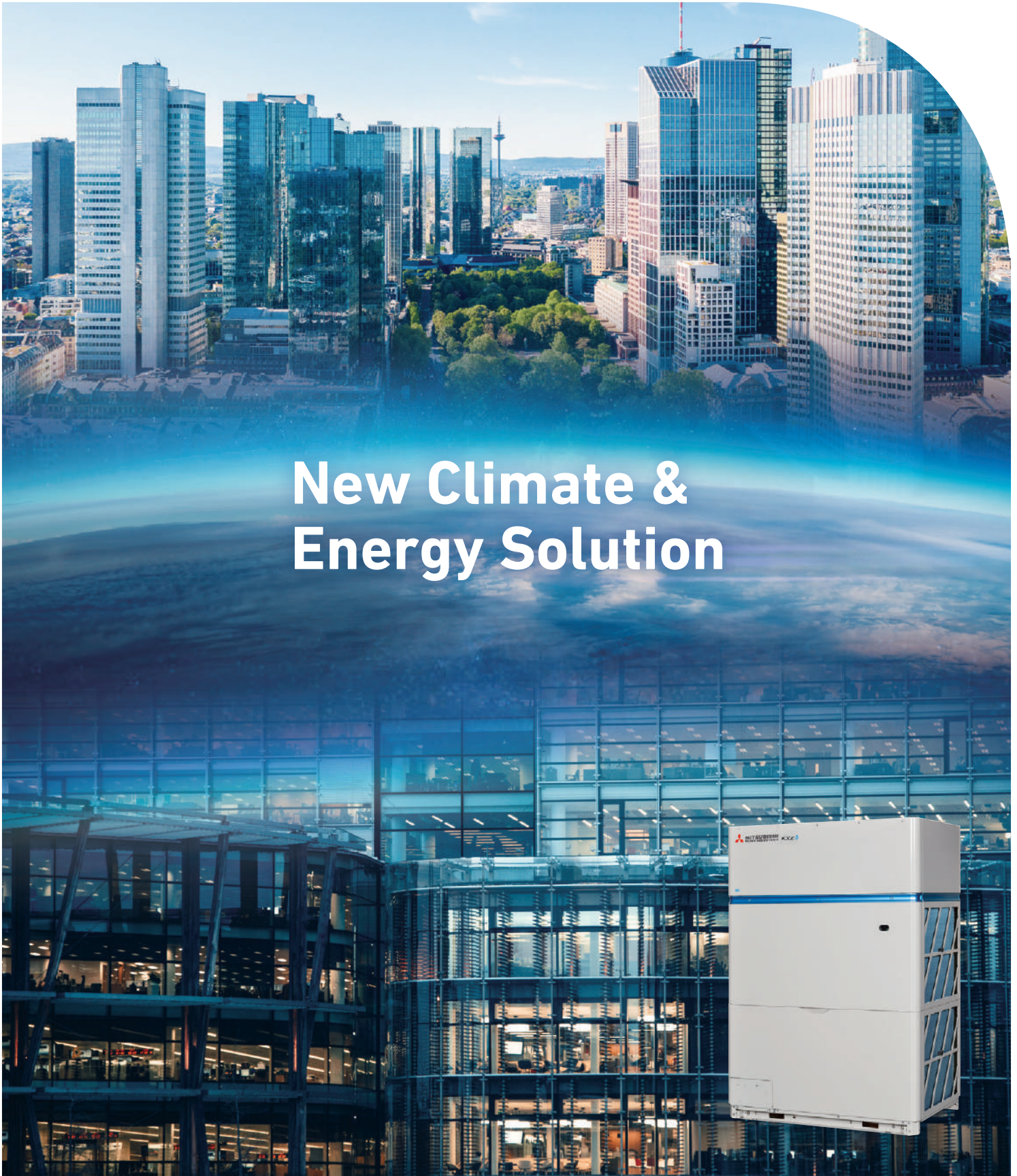


VRF inverter multi-system
Air Conditioners

KXZ **3**

**New Climate &
Energy Solution**



New Climate & Energy Solution

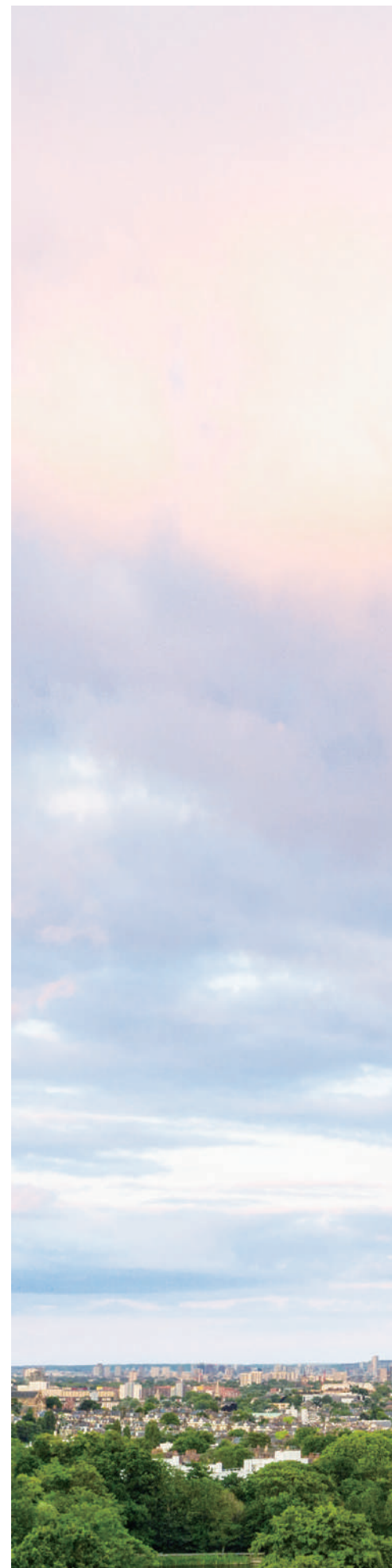
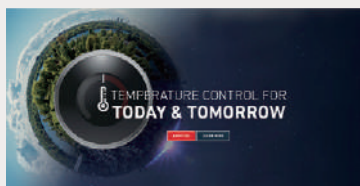
The new Mitsubishi Heavy Industries KXZ VRF series delivers high performance in cooling and heating for all commercial applications. It offers the highest level of design flexibility, improved efficiency as well as enhanced operational functions.

The system has many key improvements and this brochure highlights the key benefits and functions of our latest VRF technology.



TEMPERATURE CONTROL FOR TODAY & TOMMORROW

► mhiae.com



Harmonize with the world

Harmonize with the earth

- Global Environment
- Improved Energy Efficiency
- Toughness

Harmonize with people

- Wellness & Comfort
- Serviceability

Harmonize with buildings

- Design Flexibility

KXZ 3



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New Design - 6 concepts -

The new **KXZ series** is now available in the R32 refrigerant.
The model has been fully changed engineered by the following 6 concepts.



New line-up

1 FAN structure

The 8-12HP has compact design with a 1 FAN structure on the upper part of the unit.



