



**BUSINESS
SOLUTIONS**

SHRM
SUPER HEAT RECOVERY MULTI



**EXCELLENCE IN
SEASONAL EFFICIENCY**



8-10 HP

SHRM-e

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



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, these offer professionals outstanding seasonal efficiency at lower operation cost, faster design, installation and commissioning, superior air comfort and 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.



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



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



EFFICIENT
COOLING



EFFICIENT
HEATING



FRESH AIR
VENTILATION



ENVIRONMENTALLY
FRIENDLY

SHRM
SUPER HEAT RECOVERY MULTI

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



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...

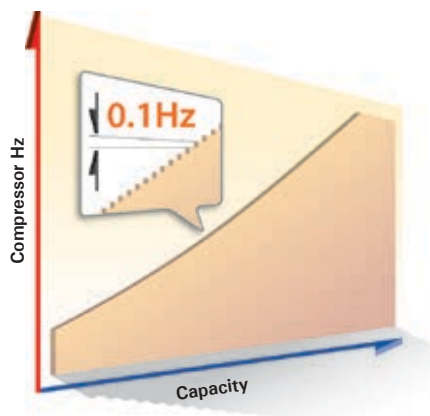
Simplified and swift commissioning assisted by the all new Wave Tool App

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.

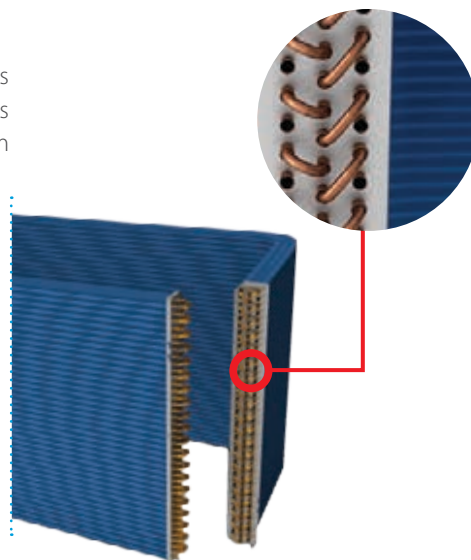
While the 3-row heat exchanger design allows the CDU to automatically select the most suitable heat exchanger size, precisely matching the indoor

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%

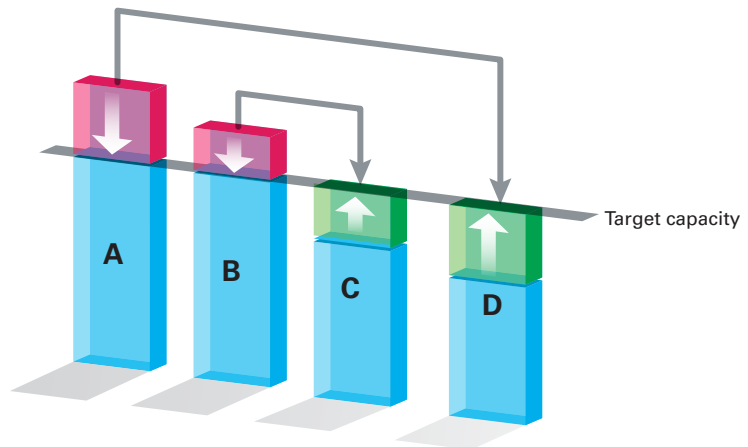
3-row heat
exchanger



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.

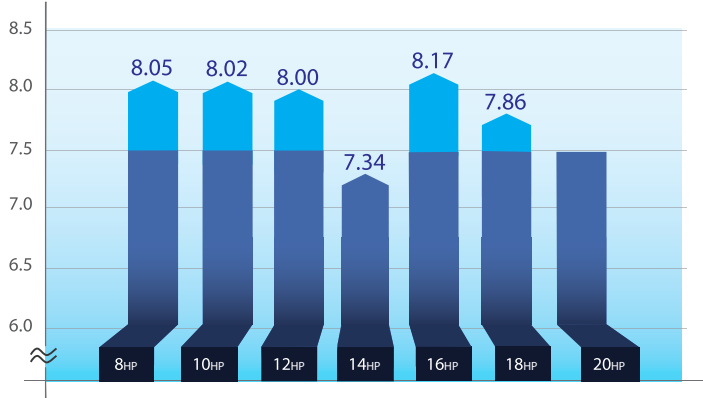


Excess capacity in units A & B can be re-distributed to units C & D, ensuring perfect operation throughout the entire system. Toshiba "IFT" technology ensures that any surplus capacity can be re-distributed in order to achieve optimum performance and efficiency throughout the entire system.

