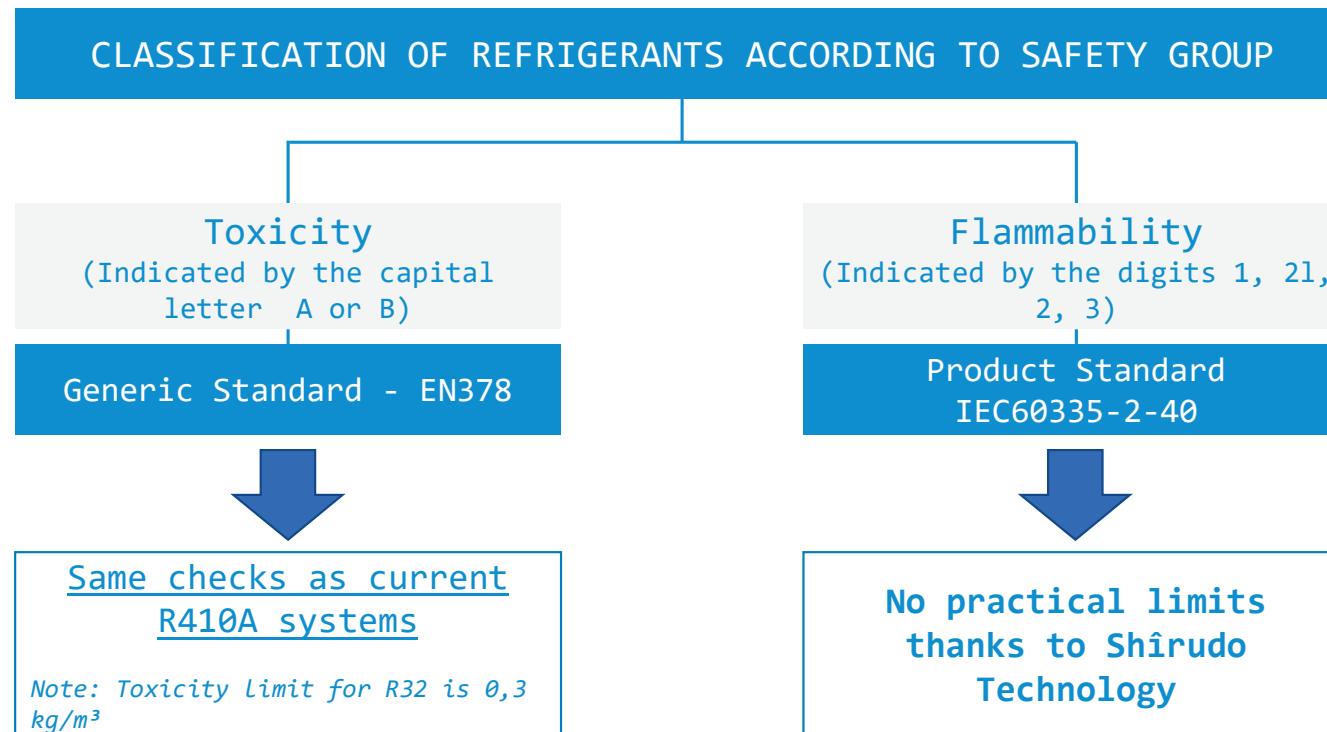




Legislation & Shîrudo Technology

Legal Background



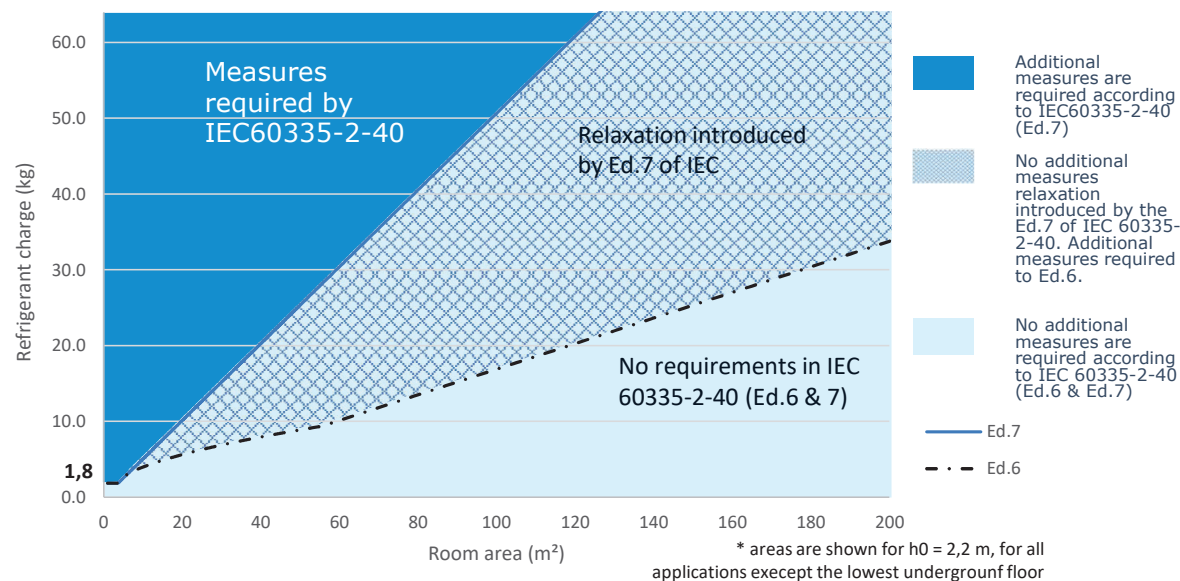
Toxicity check → No changes whatsoever regarding the required checks and procedures
Flammability check → IEC60335-2-40 standard prevails over EN378. We developed Shîrudo Technology to comply with the requirements of IEC and as such ensure compliance to the relevant standard, without compromising design flexibility.

Moving to Edition 7 – Part 1

A new edition of IEC 60335-2-40 - edition 7 has been introduced, for VRV 5 H/P we're following this version.

With this revision some important changes were introduced in the usage of R32, the most relevant concerns the maximum allowed concentration, to which the direction was quite positive and can be summarized as below:

Response measures requirements in IEC 60335-2-40 (Ed. 6 & Ed.7)



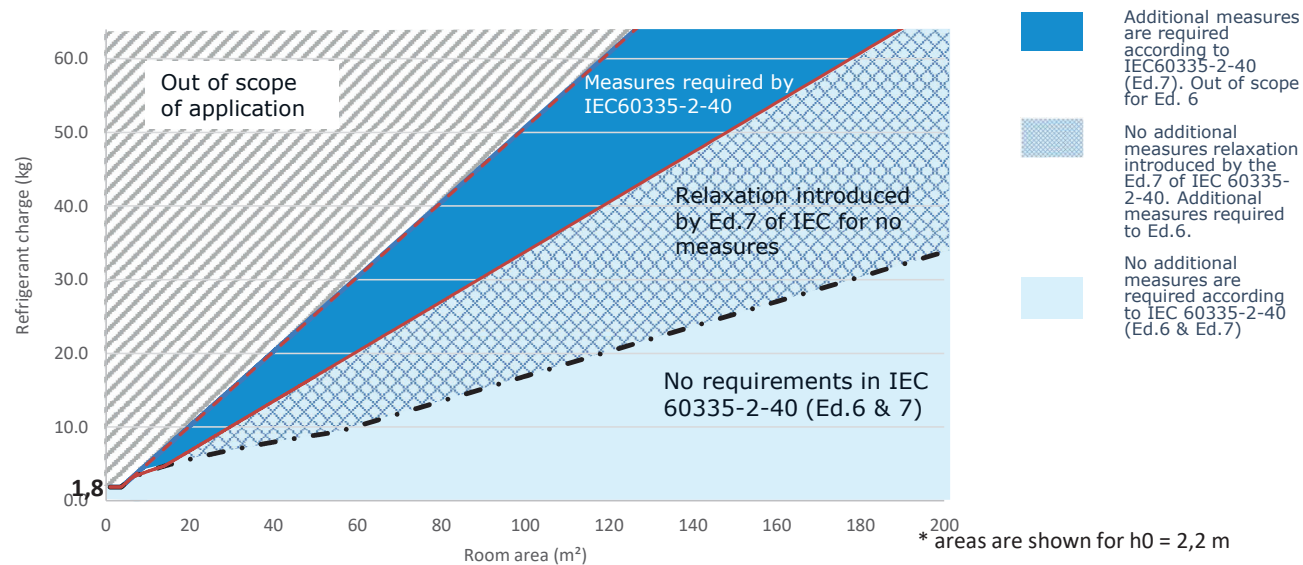
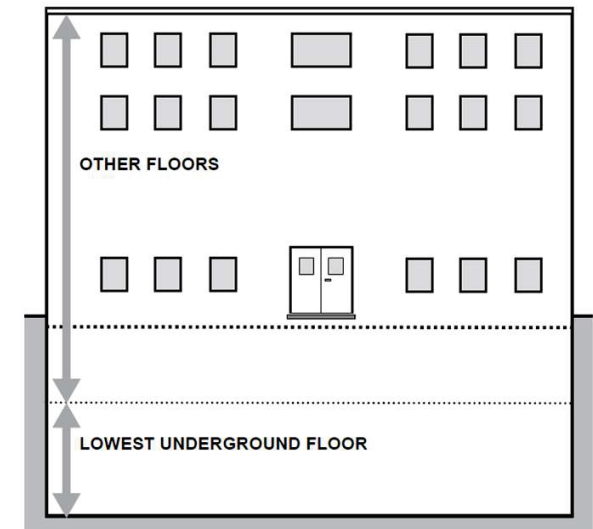
Some other changes, were introduced, but this carry little impact in the selection and design of a VRV 5 systems.