1 Global Environment

- Reduce CO2 emission by about 70%

2 Wide Design Flexibility

- New exterior design to fit the scenery
- Various type of indoor units available
- Flexible selection of safety system
- Wider limitation of piping installation
- Increased static pressure up to 90Pa

3 Improved Energy Efficiency

- Higher SCOP & SEER with advanced technology
- VTCC+ : advanced variable temperature and capacity control

4 Wellness & Comfort

- Advanced continuous heating

5 Toughness

- Cooling use in high ambient temperature

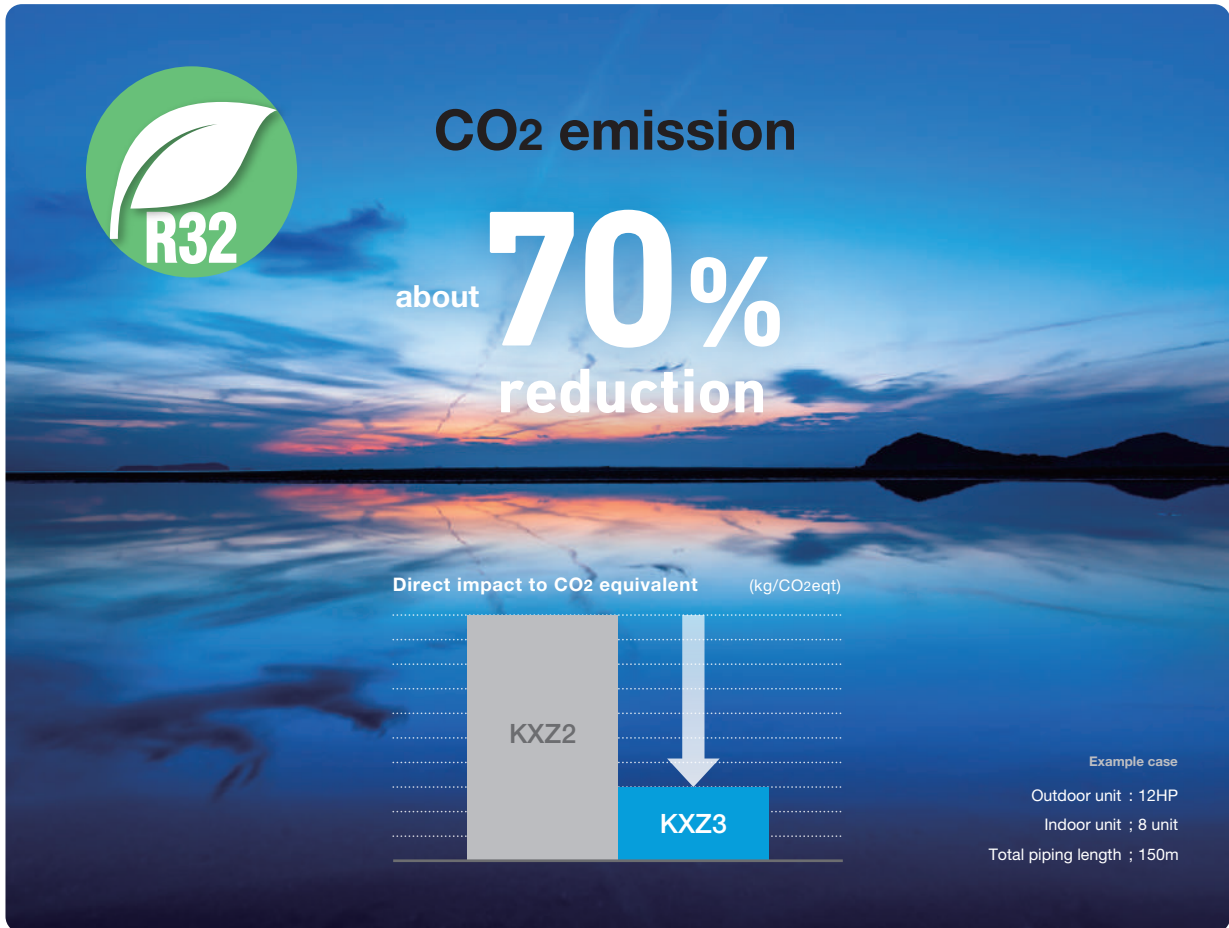
6 Serviceability

- Easy access to replacement part

Concept 1

Global Environment

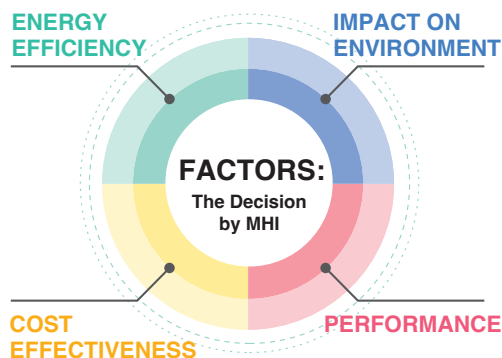
Meet our new **R32 KXZ3 series** of heat pumps, the perfect climate solution for heating and cooling commercial and industrial applications. By optimising our KXZ3 series with R32 refrigerant we have increased the energy efficiency, cost effectiveness and performance of the systems as well as reducing their environmental impact.



R32 - A Low GWP Refrigerant



The Decision by MHI to transition to a new refrigerant is driven by many factors. KXZ3 with the use of R32 refrigerant, lower GWP (675) than R410A (2088)



1. A single component, easy to handle refrigerant
2. Known as a component of the blend R410A (50% R32, 50% R125)
3. Already used in Air-Conditioning systems worldwide
4. Zero Ozone Depletion
5. Superior Energy Efficiency vs. R410A
6. Reduced refrigerant charge vs. R410A
7. Easy to recycle

Concept 2

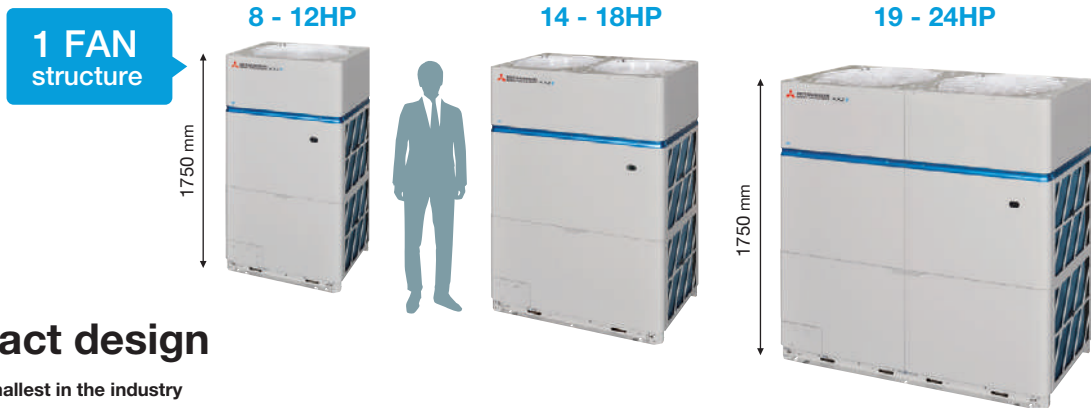
Wide Design Flexibility

New exterior design to fit the scenery

1. Outdoor units - Product line-up -

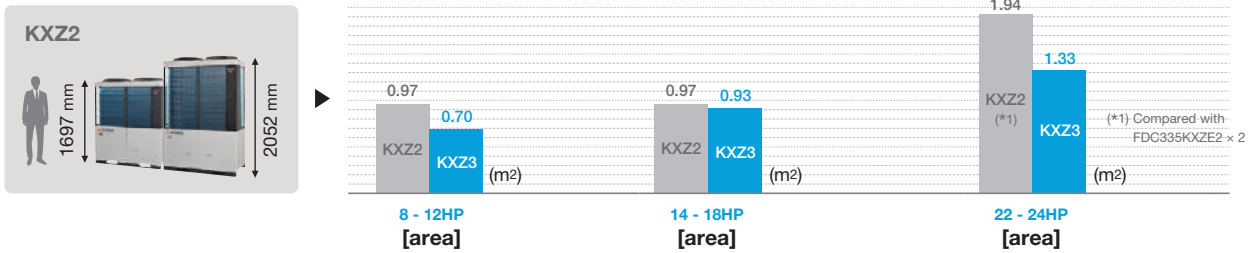
Our line-up and limitation of use make it possible to adopt wider range of installation on commercial buildings.