MAXIMUM PART LOAD AND FULL LOAD EFFICIENCIES

ESEER

Over 7.0 ESEER for all capacity range



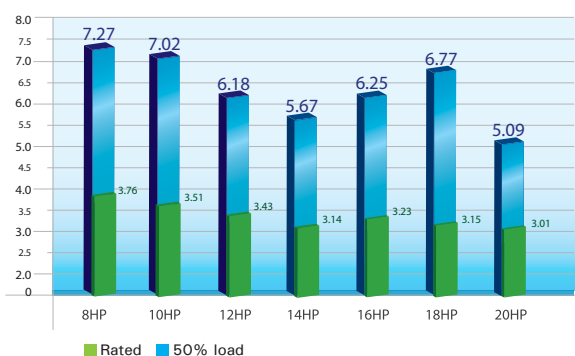
Utilizing the new highly efficient core technologies has resulted in greater energy efficiency and performance



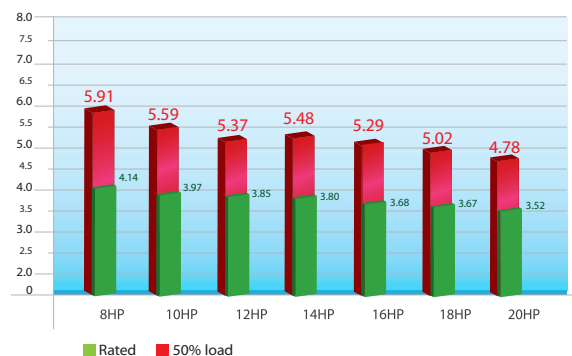
Thanks to Toshiba's unique twin rotary compressor, re-designed heat exchanger and "intelligent flow" technology, the new SHRM-e achieves a ESEER of 8.17, the highest seasonal efficiency in the market.