E.g., Alarm is no longer considered as an additional measure, but it must be used in conjunction with one of the other measures (Shut-off valves or ventilation), meaning when additional measures are required, they must be Alarm + ventilation or Alarm + Shut-off valves, so no impact for VRV 5.

Moving to Edition 7 – Part 2

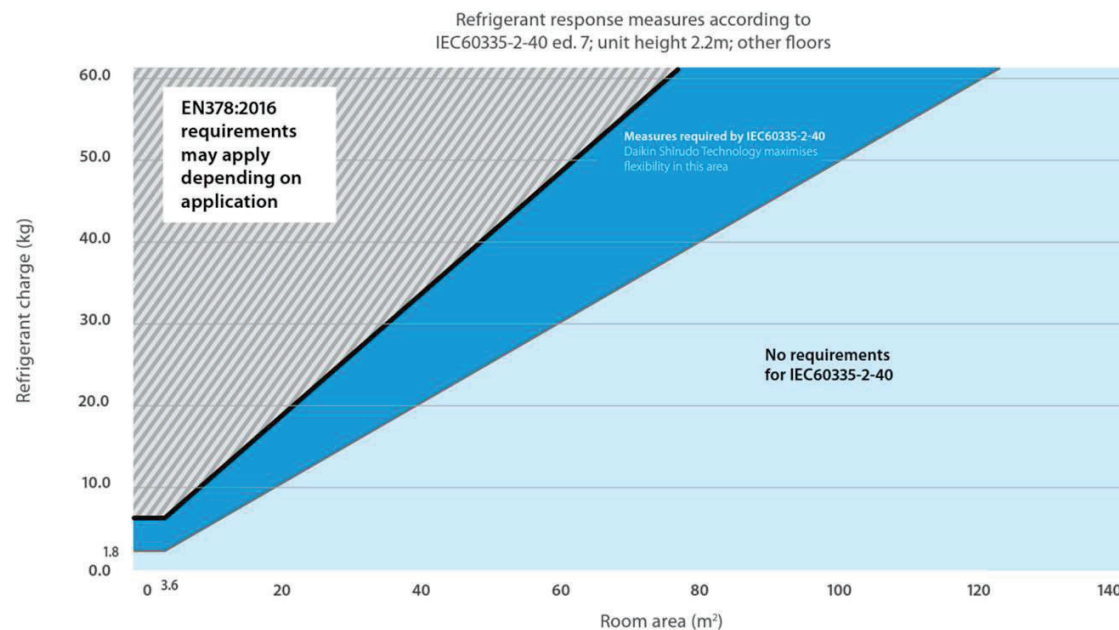
Also, for the lowest underground floor, despite still being more strict application than the other floors, the concentration limits have been also relaxed

Response measures requirements in IEC 60335-2-40 (Ed.7) - Lowest underground floor



Moving to Edition 7 – Part 3

If we then take into consideration the recently revised IEC standard, the situation of R32 regarding refrigerant concentration can be summarized as follows:

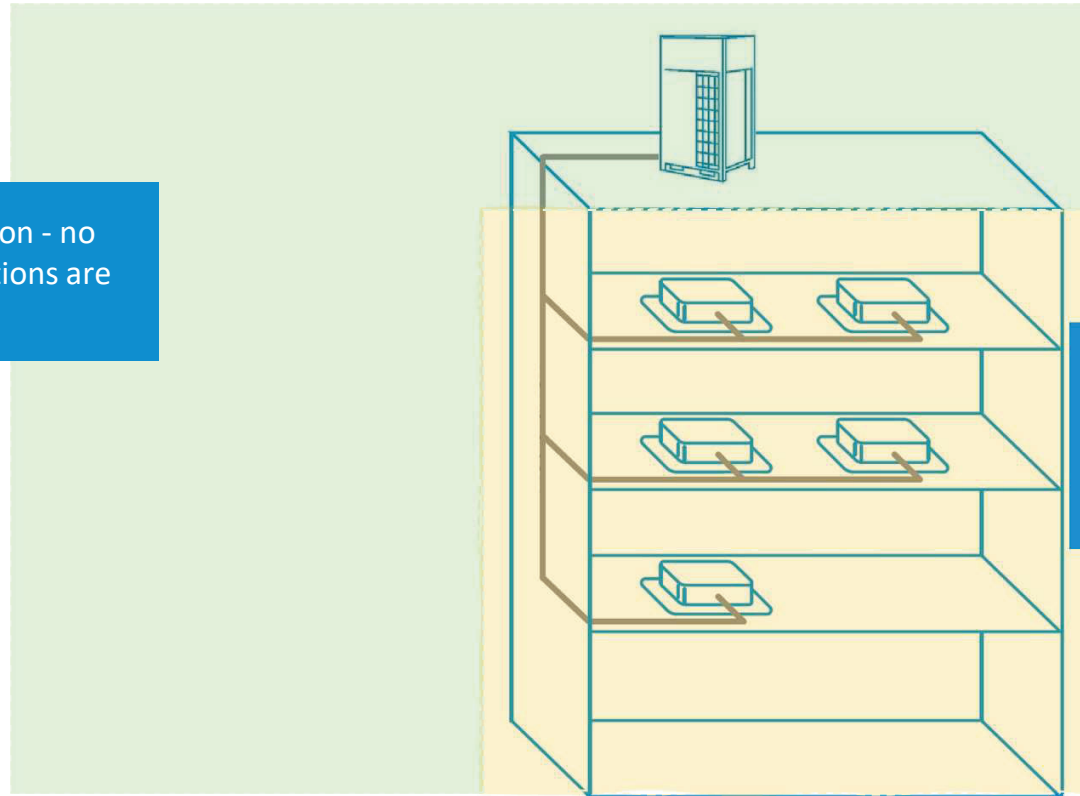


Note: The IEC 60335-2-40 determines that for room areas above 250 m² the maximum charge must be calculated considering a room area of 250 m².

- On this region the requirements set by EN378:2016 regarding toxicity limits must also be considered and additional measures might be required according EN378:2016 depending on the application
- On this region IEC60335-2-40 (ed.7) is requiring that additional measures are implemented to relax the requirements regarding maximum total refrigerant charge and/or minimum room requirements. The allowed measures are described in IEC and its impact will depend on the type of measures introduced
- On this region there are no requirements regarding both toxicity or flammability, hence no additional measures need to be considered

When does the standard apply?

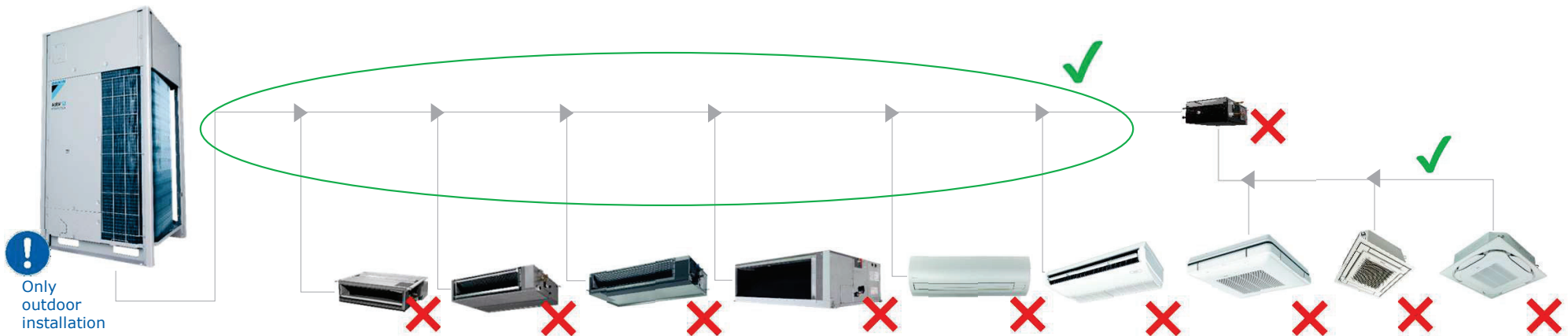
“Open air” installation - no additional considerations are required



Once the refrigerant circuit enters the building, the IEC 60335-2-40 and EN378 requirements must be considered

Potential Sources of Leakages

- ✓ Piping and their brazing points are not considered as potential source of leakage;
- ✓ Distribution kits (refnets) and mechanical joints complying to ISO14903:2017, are not considered as potential source of leakage;
- ✓ Indoor units & BS/BP/SV/EKEXVA box need to be seen as potential source of leakage and countermeasures are required according to IEC 60335-2-40 (Ed.7);
- ✓ If outdoor units are installed in the "open air" (see next slide) or outdoor, no additional countermeasures are required for the outdoor unit.



“Open Air” install for the outdoor unit

- ✓ In the IEC 60335-2-40 is mentioned that there is no room size restriction for the outdoor unit in terms of refrigerant charge in case of installation in open air;
- ✓ The definition of an installation in the open air or outdoor is given to us by the EN 378 and is defined that for equipment installed in an open air – location classification III there are no charge restrictions;
- ✓ EN 378-3, second paragraph, additionally adds that even if the unit is installed outside no refrigerant can accumulate as a result of its installation location (e.g. unit in a pit surrounded by four walls):

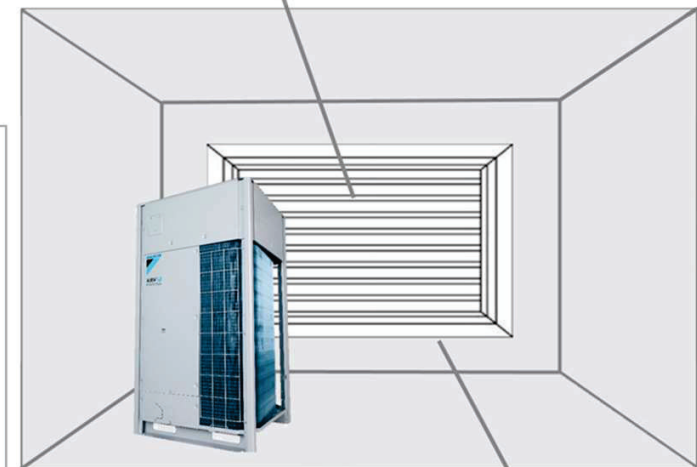
4.2 Refrigerating equipment located in the open air

Refrigerating systems sited in the open air shall be positioned to avoid leaked refrigerant flowing into a building or otherwise endangering people and property. The refrigerant shall not be able to flow into any ventilation fresh air opening, doorway, trap door or similar opening in the event of a leak. Where a shelter is provided for refrigerating equipment sited in the open air it shall have natural or forced ventilation.