KXZ3



Compact design



One of the smallest in the industry



The KXZ3 series has reduced the installation space with the integral structure of the heat exchanger and the other compartments. The total footprint has become more compact than KXZ2.

Expand to 72HP

The new product line-up of our KXZ3 series has been extended to offer solutions delivering up to 72HP when using a combination of 3 outdoor units.

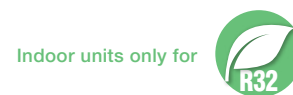
	Single module	Previous model 10 - 20HP	KXZ3 8 - 24HP
	Combination	Previous model up to 60HP	KXZ3 up to 72HP

By combining 3 outdoor units
72HP can be achieved

up to **72HP**



Various type of indoor units available



2. Indoor units - Product line-up -

Wide variety of **8** types **61** models

Type			Capacity : HP	0.5	0.8	1	1.25	1.6	2	2.5	3.2	4	5	6	8	10
			Model Code : kW	15	22	28	36	45	56	71	90	112	140	160	224	280
Ceiling Cassette	4way	FDT				●	●	●	●	●	●	●	●	●		
	4way Compact (600 x 600)	FDTC		●	●	●	●	●	●							
Ducted	High Static Pressure	FDU						●	●	●	●	●	●	●	●	●
	Low/Middle Static Pressure	FDUM			●	●	●	●	●	●	●	●	●	●		
	Low Static Pressure (thin)	FDUT		●	●	●	●	●	●	●						
Wall mounted		FDK		●	●	●	●	●	●	●	●					
Ceiling Suspended		FDE					●	●	●	●		●	●			

Type	Air flow M3/h	150	250	350	500	800	1000
Fresh Air Ventilation and Heat Exchange unit	SAF		●	●	●	●	●

Connectability KXZ3 - Standard Connectable Indoor Units



Increased number of connectable units and max capacity connection.

Standard KXZE3	HP	8	10	12	14	16	18	19	20	22	24	26	28	30	32	34	36	38	
	Numbers	22	28	33	40	45	50	53	56	61	67	73	80	80	80	80	80	80	80
	IU Capacity connection	50 - 150% (*2)																	

Standard KXZE3	HP	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70	72	
	Numbers	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80
	IU Capacity connection	50 - 150% (*2)																	

(*2) When connecting the indoor unit type FDK series, limit the connectable capacity not higher than 130%.

Flexible selection of safety system

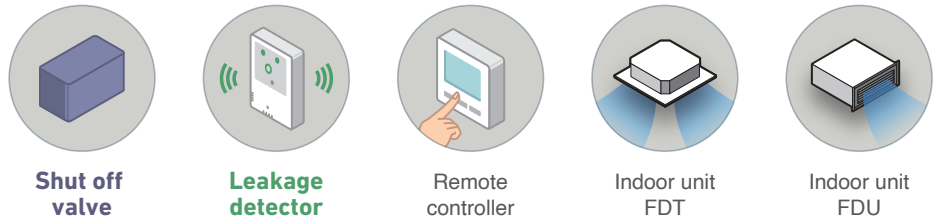
3. Shut off valve and Leakage detector

Our system offers wide flexibility of installation for safety measures which is necessary in standard IEC60335-2-40 (Ed.6) for R32 use system. Safety system can be installed only to the rooms that are necessary.