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

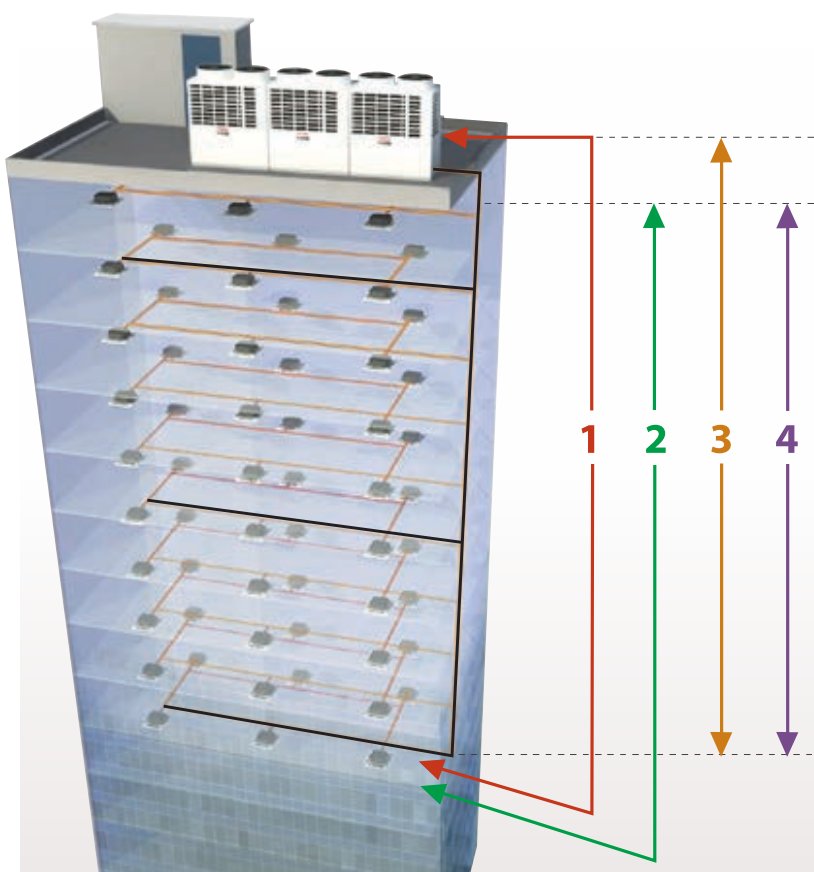


FLEXIBLE DESIGN AND QUICK INSTALLATION

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.

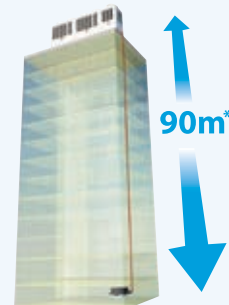
Farthest equivalent length

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.

MULTI-FLOW SELECTOR FOR FASTER INSTALLATION

The use of multi-flow selector units increases the design flexibility of the system, offering the same overall capacity with a reduced number of connections. For example a 4-branch multi-flow selector box requires only 14 brazing points, whereas the equivalent combination of single selector box would require up to 50 brazing points.

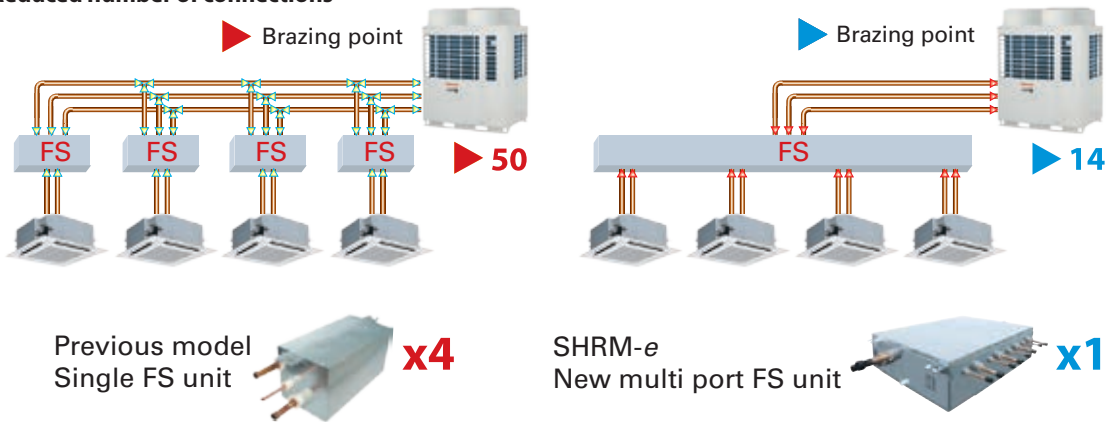
This allows much faster and simpler installation, while layout design is more flexible, thanks to simplified branch and branch connections. Reducing the length of the branches also allows increased capacity. This configuration is available with either group or individual remote control.



Less than
15
brazing points

6 Single FS units and
1 Multi port FS unit

Reduced number of connections



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

TOSHIBA Design
AIRS

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.