A room, where at least one of the longer walls is open to the outside air by means of louvres with 75 % free area and covering at least 80 % of the wall area (or the equivalent if more than one wall is to outside), is considered as being in the open air.

For refrigeration systems installed outside in a location where a release of refrigerant can stagnate e.g. below ground, then the installation shall comply with the requirements for gas detection and ventilation of machinery rooms (see 5.13, Clauses 8 and 9). For refrigerants of class 2L, 2 and 3 requirements regarding ignition sources in EN 378-2:2016, 6.2.14 shall apply where appropriate.

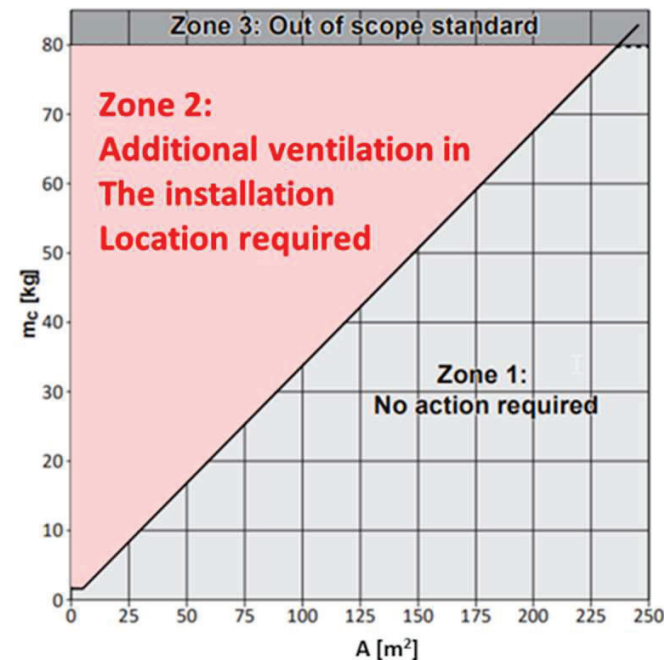
$A_{\text{free}} \geq 75\% \text{ of the louvre}$



$A_{\text{louvre}} \geq 80\% \text{ of the wall}$

Ventilation Requirements for Outdoor installed inside

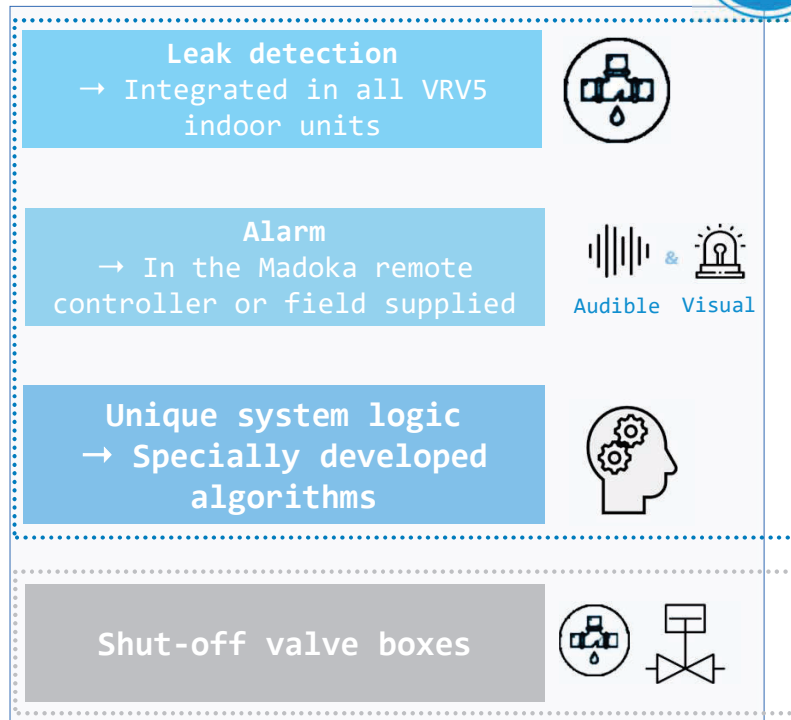
- VRV 5 systems require additional considerations for internal installations, so clarification on the requirements to make this work needed to be assessed so we can best guide customers to enable compliance.
- In the following graph the vertical axis (Mc kg) refers to the total system refrigerant charge, so it's important to know what the refrigerant charge will be. If this is not available at early design stage, then you can advise that using a figure of 2.5 times the base charge of the condensers on the system is ok for a guide but would need to be checked when the full charge is known.
- The horizontal axis is the floor area required in the internal plant space where the condenser(s) are to be installed.
 - Plot the relevant point on the graph.
 - If the point falls in Zone one, the grey area, then no additional actions action is required to comply with the standards.
 - If the point falls into Zone 2 then additional ventilation of that space is required.



If Ventilation is required, then there's the following points to consider:

- The lower edge of the opening for the extraction point from the room must be less than 100mm from the floor. This is to ensure the lower flammability limit is not reached as refrigerant is heavier than air.
- The air flow rate (AFR) requires calculation using a specific formula. An Excel document exists to make the calculation easy and can be found here> [R32 Ventilation calculator.xlsx](#)

What is Shîrudo Technology?



Factory mounted into our units

Part of our range of BSSV / SV Boxes

With the relaxations coming from Ed.7 of IEC 60335-2-40, the approach to the usage of additional **refrigerant control measures** has been **significantly relaxed**.

Maximum refrigerant concentration is now allowing to **tackle smaller room areas without the need of additional measures**, so Shîrudo Technology is as well more flexible in that way.

Changes for VRV5 Heat Pump

Fully adjustable to your needs!

With the introduced relaxations of Ed. 7 of IEC 60335-2-40, it's possible to tackle majority of applications without the need of additional measures. To give full flexibility to the system designer and the end customer, even on this scenario (where no SV will be required), 2 options are available:

1. **Disable refrigerant control measures** → It's possible via field setting, to ignore signal from leak sensor and no error or warning is shown. Room is wide enough to dilute the leak, system will eventually stop operation due to low refrigerant level
2. **Natural ventilation + Alarm and leak detection** → Taking benefit of the factory mounted leak detection and alarm, the user will be warned in the remote case of a leak and system will stop operation. No additional relaxations can be obtained regarding the maximum refrigerant concentration, but the building owners and occupants will receive notification about the occurrence of a leak. Due to the stopped system operation, the amount of refrigerant that will eventually leak will also be limited.

This flexible approach, allows to not only maintain the exact same design philosophy as per VRV IV+, but to introduce additional features to our customers, empowering them to design the system according to each site needs.

With Shîrudo Technology, we aim that no room is left out of your HVAC system design, there's a 3rd option available:

3. **Integration of Shut-off valve boxes (SV Boxes)** → To tackle even the most stringent applications, we're making available as an option, a complete range of Shut-off valve boxes, with different possible configurations from 1 to 8 port. With the use of the SV Boxes there's no practical limitation with regards to maximum refrigerant concentration for compliance with the IEC 60335-2-40 requirements.



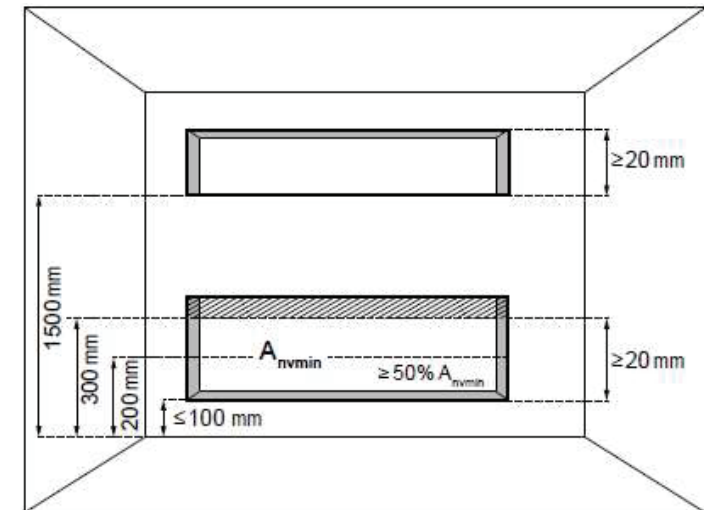
Adjacent rooms

As previously explained, thanks to the **unique design structure of VRV 5 and the factory integrated leak detection and alarm**, it's possible **in conjunction with the natural ventilation principle**, to consider the **total area of 2 adjacent rooms as one**, and this way it is possible to increase the A_{min} value used to calculate the maximum allowed charge in simple and straightforward way.

