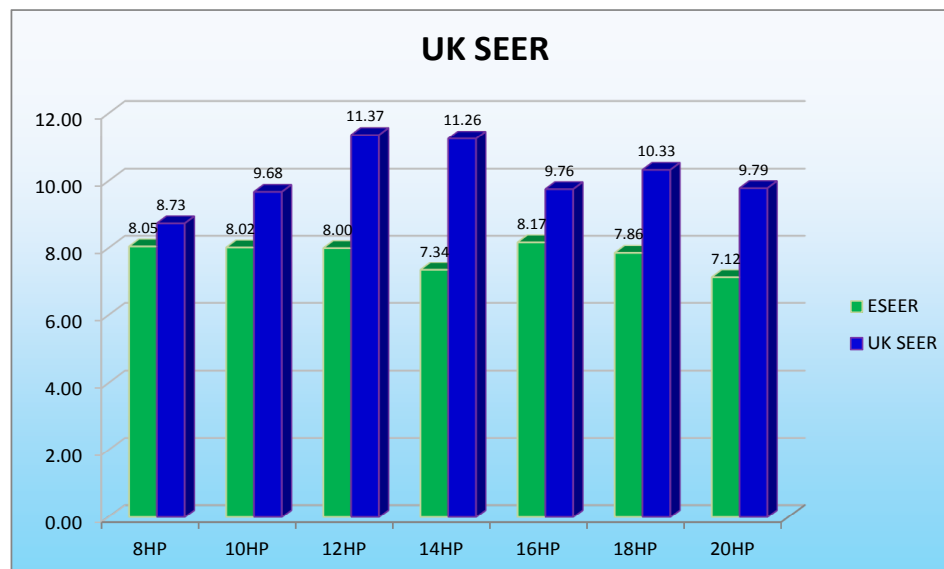
WIRED REMOTE CONTROLS		WIRELESS REMOTE CONTROLS	
Wired Remote Controller RBC-AMS54E-ES		INFRARED REMOTE CONTROL	
			
Standard Remote Controller RBC-AMT32E			
			
Remote Controller with weekly timer RBC-AMS4IE			
		Receiver kit to be installed directly in the frame of the indoor unit. RBC-AX33CE	
Simple wired remote controller RBC-AS4IE			
		Receiver kit to be installed directly in the frame of the indoor unit. RBC-AX32U(W)-E	
CENTRAL CONTROLLERS			
Central Remote Controller BMS-CMI280TLE		Receiver kit to be installed directly in the frame of the indoor unit. RBC-AX23UW(W)-E	
			
Schedule Timer TCB-EXS2ITLE		CONNECTABLE OPEN NETWORK	
		BACnet® BMS-IFBN640TLE BMS-STBN10E: Software, BMS-LSV9E: Server	
			
ON-OFF controller TCB-CCI63TLE2		LonWORKS® TCB-IFLN642TLE	
			
Smart Touch Screen controller RBC-TBPTS		Modbus® TCB-IFMB641TLE	
			
BMS CONTROLLERS		KNX®	
Black Pear controller RBC-BP*1 - * BACnet, Modbus, Trend			
			
Smart BMS Manager BMS-SMI280ETLE			
			

SHRM-e HEAT RECOVERY OUTDOOR MODULES

												
Model (MMY-)	MAP0806FT8P-E		MAP1006FT8P-E		MAP1206FT8P-E		MAP1406FT8P-E		MAP1606FT8P-E		MAP1806FT8P-E	
HP	8		10		12		14		16		18	
Capacity kW (C/H)	22.4	22.4	28	28	33.5	33.5	40	40	45	45	50.4	50.4

												
Model (MMY-)	AP2006FT8P-E		AP2216FT8P-E		AP2416FT8P-E		AP2616FT8P-E		AP2816FT8P-E		AP3016FT8P-E	
HP	20		22 = 12+10		24 = 14+10		26 = 14+12		28 = 14+14		30 = 16+14	
Capacity kW (C/H)	56	56	61.5	61.5	68	68	73.5	73.5	80	80	85	85

												
Model (MMY-)	AP3206FT8P-E		AP3416FT8P-E		AP3616FT8P-E		AP3816FT8P-E		AP4016FT8P-E		AP4216FT8P-E	
HP	32 = 18+14		34 = 18+16		36 = 18+18		38 = 20+18		40 = 20+20		42 = 14+14+14	
Capacity kW (C/H)	90.4	90.4	95.4	95.4	100.8	100.8	106.4	106.4	112	112	120	120



UK SEER
General office accommodation
Cooling part load conditions
35°C-100%, 30°C-75%, 25°C-50% and 20°C-25%