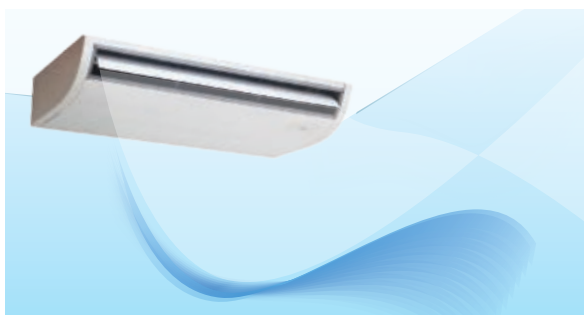
SUPERIOR AIR COMFORT

COOL COMFORT WITH SOFT COOLING MODE

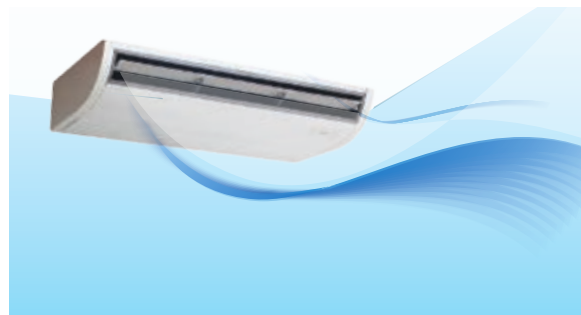
The development of the soft cooling mode provides a new level for cool comfort. You will have the freedom

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.



Standard operating mode



Soft cooling mode

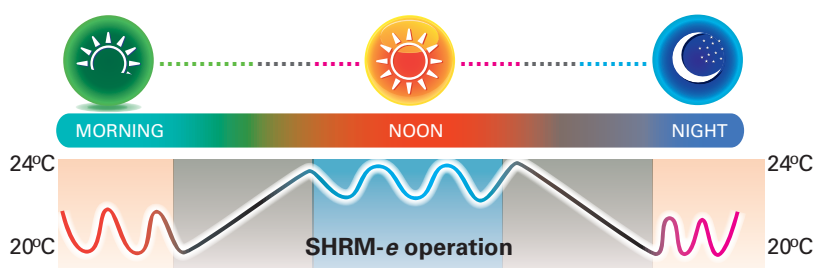
OPTIMISED HEATING OPERATIONS

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

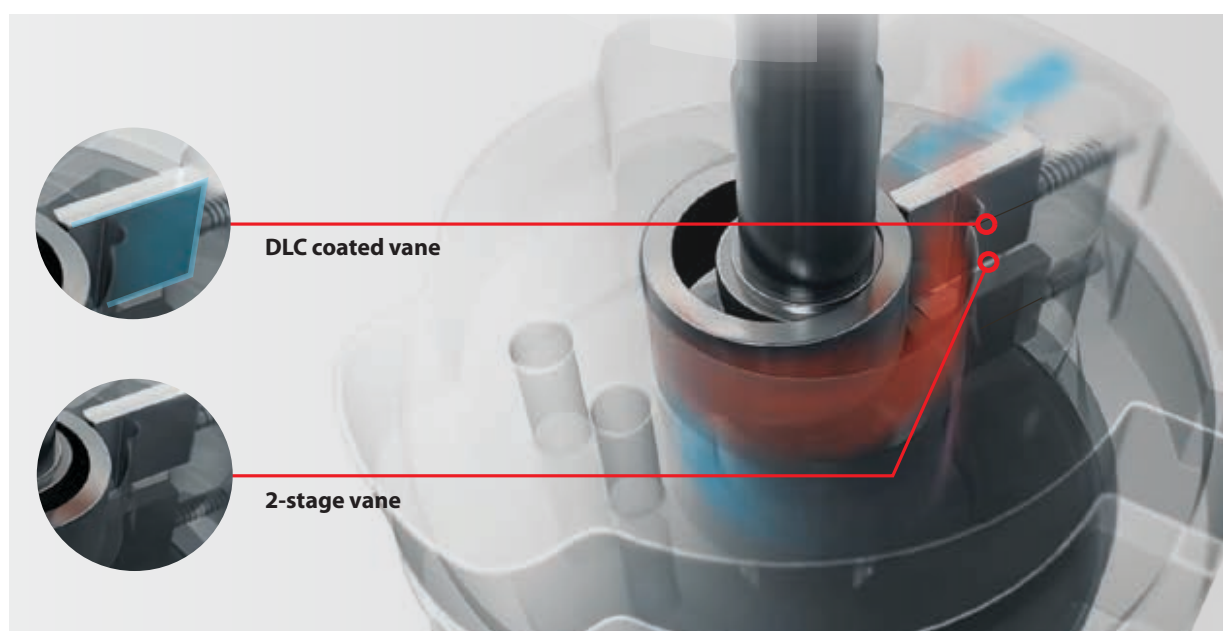
temperature requirements for maximum comfort, and if rooms are empty, the unit can be switched off.