Rooms on the same floor connected with openings that fulfil following requirements can be considered as a single room:

- ✓ The opening must consist out of two parts to allow for air circulation
- ✓ For the lower opening:
 - It is not an opening to the outside
 - The opening cannot be closed
 - **The opening must be $\geq 0.012 \text{ m}^2$ (A_{nvmin})**
 - The area of any openings above 300 mm from the floor does not count when determining A_{nvmin}
 - At least 50% of A_{nvmin} is less than 200 mm above the floor
 - The bottom of the lower opening is $\leq 100 \text{ mm}$ from the floor
 - The height of the opening is $\geq 20 \text{ mm}$
- ✓ For the upper opening:
 - It is not an opening to the outside
 - The opening cannot be closed
 - **The opening must be $\geq 0.006 \text{ m}^2$ (50% of A_{nvmin})**
 - The bottom of the upper opening must be $\geq 1500 \text{ mm}$ above the floor
 - The height of the opening is $\geq 20 \text{ mm}$

The requirement for the upper opening can be met by false ceilings, ventilation ducts or similar arrangements that provide an airflow path between the connected rooms.



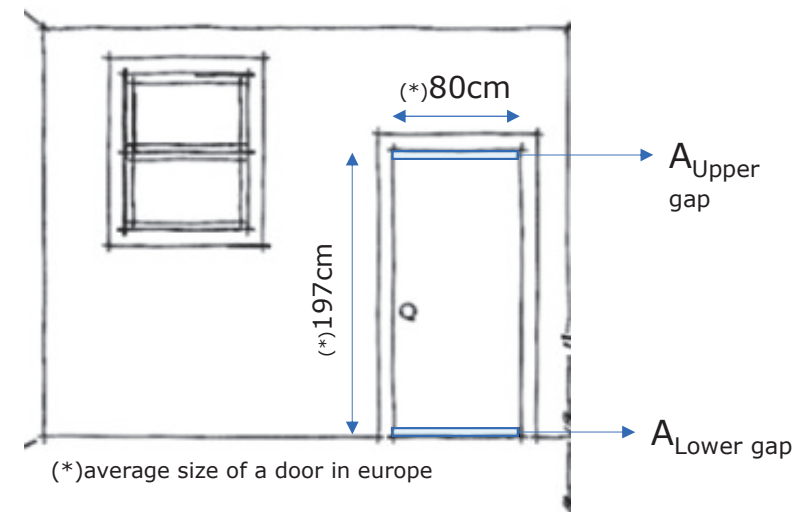
Note: For the lowest underground floor natural ventilation can be applied without the need of an alarm. But bear in mind that max. concentration for the lowest underground application, is always more restrictive compared to all the other floors.

Practical Example

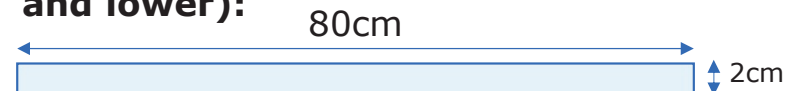
Practical example (enlarge room area by adding the adjacent room)

For this exercise we're considering a normal door, which is connecting 2 rooms on the same floor, and just looking to the (permanent) gaps that are usually there on the bottom and top of the doors.

- ✓ Upper opening requirements:
 - Width of the gap: 80cm (consider the same as the door)
 - Height of the gap $\geq 2\text{cm}$ (min. height according the requirements)
 - $A_{\text{upper gap}} = 0.8 \times 0.02 = 0.016\text{m}^2 \geq 50\% \text{ of } A_{\text{nvmin}} = 0.006\text{m}^2$
 - Bottom of the upper gap $= 1.97 - 0.02 = 1950\text{mm} \geq 1500\text{mm}$ above the floor
- ✓ Lower opening requirements:
 - Width of the gap: 80cm (consider the same as the door)
 - Height of the gap $\geq 2\text{cm}$ (min. height according the requirements)
 - Position of the gap
 - Bottom of the lower gap $\leq 10\text{ cm}$ floor
 - Area of the opening $\leq 30\text{cm}$ from the floor
 - $A_{\text{upper gap}} = 0.8 \times 0.02 = 0.016\text{m}^2 \geq 50\% \text{ of } A_{\text{nvmin}} = 0.012\text{m}^2$



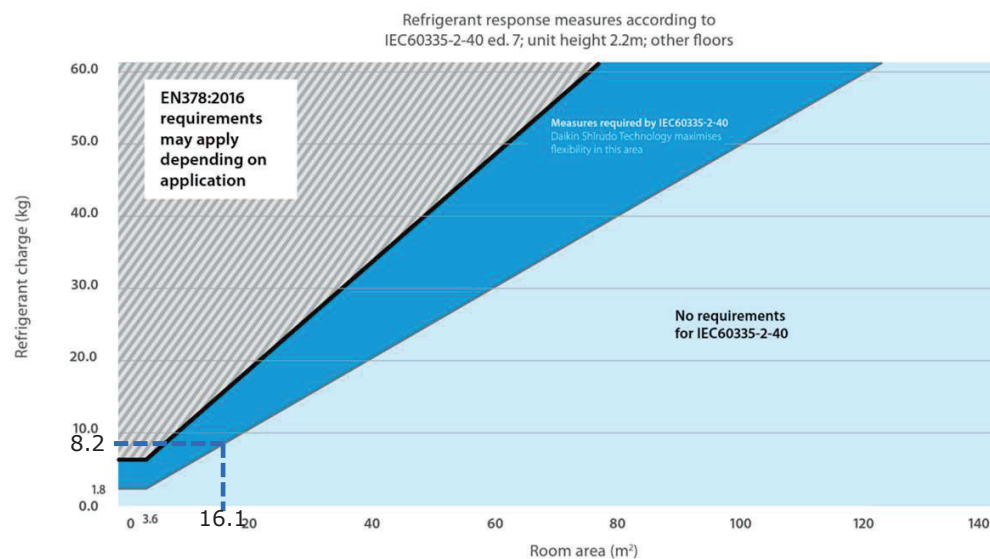
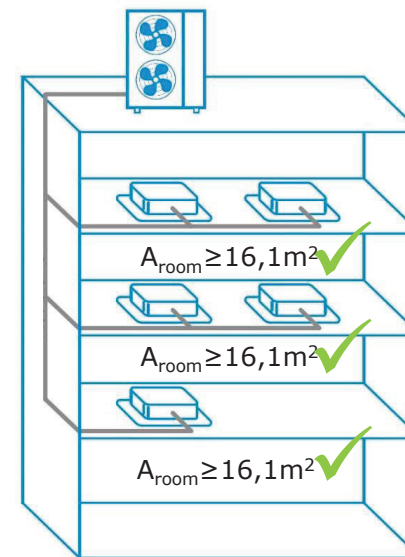
Required gap dimensions (upper and lower):



Disable Refrigerant Measures for Mini VRV

Practical example - Disable refrigerant control measures:

- Taking into consideration all the selections that have been made in VRV web Xpress, we get that the most selected VRV H/P system is an 8HP front blow unit (RXYSQ8TY1) with a total system charge of 8.9kg. For the indoor units we will use (5x) a 40-capacity class unit.
- Knowing that R32 allows for a lower refrigerant charge, we estimate that for a similar application in a front blow VRV 5 H/P (RXYSA8A) the total system charge will be of 8.2kg and considering an application where neither of units is installed in lowest underground floor, we get:



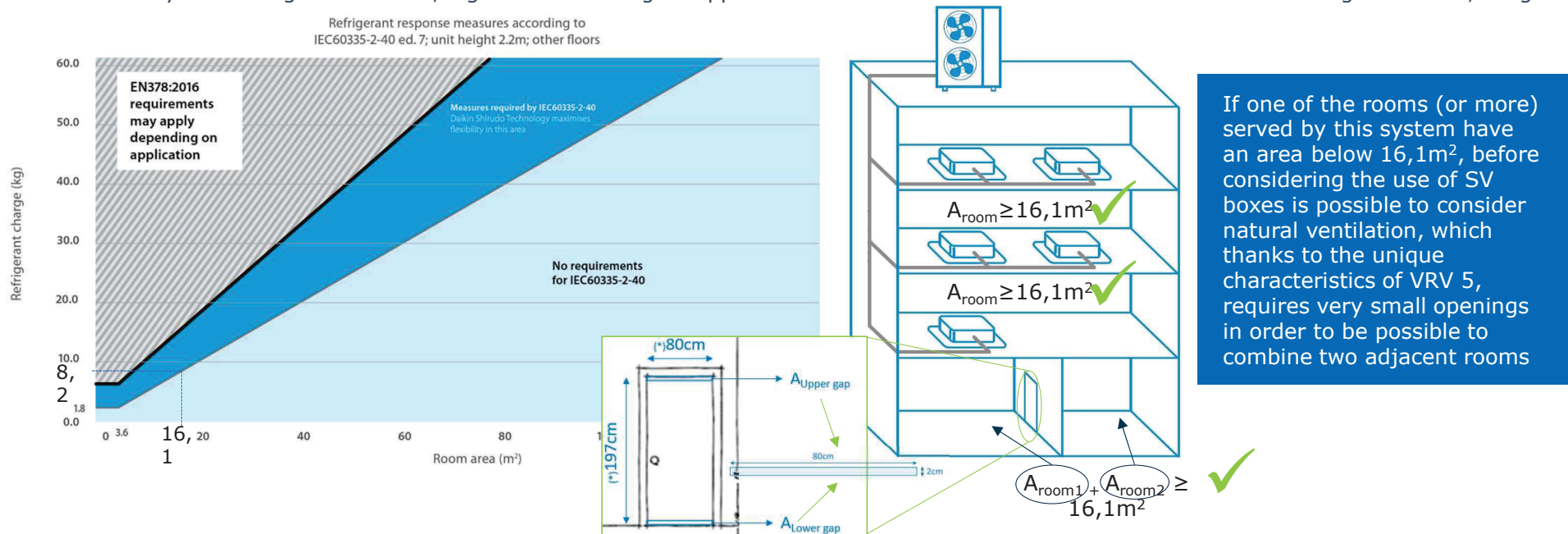
If all rooms served by this system have an area equal or above 16,1m², no additional measures are required to comply with requirements of IEC 60335-2-40.