Refrigerant pipe

Power supply wiring

Signal wiring



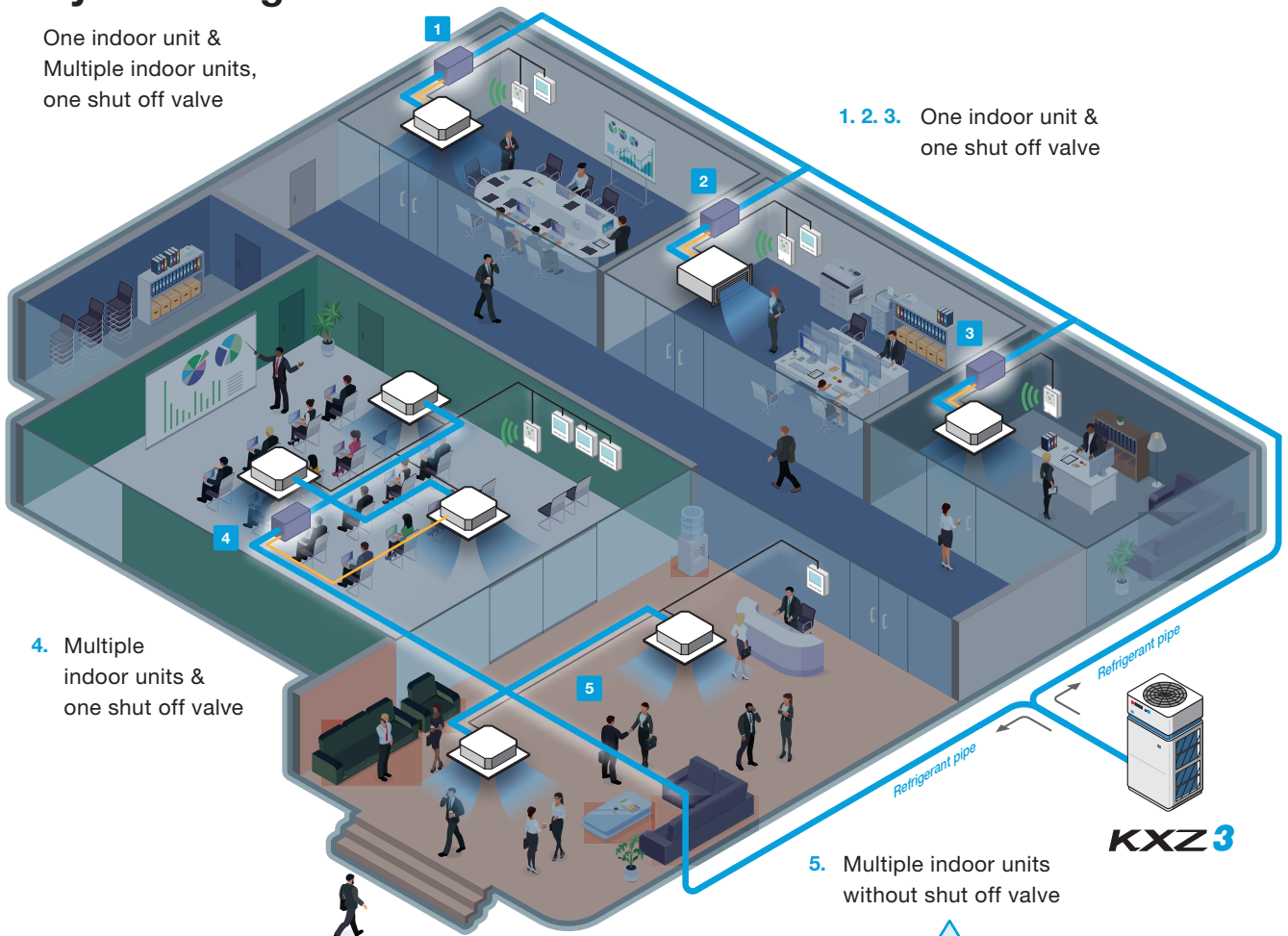
System diagram

One indoor unit &
Multiple indoor units,
one shut off valve

1. 2. 3. One indoor unit &
one shut off valve

4. Multiple
indoor units &
one shut off valve

5. Multiple indoor units
without shut off valve



Safety equipment

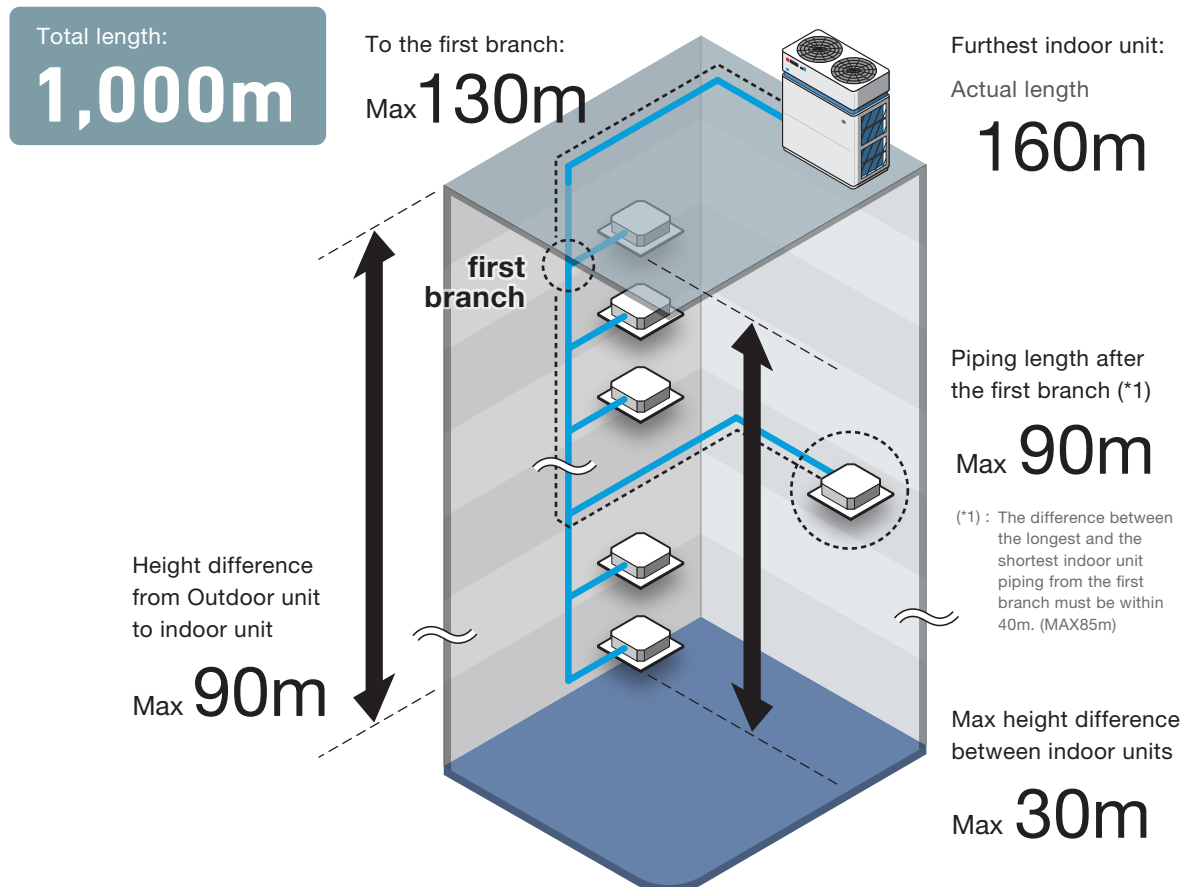
Shut off valve kit	Leakage detector	Remote Controller (alert function)
SV-KIT-S1N-E SV-KIT-L1N-E	RLD-KIT-E	RC-EX3D

Leakage detector and the shut off valve may not be required depending on the room size.

Wider limitation of piping installation

4. Flexible pipe installation

The piping length of our KXZ series have been extended with a maximum height difference between indoor units of up to 30m enabling installation of indoor units on an extra three floors. Also, the furthest unit can be installed up to 160m from outdoor unit.

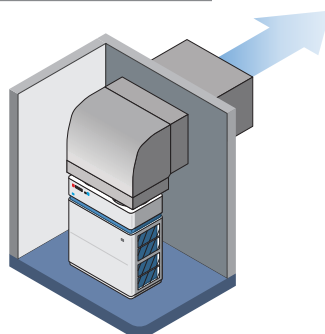


Increased static pressure up to 90Pa

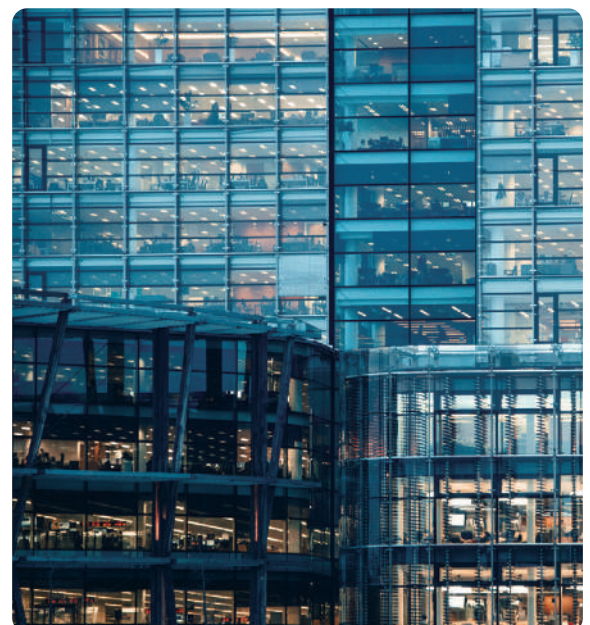
5. Static pressure

Extended external static pressure

Max: **90Pa**



Flexibility to meet installation location needs.