This solution helps reduce energy waste, improve efficiency and save on overall costs.



EXCEPTIONAL QUALITY AND RELIABILITY

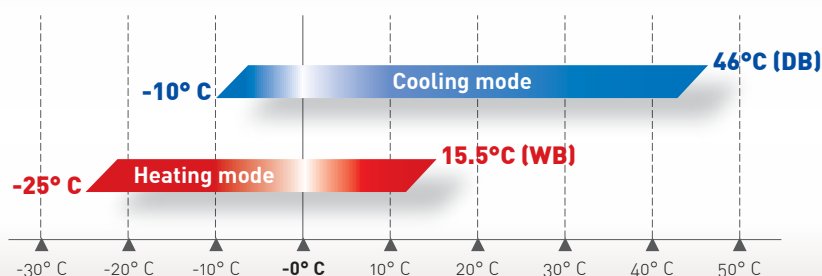
MORE DURABLE WITH LEADING TWIN ROTARY COMPRESSOR TECHNOLOGY



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.

Operating temperature range



Extensive operating temperature range of up to 46 °C in cooling mode and down to -25 °C in heating mode thanks to new compressor design and system controls.

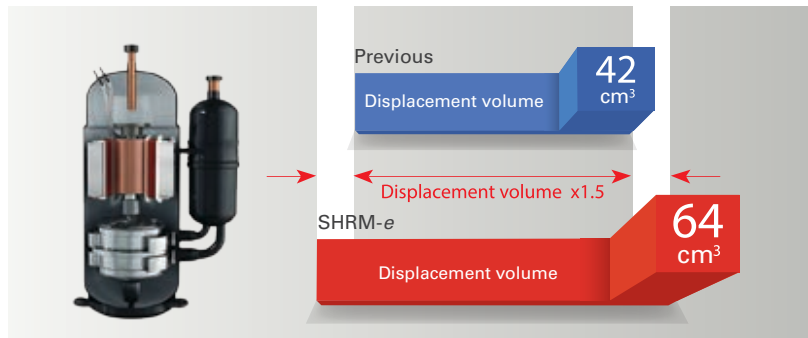
DEDICATED OIL MANAGEMENT

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

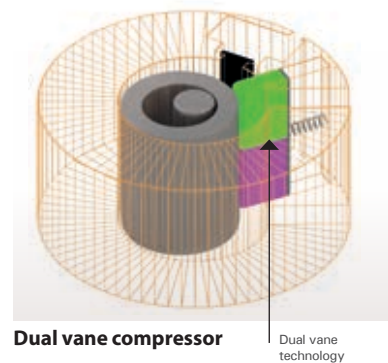
Using new cutting-edge technology, Toshiba's new twin rotary DC driven compressor can operate in a much wider range of rotational speed, giving increase performance, whilst maximising energy efficiencies.



DUAL VANE TECHNOLOGY FOR ENHANCED PERFORMANCE

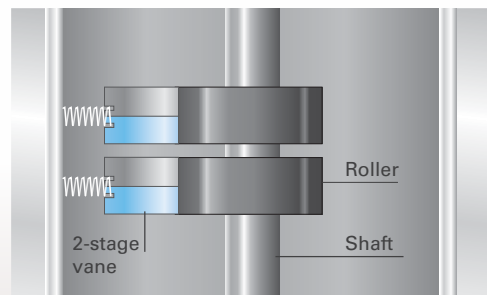
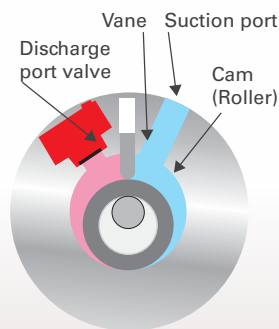
The all new dual vane technology reduces any variances in the contact area between the vane and roller, even when the compressor is operating at very high speeds.