Note: The IEC 60335-2-40 determines that for room areas above 250 m² the maximum charge must be calculated considering a room area of 250 m².

Natural Ventilation + Alarm + Leak Detection

Practical example - Natural ventilation + Alarm and leak detection:

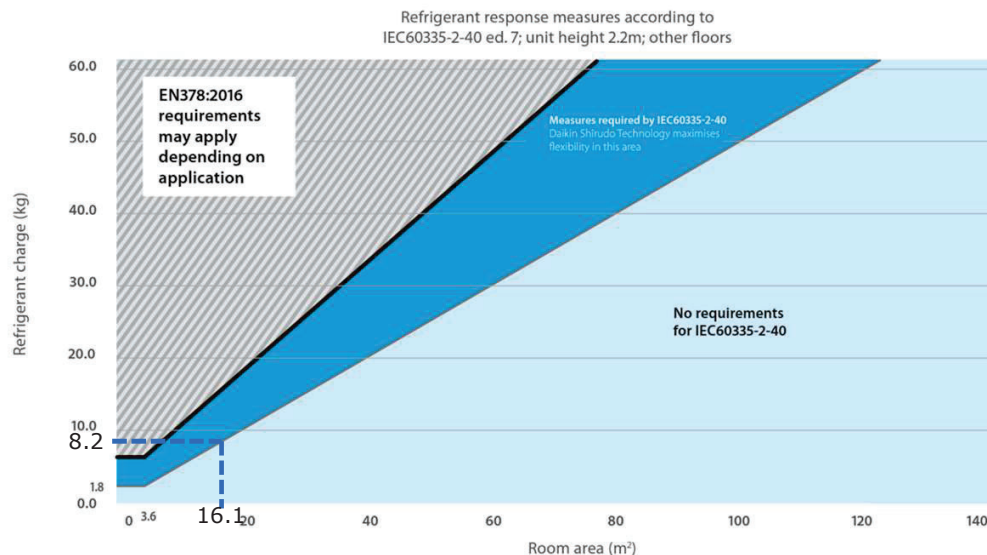
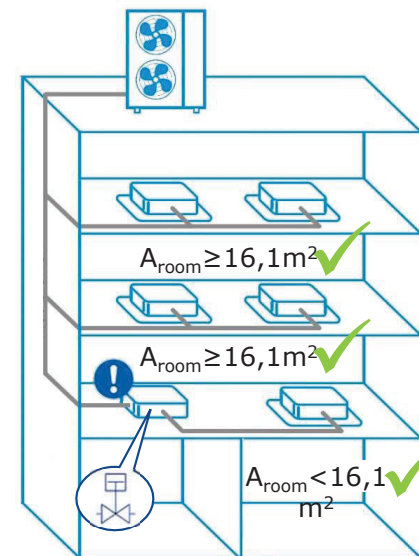
- Taking into consideration all the selections that have been made in VRV web Xpress, we get that the most selected VRV H/P system is an 8HP front blow unit (RXYSQ8TY1) with a total system charge of 8,9kg.
- Knowing that R32 allows for a lower refrigerant charge, we estimate that for a similar application in a front blow VRV 5 H/P (RXYSA8A) the total system charge will be of 8,2kg and considering an application where neither of units is installed in lowest underground floor, we get:



Integration of SV Boxes

Practical example - Integration of Shut-off valve boxes (SV Boxes):

- Taking into consideration all the selections that have been made in VRV web Xpress, we get that the most selected VRV H/P system is an 8HP front blow unit (RXYSQ8TY1) with a total system charge of 8,9kg.
- Knowing that R32 allows for a lower refrigerant charge, we estimate that for a similar application in a front blow VRV 5 H/P (RXYSA8A) the total system charge will be of 8,2kg and considering an application where neither of units is installed in lowest underground floor, we get:

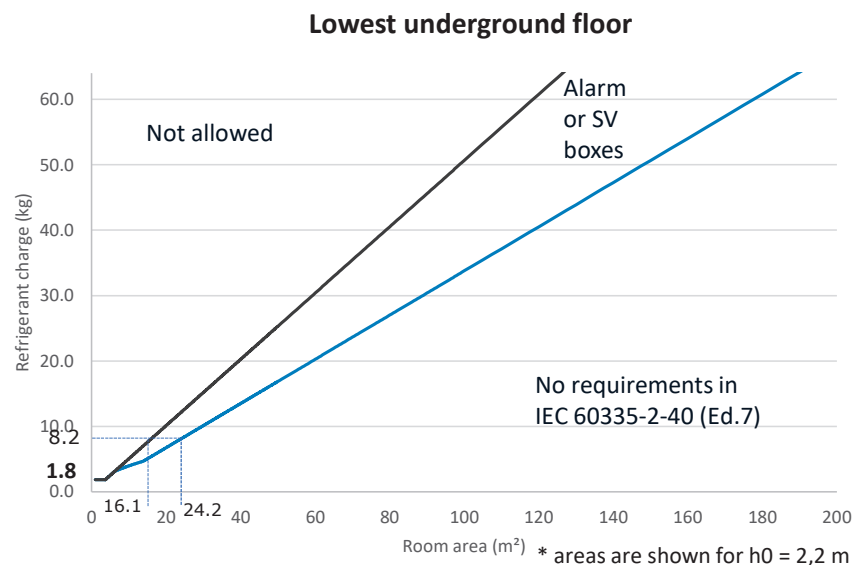
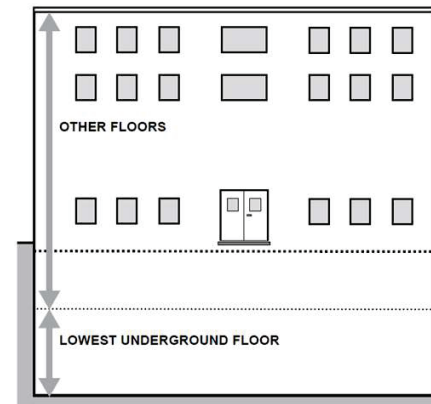


If one of the rooms (or more) served by this system have an area below 16,1m², than it's still possible to tackle this application via the use of an SV box which will ensure compliance to the requirements of IEC 60335-2-40.

Lower Underground Room Example

Practical example:

- Taking into consideration all the selections that have been made in VRV web Xpress, we get that the most selected VRV H/P system is an 8HP front blow unit (RXYSQ8TY1) with a total system charge of 8,9kg.
- Knowing that R32 allows for a lower refrigerant charge, we estimate that for a similar application in a front blow VRV 5 H/P (RXYSA8A) the total system charge will be of 8,2kg and considering an application where one of units is installed in lowest underground floor, we get:



In case of the lowest underground floor, it's possible to tackle room applications down to 24,2m² without any additional refrigerant control measures. For room sizes down to 16,1m², alarm (Madoka R/C) or an SV box is required according to the IEC 60335-2-40.

For this test case, in the lowest underground floor, is not possible to tackle room size applications smaller than 16,1m².

Factory Mounted Leak Detection

- ✓ The factory fitted measures are triggered by the refrigerant sensor that is factory installed in each Indoor unit. With this the VRV 5 achieves:
 - **No visual impact** for the end-user;
 - **No extra work** for the installer or consultant to search, purchase and install an appropriate leakage detection system;
 - **Peace of mind** for both the installer and the consultant.
- ✓ Daikin factory installed **sensor has a self testing routine, no additional field tests are required.** False detection is also tested;
- ✓ The sensor will have a **lifetime of 10 years**, counting from the moment the unit is connected to a power supply, after which it needs to be replaced. First alert is given 6 months before the end of the lifetime. When IDUs A1P PCB is replaced, leak sensor PCB must be also replaced;
- ✓ **No back-up power supply is needed** for the leakage sensor.



Integrated Alarms

All BRC1H52/82 Madoka remote controllers are equipped with the alarm function (both audible and visual alarms):

- ✓ The **alarm is used to warn of a leak in the occupied space, Madoka offers 2 different configurations:**
 - Remote control + Alarm → applications requiring remote-control functions,
 - Alarm only → applications where no remote-control functions are required;
- ✓ The **alarm shall be activated**, when a leak is detected, **through the refrigerant detection system**
- ✓ The **alarm needs to be visual (flashing light) and audible** (a loud buzzer, 15dBA above background level), **Madoka can provide:**
 - Visible → Daikin eye (red LED will flash),
 - Audible → buzzer > 65 dBA (sound pressure measured at 1 m distance);
- ✓ **At least one alarm** should exist **on the occupied space** where the leak could occur;
- ✓ Only a local safety alarm cannot be considered as an appropriate measure where occupants are restricted in their movement, sleeping facilities are provided, an uncontrolled number of people are present, or to which any person has access without being personally acquainted with the necessary safety precautions. For these applications, the **alarm needs to give a signal in the occupied room (e.g., Madoka in normal mode or alarm mode) and at a supervised location (e.g., Madoka Supervisor mode).**