Concept 3

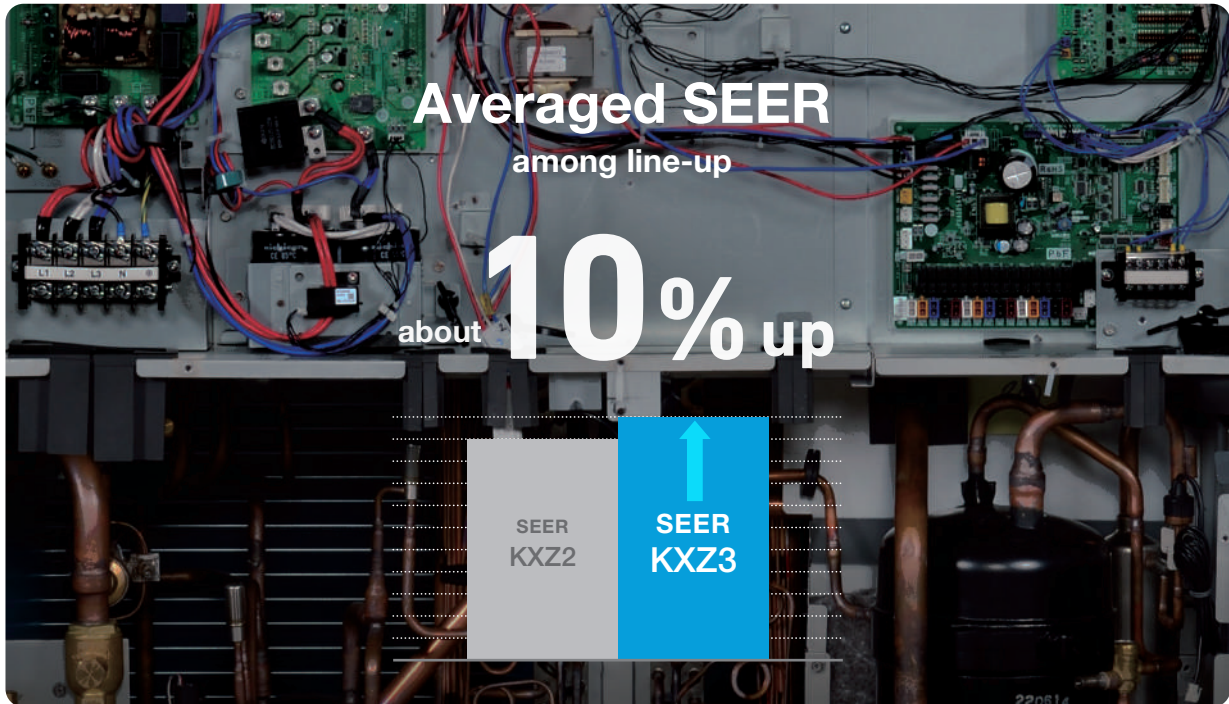
Improved Energy Efficiency

Higher SCOP & SEER with advanced technology

1. Increased seasonal efficiencies

Our KXZ3 series provide high performance and excellent energy savings across all ranges.

This is achieved by our new heat exchangers increased capacity and the new energy efficient compressor.



Features

Improved seasonal efficiency is achieved by

- 1 New R32 scroll compressor with efficient motor
- 2 3-face heat exchanger with small heat transfer pipe (Φ7)
- 3 Efficient fan and flow path design
- 4 Advanced VTCC⁺ control



2. New scroll compressor

New Technology

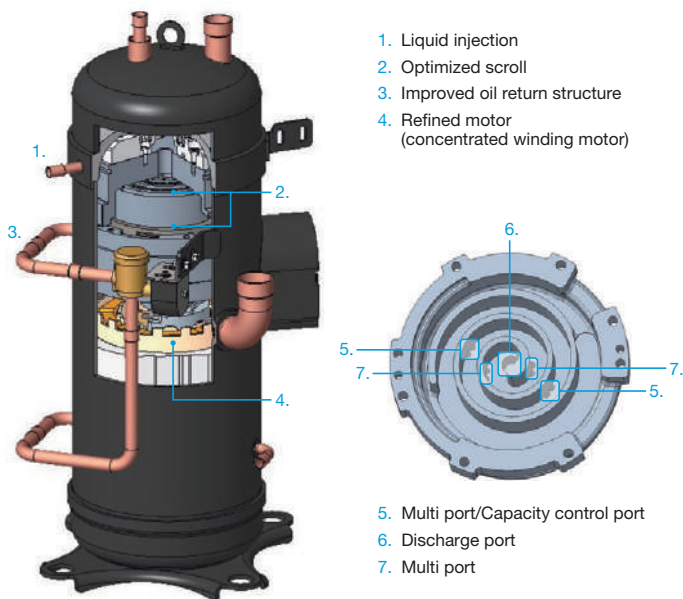
On Demand Oil Supply System (DOSS)

Supplying oil accordingly to the demand in a wide range of operations. Reduced leakage loss during low-speed operation. Reduced amount of oil discharged during high speed operation. This achieves Increased efficiency and reliability over a wide range and the expansion of the minimum capacity range.

Increased partial load efficiency with optimized scroll mechanism and motor.

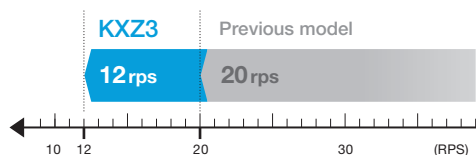
Controlled discharge temperature by direct liquid injection mechanism for R32 refrigerant reduces the rise of discharge temperature.

This new compressor uses the latest compressor technology and has proven to be extremely reliable

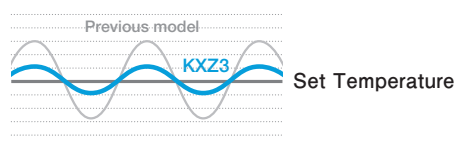


Expansion of minimum RPS of the compressor

Achieving precise performance control



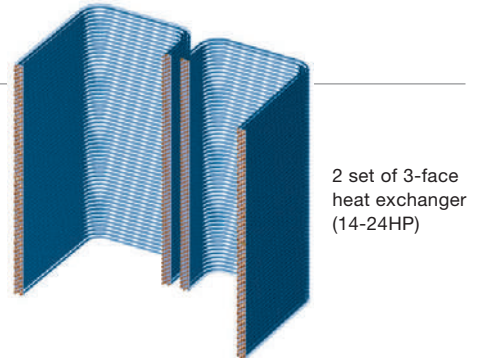
Improved energy savings and comfort at set temperature



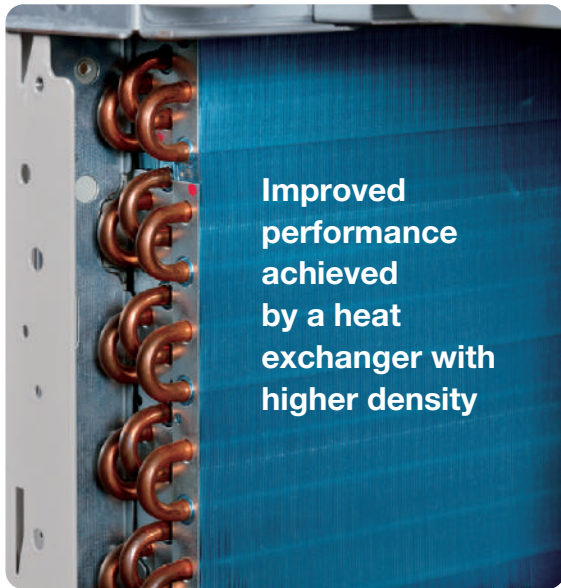
3. Improved heat-exchanger

3-face heat exchanger with small heat transfer pipe ($\Phi 7$).