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



THE DIAMOND-LIKE CARBON

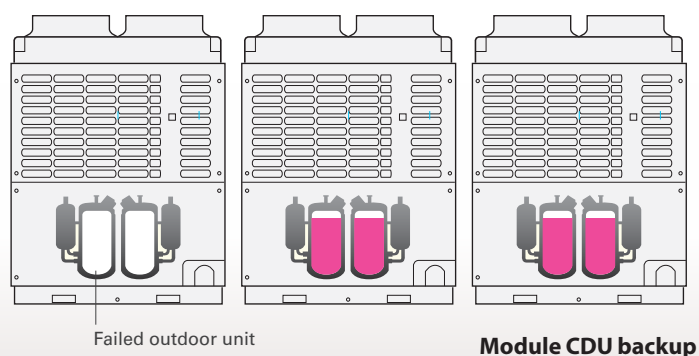
The new Toshiba Diamond Like Carbon Coating technology is unique to Toshiba VRF compressors. It covers the wear surfaces on compression vanes for outstanding hardness and wear resistance, enhancing both the compressor's performance and durability and confirming Toshiba's reputation of providing exceptional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



MAXIMUM RELIABILITY WITH BACKUP OPERATION

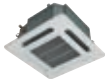














For maximum reliability, ALL Inverter control can be adjusted to compensate for a failed compressor or header unit. In the unlikely event of a compressor failure, backup operation is available in both a single system or as a module.





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(...)MH1-E															
4-way cassette type MMU-AP(...)HP1-E															
2-way cassette type MMU-AP(...)WH1															
1-way cassette type MMU-AP(...)YH/SH1-E															
DUCT TYPES															
Slim duct type MMD-AP(...)SPH1-E															
Concealed duct type MMD-AP(...)BH(P)1-E															
Concealed duct high static pressure type MMD-AP(...)6HP1-E															
Fresh air intake indoor unit type MMD-AP(...)HFE															
Concealed duct high static pressure type MMD-AP(...)HP-EU															
CEILING TYPES															
MMC-AP(...)HP1-E															
HIGH WALL TYPES															
Series 4 MMK-AP(...)4MH(P)1-E															
Series 3 MMK-AP(...)3H1															
FLOOR STANDING TYPES															
Floor standing concealed type MML-AP(...)BH1-E															
Floor standing type MMF-AP(...)H1-E															
Console type MML-AP(...)NH1-E															

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

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

Wired Remote Controller

RBC-AMS54E-ES, RBC-AMS54E-EN



Standard Remote Controller

RBC-AMT32E



Remote Controller with weekly timer

RBC-AMS41E



Simple wired remote controller

RBC-AS41E



CENTRAL CONTROLLERS

Central Remote Controller

BMS-CM1280TLE



Schedule Timer

TCB-EXS21TLE



ON-OFF controller

TCB-CC163TLE2



BMS CONTROLLERS

Touch Screen controller

BMS-CT5121E



Smart BMS Manager

BMS-SM1280ETLE



WIRELESS REMOTE CONTROLS

INFRARED REMOTE CONTROL



Receiver kit for the installation on the wall or ceiling.

TCB-AX32E2



Receiver kit to be installed directly in the frame of the indoor unit.

RBC-AX33CE



Receiver kit to be installed directly in the frame of the indoor unit.

RBC-AX32U(W)-E



Receiver kit to be installed directly in the frame of the indoor unit.

RBC-AX23UW(W)-E



CONNECTABLE OPEN NETWORK

BACnet®

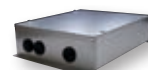
BMS-IFBN640TLE

BMS-STBN10E: Software, BMS-LSV9E: Server



LonWORKS®

TCB-IFLN642TLE



Modbus®







TCB-IFMB641TLE












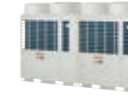


KNX®









SYSTEM LINE-UP - 54 HP MAXIMUM CAPACITY

												
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

												
Model (MMY-)	AP4406FT8P-E		AP4616FT8P-E		AP4816FT8P-E		AP5016FT8P-E		AP5216FT8P-E		AP5416FT8P-E	
HP	44 = 16+14+14		46 = 18+14+14		48 = 18+16+14		50 = 18+18+14		52 = 18+18+16		54 = 18+18+18	
Capacity kW (C/H)	125	125	130.4	130.4	135.4	135.4	140.8	140.8	145.8	145.8	151.2	151.2