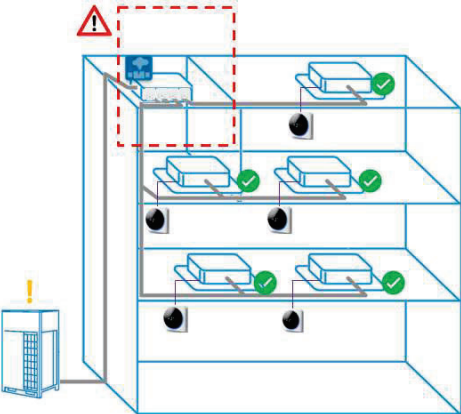
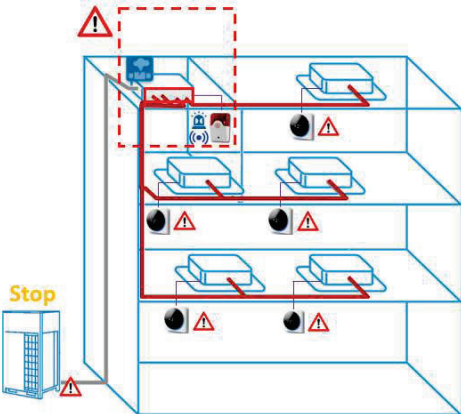
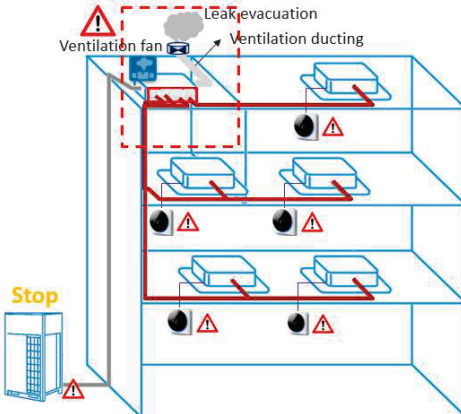
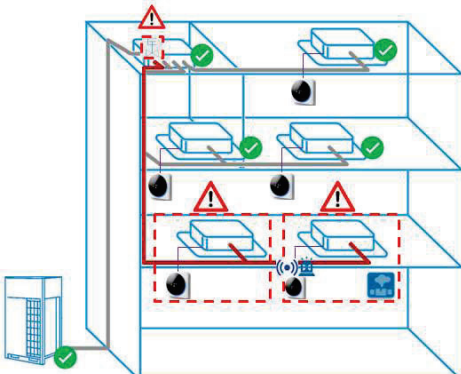


BRC1H52W

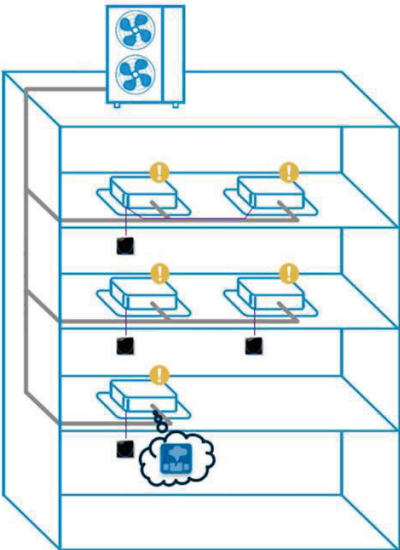
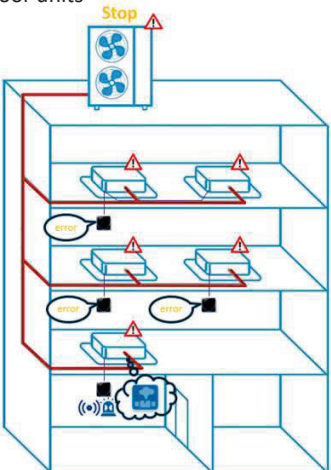
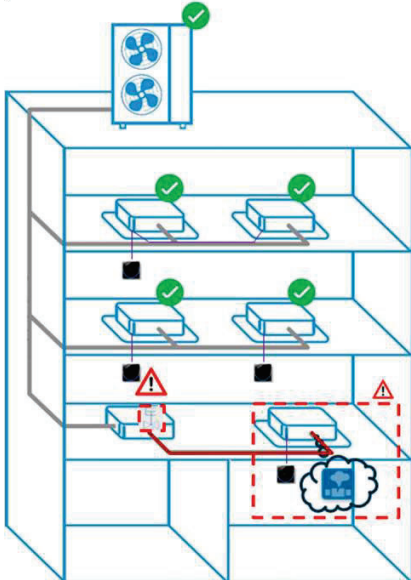
BRC1H52S

BRC1H52K

Heat Recovery System Response to Leakage

Leakage detected at BSSV Box level			Leakage at Indoor Unit
<p>Scenario A Room big enough to deal with leakage – No error or warnings are shown, system continues operation</p> 	<p>Scenario B Smaller room – alarm of the BSSV box is triggered & system goes into full stop after closing shut-off valves</p> 	<p>Scenario C Ventilated enclosure – extraction fan is activated to start the ventilation & system goes into full stop after closing shut-off valves</p> 	<p>Most of the system remains operational We will only close the shut-off valve connected to the indoor reporting the leakage – the rest of the system will remain in full operation</p> 

Heat Pump System Response to Leakage

Refrigerant Measures Disabled	Natural Ventilation + Alarm + Leak Detection	SV Box Included
<ol style="list-style-type: none"> 1. A leakage occurs in one of the indoor units 2. The leak is detected by factory integrated leak detector 3. Leak sensor is ignored, and no error or warning is shown. Room is wide enough to dilute the leak 4. System will eventually stop operation due to low refrigerant charge. 	<ol style="list-style-type: none"> 1. A leakage occurs in one of the indoor units 2. The leak is detected by factory integrated leak detector (room is wide enough to dilute the leak) 3. Audible and visual alarm on the remote connected to IU (and supervision alarm if applicable) is triggered and indoor unit stops operation, whilst fan dilution operation is triggered 4. Operation of compressor is stopped, and system goes in locked state to reduce refrigerant amount leakage (no impact for min. room size calculation) 5. Error message is displayed in the other indoor units 	<ol style="list-style-type: none"> 1. A leakage occurs in one of the indoor units 2. The leak is detected by factory integrated leak detector (room is wide enough to dilute the leak) 3. Audible and visual alarm on the remote connected to IU (and supervision alarm if applicable) is triggered and indoor unit stops operation, whilst fan dilution operation is triggered 4. Shut-off valve pair connected to indoor unit is closed, containing the leak. In case of indoor units are connected to 2 connected ports (e.g., a 200-capacity class unit connected to a multi-SV box), the two pairs of shut-off valves will close. In case other indoor unit are connected to the same SV box port, all indoor units connected to same branch as leaking indoor unit will stop operation 5. The outdoor unit & the other indoor units will remain operational. To resume operation on leak affected indoor units, an authorized service team needs to be called to repair the leak and re-activate the indoor units 

Group Control

Up to 5 indoor units can be grouped to the same Madoka remote controller, if they are installed in the same room ①.

The indoor units in group control shall either be all connected directly to the outdoor unit, or all connected to SV box ②. Mixture of the two is not allowed ③.

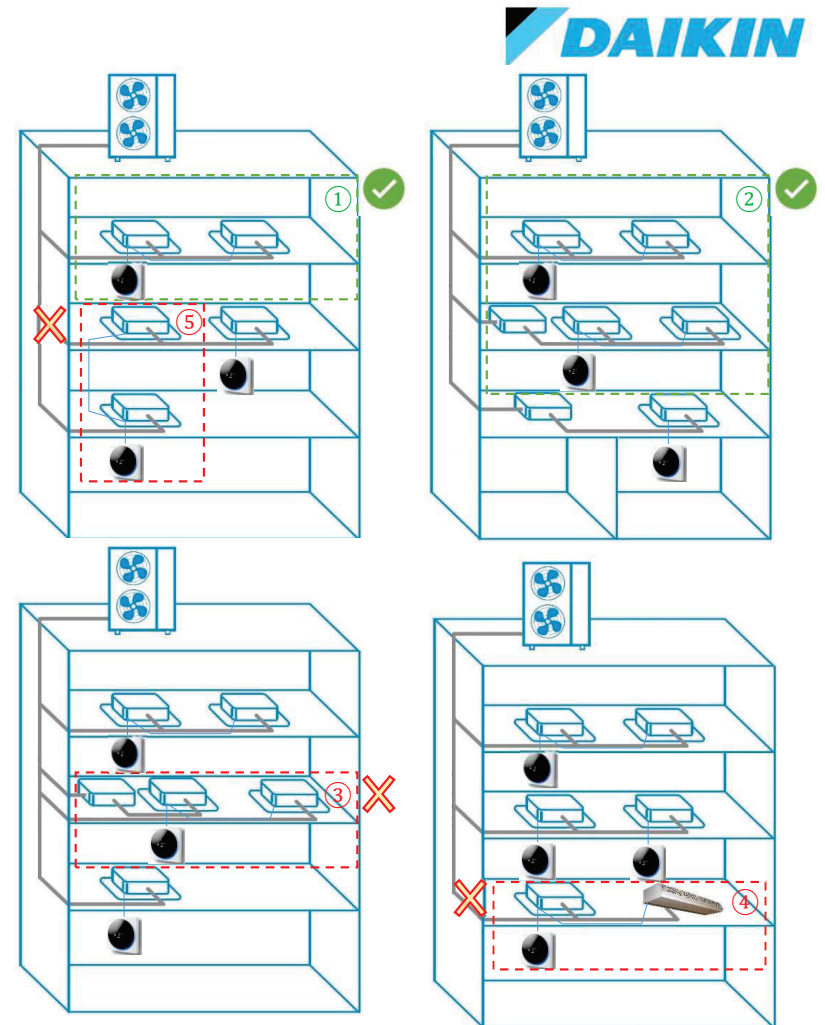
Indoor unit in group control can be connected to different ports of different SV boxes

Up to 5 EKEA+AHU or 5 Biddle can be connected in group control ④. However, the mixture of two or the mixture of them with DX indoor units in group control is not allowed.

Group control is not allowed for VAM-J8 + EKVDX

In the remote case of a leak, the alarm will identify the group of units in which the leak has been detected, but not the unit itself. All the units sharing the same remote controller will have a common response.

For units installed in different rooms units group control via R/C is not allowed ⑤, there should always be an audio and visual alarm where a unit or a group of units is installed.