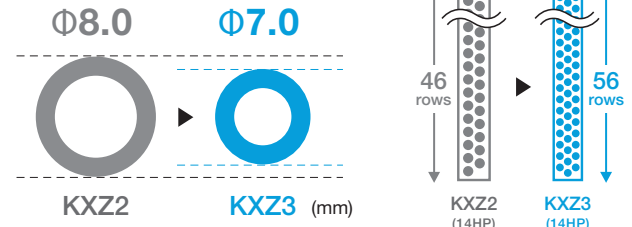
- Lesser refrigerant load and more compact sizing with the adaptation of the new slim heat exchanger.
- Series average -12.5% heat exchanger volume (Max:-30.2%(10HP))



2 set of 3-face heat exchanger (14-24HP)



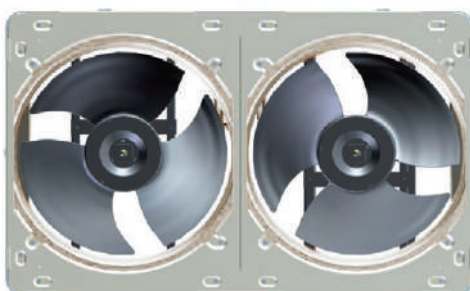
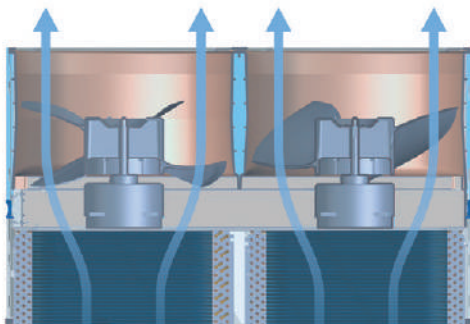
Slimmer heat exchanger and a dense copper piping



Adopting a slimmer 7.0mm copper pipe. By increasing the number of the copper pipe and fin, the performance level has improved while keeping the heat exchanger size small.

4. Improved fan

Efficient fan and flow path design. Improved Aerodynamic characteristics. (reduced fan input)

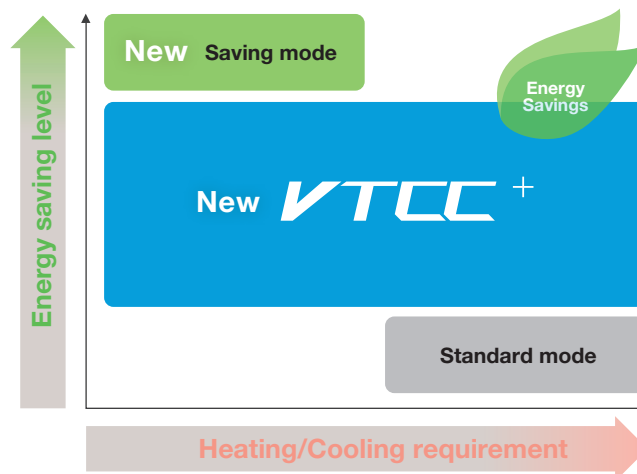


VTCC+ : advanced variable temperature and capacity control

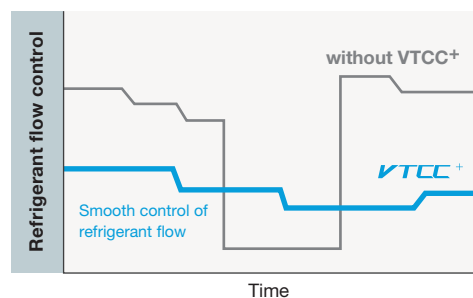
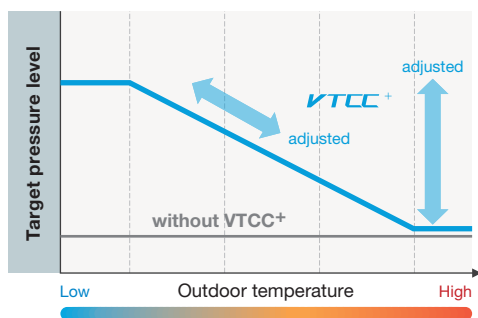
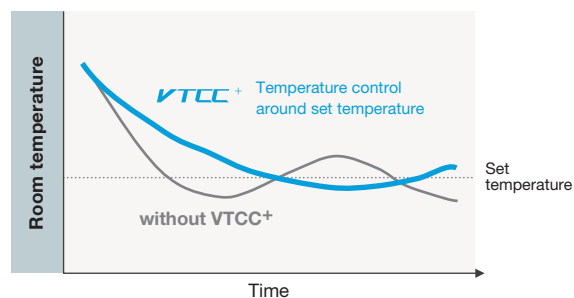
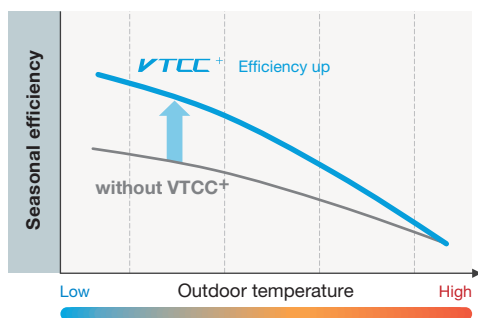
5. KX VRF redesigned with VTCC (Variable Temperature and Capacity Control)



New VRF control VTCC+ adjusts the target pressure of the refrigerant automatically according to the requirement load of the indoor rooms in partial load conditions. These smooth adjustments ensure an optimal capacity usage of the indoor units as well as maximised energy savings. Ultimately this also increases comfort for the user.



- Most balanced mode between capacity control and energy saving.
- Target pressure is automatically adjusted according to heating/cooling requirement, which achieve energy saving.
- Advanced capacity control achieves smooth temperature control close to set temperature.
- Suitable for heating/cooling demand varies among the room in the building.



New Saving mode

- Most energy saving mode.
- Suitable for low heating/cooling demand in the building.
- Target pressure is adjusted lower/higher in heating/cooling.

Standard mode

- Capacity is maximised.
- Suitable for high heating/cooling demand in the building.
- Target pressure is adjusted steady to maximize the capacity.