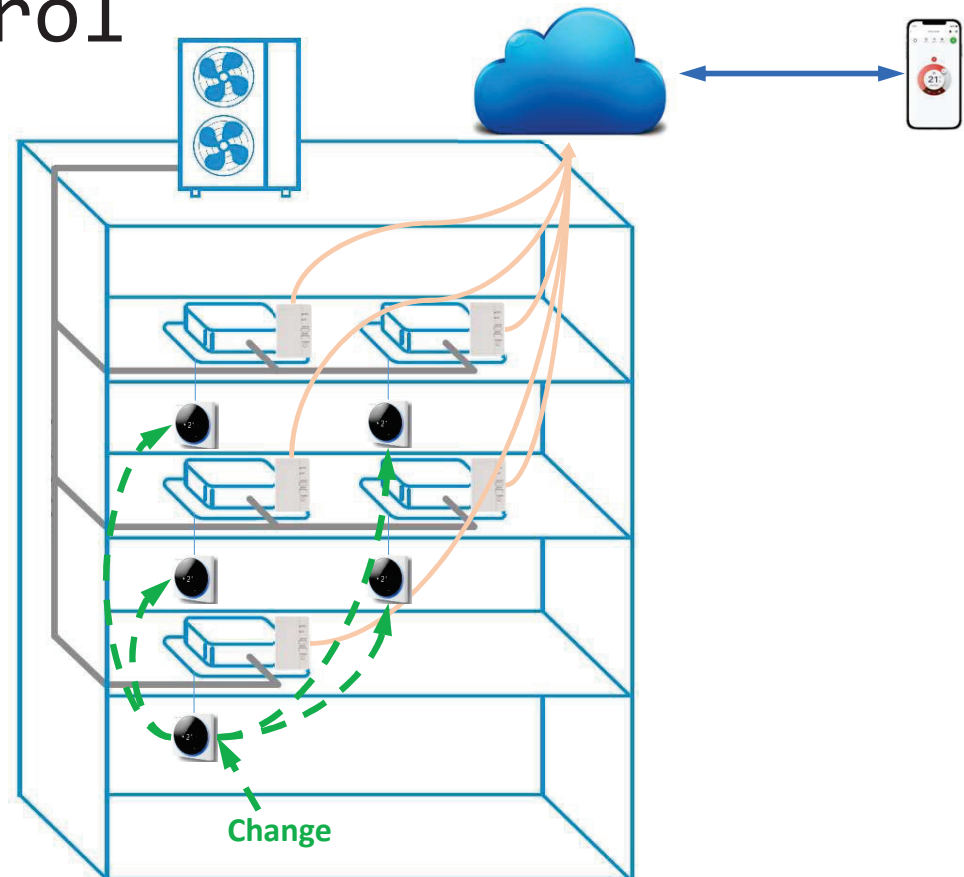
Software Group Control

As an alternative **up to 10 units** can be **grouped and receive a unified commands via online controller** (option BRP069C5), commands such as:

- ✓ On/Off,
- ✓ Operation mode,
- ✓ Setpoint,
- ✓ Fan Speed,
- ✓ & Schedules,

The replication of local actions via remote controller, can also be made via cloud connection through the online controller.
On this case a Madoka per indoor unit is still required.

For more details about the about this solution, please consult relevant documents of the online controller.



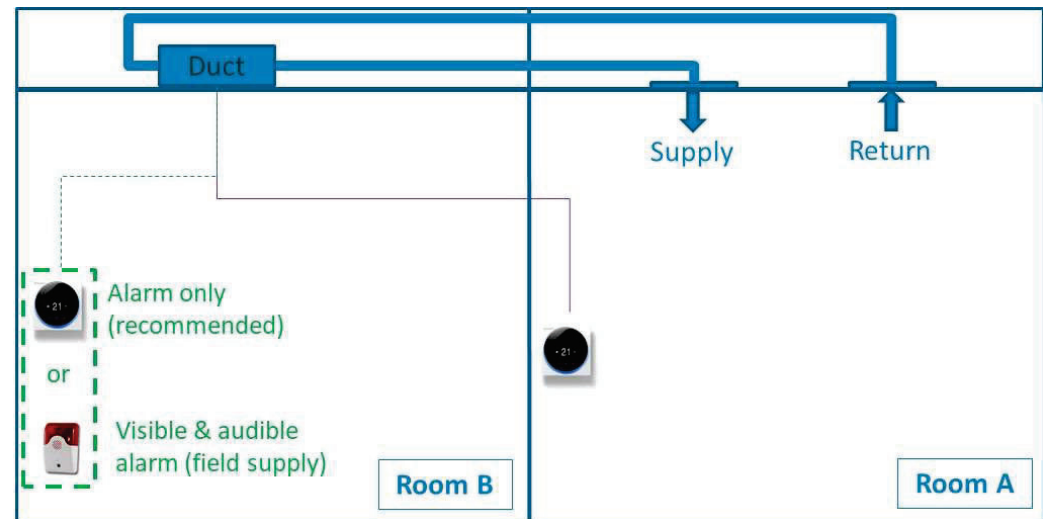
Ducted Units in Separate Room

In the case ducted units are installed as follows:

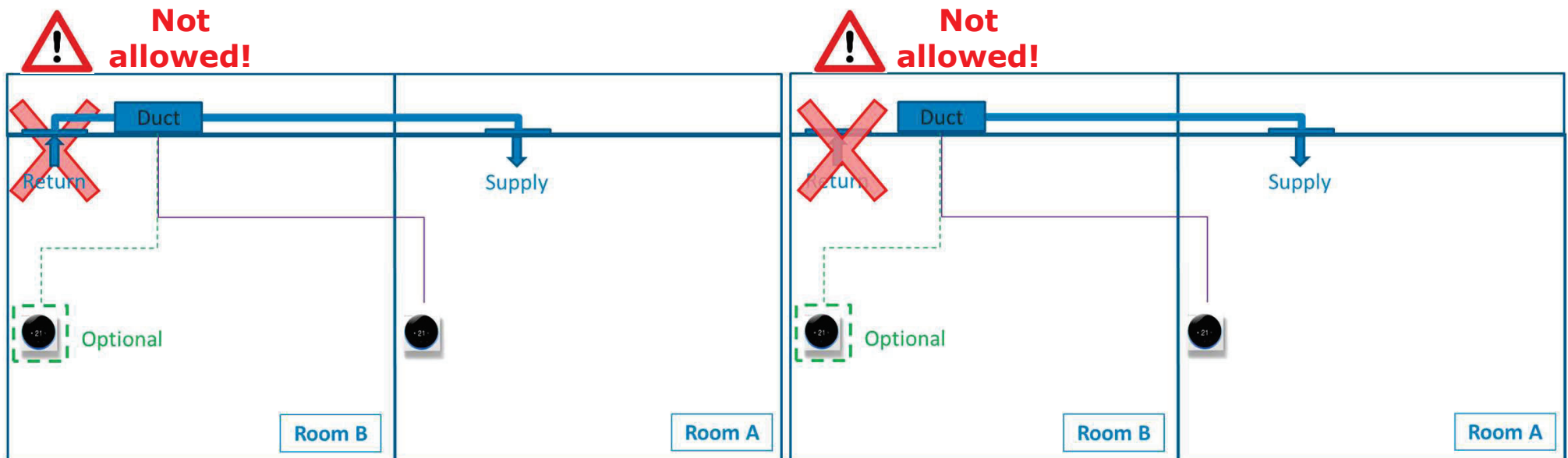
- Duct unit is installed in Room B
- Supply and return air are ducted to Room A

The countermeasures required per room are:

- Room A:
 - Madoka R/C
 - Shut-off valves
- Room B:
 - Shut-off valves
 - Madoka as an alarm or field supply alarm (visible & audible)



Ducted units in separate rooms

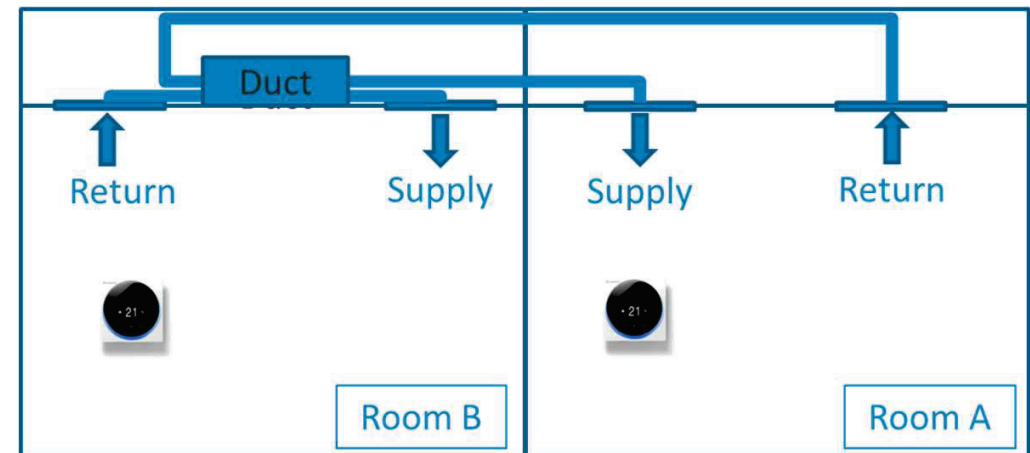


Ducted units in separate rooms

In the case a ducted units is serving multiple rooms the following requirements need to be met:

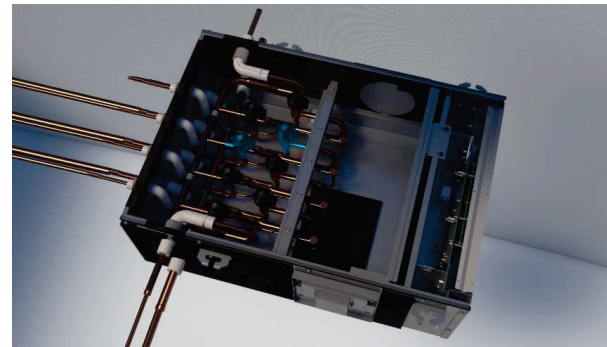
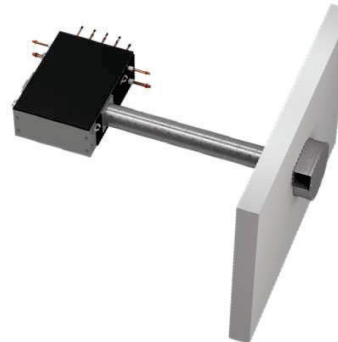
- Both rooms (Room A and Room B) need to comply with the minimum room area requirements, meaning both room areas cannot be combined;
- The Air inlet/outlet - where the air actually enter or leaves the ducting system - must be above 1.8m;
- If ducting from the unit is serving two (or more) separated rooms, then each of these rooms shall be served by a duct outlet (air to the room) and a duct inlet (air to the unit) from the same unit;

- All the rooms served by the same ducted unit shall have an audio and visual alert to the occupants of each room in case of a leak;
- A Madoka per indoor unit is required, in the other room it can be used either a Madoka or a field supplied alarm.



Optional SV Boxes for Heat Pump

- As previously explained, to have no limitations regarding room size requirements in compliance with IEC 60335-2-40 (Ed.7) some applications might require the usage of Shut-off valves. With this in mind, we've developed a range of Shut-off valve boxes with different port configuration that can easily match the specific requirements of each building, and which will allow you to tackle all possible applications;
- The Shut-off valves in the multi-ports will be fully independent of each other and will allow to multiple indoor units to be connected to a single port, meaning that in the remote case of a leak in one of the indoor units, only that specific unit or group of units connected to the same port would have to stop operation, all the other units will continue normal operation.
- The SV boxes, are as well factory mounted with leak detection, which allow the installation of the SV boxes in any room sizes, via integration of either:
 - 3rd party alarm
 - Ventilated enclosure



When are SV Boxes Needed?

Minimum room size requirements are given by the below graphs, 2 different conditions apply:

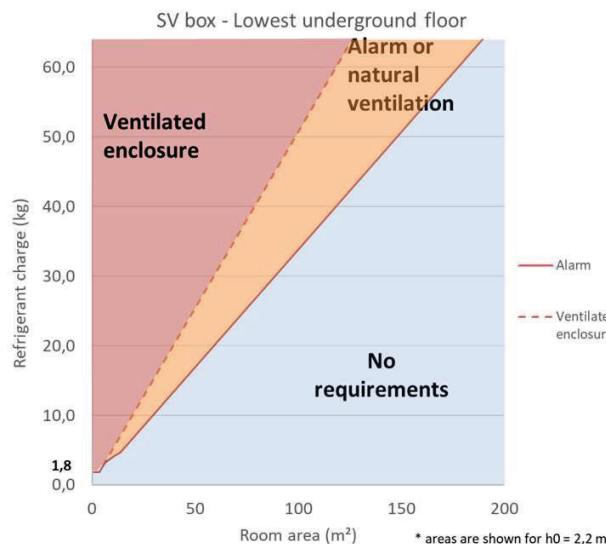
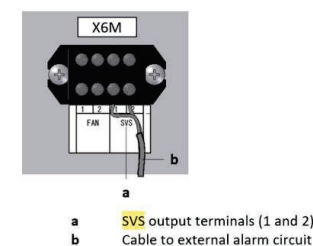
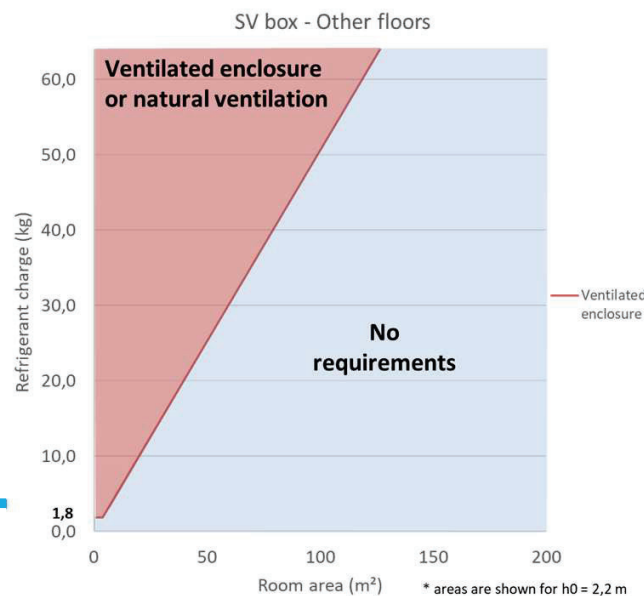
1. Lowest underground floor → more stringent requirements, but alarm (audio and visual) can be considered as additional measure to further relax the requirements for minimum room size requirements. To tackle all possible applications ventilation enclosure is as well available.
2. All the other floors → Similar room size requirements as per indoor units not connected to an SV box, for the most stringent applications it's possible to use the ventilated enclosure.

Alarm → Use a 3rd party audio and visual alarm connected to the SVS output contact. This output signal will be triggered if a leak is detected in the SV boxes. Not allowed if the SV boxes are installed where people are restricted in movement.

Ventilated enclosure → The SV boxes can be ducted to the outdoors (large enough rooms TBC) and a field supplied fan must be installed. The fan will be triggered in case of a leak via the integrated leak detection.

In case a leak is detected in an SV box triggering either the alarm, or the ventilated enclosure, full system operation will stop. If room is wide enough to dilute the leak and no additional measures are considered, system will continue operation till it stops due to low refrigerant charge.

The Shut-off valves do not require a separate power supply



Note: The IEC 60335-2-40 determines that for room areas above 250 m² the maximum charge must be calculated considering a room area of 250 m².

Ventilated Enclosure for Heat Pump

Application of the ventilated enclosure will follow the same rules as per the one's already existing today for the BSSV boxes, find here below the summary of the main points:

- ✓ Ducting and fan selection will be easily selected via VRV Xpress.
- ✓ Duct connection diameter is 160mm;
- ✓ Large ducting network is supported thanks to the SV boxes constructive characteristics allowing them to support under pressures of up to 350Pa! (At the fan side, it's possible to achieve higher under pressures than in the SV box due to pressure drop in ducting & fittings between BSSV box & fan);
- ✓ The table below, is summarized what are the legal requirements, as described in the installation manual. A safety factor will be considered for Xpress integration to accommodate field uncertainties (reference used values are based on ASHRAE, which might not match the specifications of field equipment):

Unit	Legally required
	Minimum air flow rate inside the BS unit which is 20 Pa below ambient pressure
SV1-4A*	82 m ³ /h
SV6-8A*	84 m ³ /h

3rd Party Certification



- ✓ The complete system will be 3rd party certified by a notified body (SGS) to compliance to IEC 60335-2-40 (Ed.7).

IEC IECB CB SCHEME		Ref. Certif. No.
		DE 2-023332-M1/A1
IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME		
CB TEST CERTIFICATE		
Product	Air conditioner Outdoor Unit	
Name and address of the applicant	Daikin Europe N.V. Zandvoordstraat 300 8400 Oostende, Belgium	
Name and address of the manufacturer	Daikin Europe N.V. Zandvoordstraat 300 8400 Oostende, Belgium	
Name and address of the factory	Daikin Europe N.V. Zandvoordstraat 300 8400 Oostende, Belgium	
Ratings and principal characteristics	380-415V; 50/60Hz; IPX4; R32; 1) 14.8A/14.6A; 2) 15.7A/15.1A; 3) 15.4A/15.1A 4) 12.3A; 5) 15.4A 6) 15.7A	
Trademark (if any)	Daikin	
Customer's Testing Facility (CTF) Stage used	CTF stage 1	
Model / Type Ref.	1) RZASG/AZAS100M7Y1B; 2) RZASG/AZAS126M7Y1B; 3) RZASG/AZAS140M7Y1B; 4) RZAG71N7Y1B; 5) RZAG100N7Y1B; 6) RZAG125N7Y1B; 7) RZAG140N7Y1B	
Additional information (if necessary may also be reported on page 2)	edition of models; administrative corrections; see also test report ref. no 60137338 001; models differ in ratings	
A sample of the product was tested and found to be in conformity with	IEC 60335-1:2010 + A1 + A2 IEC 60335-2-40:2018	
As shown in the Test Report Ref. No. which forms part of this Certificate	60137338 002	
This CB Test Certificate is issued by the National Certification Body		

Service Requirements

With the introduction of Ed.7 of IEC 60335-2-40 it's no longer required if to have the yearly check of the AFR requirements in case the SV boxes are used, and the ventilated enclosure was required. Still the warning of periodic checks is available as an optional feature in case customers wants to have them.

Every 10 years checks:

- The leak sensors needs to be replaced, both for the SV boxes (if applicable) and for the indoor units;
- The 10 years start to count from the date the units are powered-up;
- Lifetime can be checked on 7 segment display on main PCB of SV box or in case of IDU can be checked in the R/C app;
- 6 months prior to the 10-year period has elapsed, an error message is generated in the remote controllers, with no impact on normal operation. In case of the SV boxes the error message is generated on the remote controllers of all indoor units connected downstream;
- After the 10-year period has elapsed:
 - In case of indoor units → Error code is generated on the R/C to mandate replacement and operation will be blocked;
 - In case of SV boxes → Error code is generated on the R/C to mandate replacement of sensor for all indoor units connected downstream of the SV box, but system resumes normal operation. If the SV box is ducted and connected to an external ventilation fan the damper is opened and ventilation fan is operated,
- After the sensor is replaced, a setting needs to be made to confirm replacement and reset time.