Harmonize with people

Concept 4

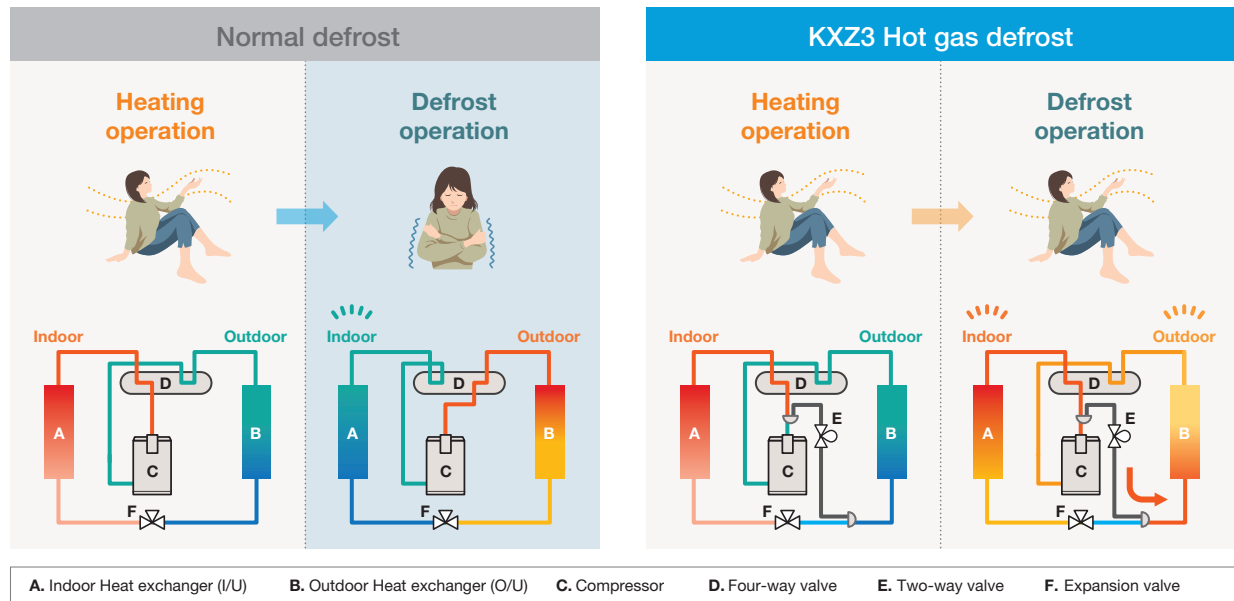
Wellness & Comfort

Advanced continuous heating

Continuous heating

Two defrost modes are prepared, and the defrost is automatically switched according to the amount of frost formation. Hot gas defrost mode enables non-stop heating during defrost operation by means of hot gas bypass.

Enhanced heating operation functions



Harmonize with the earth

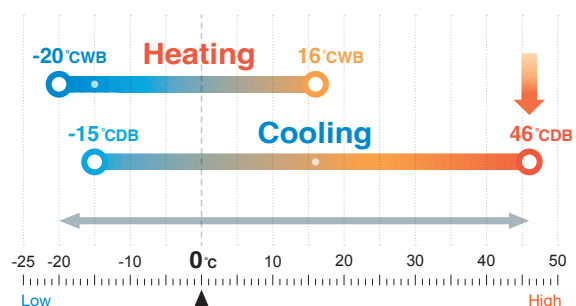
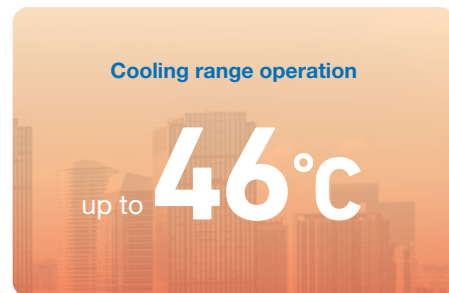
Concept 5

Toughness

Cooling use in high ambient temperature

Wide range of operation

Our new advanced technology has expanded the heating and cooling operation range. KXZ series permits an extensible system design with a heating range operation down to -20°C and a cooling range operation up to 46°C.



Serviceability

Easy access to replacement part

Easy access to the control box

The control box is in the upper part of the unit and can now be easily accessed by taking off the upper front panel.

Features

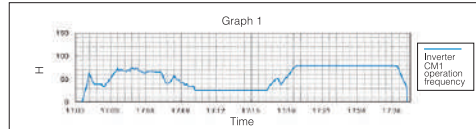
- The amount of data that can be checked from the remote controller has increased.
- Can save the data of the operating conditions 30~180 minutes before malfunction even if the power is off. In normal settings 30 minutes. (To save data for more than 30 minutes settings must be changed.)
- Can now output air flow volume of the outside fan.
- Can now record the running hours of the fan motor.



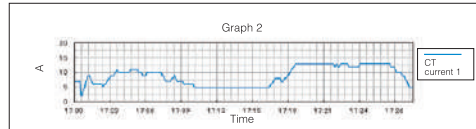
Automatically produced test-run report

KXZ series operation data sheet Outdoor unit		Customer name	Building company	Test run date	Test run operator
Time	Unit	Model	Serial No.	Test run date	Test run operator
17:00	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:01	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:02	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:03	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:04	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:05	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:06	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:07	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:08	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:09	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:10	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:11	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:12	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:13	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:14	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:15	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:16	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:17	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:18	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:19	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:20	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:21	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:22	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:23	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:24	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:25	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:26	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:27	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:28	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:29	1	CUA	123456789	2020/08/20	Taro Mitsubishi
17:30	1	CUA	123456789	2020/08/20	Taro Mitsubishi

Operation data storage during servicing



Operation data storage when a fault occurs

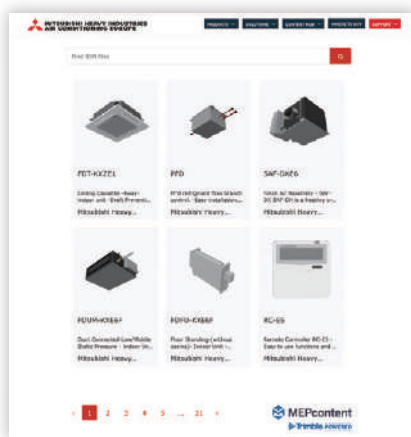


Time Saving Software

BIM (Building Information Modelling)

Coming soon

We can provide high quality Building Information Modelling (BIM) models in three formats:



1. Revit
2. 3D Cad
3. IFC

(IFC provides an interoperability solution between different software applications. The format establishes international standards to import and export building objects and their properties)

How and why BIM is used

BIM enables all disciplines of a project (Architects, engineers, quantity surveyors, contractors, clients etc..) to share a common model and data representing the project they are building.

- Better design visualization
- BIM reduces conflicts and changes during construction
- Increases overall accuracy of project documentation
- Improves cost estimating
- Improves energy analysis
- Simplifies reporting and scheduling



e-seasonal

Coming soon

e-seasonal is an application for our Air cooled VRF Outdoor unit selection.

By selecting a combination of systems, location and occupancy profiles you can simulate:

1. Annual seasonal efficiency calculation
2. Annual energy consumption, cost and CO2 emission estimation
3. Comparison with multiple solutions including conventional heaters

It is possible to download to your PC for an offline version or using a web browser for an online version. e-seasonal provides solution suggestions according to your requested design conditions.



e-solution

Coming soon

Use our **e-solution design software tool** to find the latest specifications for our KXZ VRF systems. This software helps to simplify the processes to enable engineers to select the most suitable indoor units, outdoor units, pipework, controls & calculate any additional required refrigerants.

If you're an engineer interested in using e-solution, please register and download the e-solution via <https://mhi-ae.com/e-solution/> and be sure to download the latest updates when available.



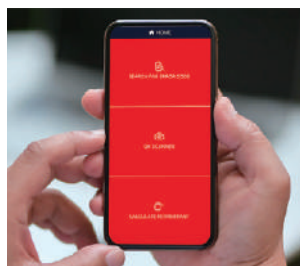
Please be aware that this tool was developed to cater for the design of two and three pipe systems, and specifies the appropriate models and sizes. It also generates wiring diagrams and engineering drawing to export to AutoCAD or PDF. This flexibility allows engineers to print selected design information and technical data to present to potential clients. As well as personalising the design information into their own formats and documents for future proposals.

MHI e-service App

MHI e-service application is available & free to download to both IOS and Android devices.

The application covers "Mitsubishi Heavy Industries Thermal Systems, Ltd" Air conditioning systems: Split (RAC & PAC), VRF, Q-ton & AtoW.

This "MHI e-service" Application enables field engineers to make:
A quick search of the meaning of error codes that may appear when there is a malfunction in a "Mitsubishi Heavy Industries Thermal Systems, Ltd" Air conditioning system, and the probable cause for the malfunction.
Scan the unit's QR code and search the meaning of error codes depending on the model type
Additional refrigerant charge calculation for Split (PAC, RAC) & VRF
Currently available in English & Spanish languages and Italian



To download the App go to:



Android™



iPhone

"Android" and "Google Play" are trademarks or registered trademarks of Google LLC.
"iPhone" is a trademark of Apple Inc. registered in the U.S. and other countries.

Building Management Systems

Our company offers a wide range of control options for the KXZ system to suit any application, large or small, as well as connection to a new or existing BMS.



Internet of Things



Cloud Monitoring system

RM-CGW-E1



BACnet gateway

SC-WBGW256



Modbus Controller

INMBSMHI

Intesis
BY HMS NETWORKS



KNX Controller

INKNXMHI

Intesis
BY HMS NETWORKS

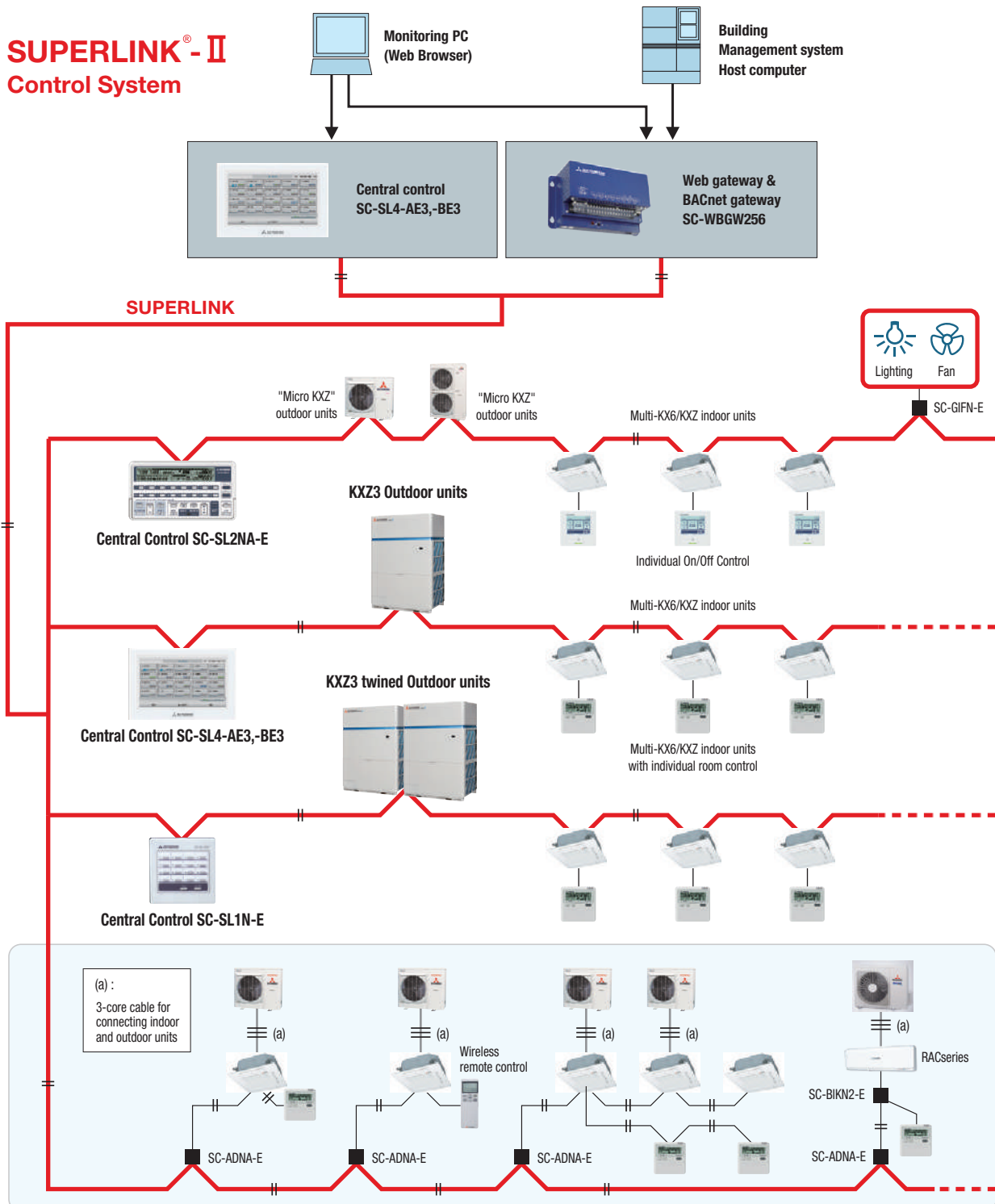


Controls network overview

Our company offers simplicity in installation with the highly sophisticated Superlink-II Control System

This offers building owners and occupiers a comprehensive control and management system while providing complete commissioning and service maintenance assistance for installers and service engineers. The Superlink-II is an advanced high speed data transmission system which can connect up to 128 indoor units and 32 outdoor units onto one network.

A wide range of control options are available for the Superlink-II network to suit any application large or small, as well as connection to a new or existing Building Management System (BMS).



Environmental

Mitsubishi Heavy Industries, Ltd. (MHI), are unwaveringly dedicated to facing the challenges of the future.

MHI are dedicated to supporting global sustainability by offering the most energy efficient air-conditioning systems. Through our in-depth research and development, we are able to incorporate new technologies within our units to maximise their energy efficiency and significantly reduce carbon emissions.

Environmental Impact

MHI recognises the increasing importance of reducing carbon emissions as this is becoming a priority when selecting air and water distribution systems. Furthermore new technologies are constantly being developed to help meet heating and cooling requirements as well as environmental objectives. The future of our planet rests in the sustained evolution of humankind while caring, with love and responsibility, for all life forms that inhabit it. Therefore MHI will continue to develop new technologies and products and will remain competitive in the market to achieve a sustainable future.



Mitsubishi Heavy Industries Thermal Systems, Ltd.
(Wholly-owned subsidiary of MITSUBISHI HEAVY INDUSTRIES, LTD.)

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<https://www.mhi-mth.co.jp/en/>

Our factories are ISO9001 and ISO14001 certified.

Certified ISO 9001



Certificate Number : JQA-0709



Certificate-44 100 980813



Certificate Number : 4333-2007-AQ-RGC-RvA

Certified ISO 14001



Certificate:04 104 980813



Certificate number : 02117E10160R0M

