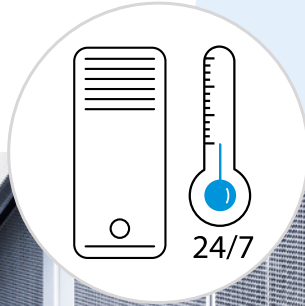




SkyAir
BLUEEVOLUTION

Reliable and cost-effective
technical
cooling solutions



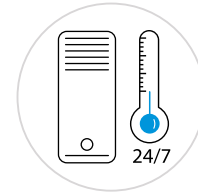
With R-32
refrigerant

For server rooms, telecom shelters, laboratories, IT applications

Infrastructure cooling

Why is it needed?

An infrastructure cooling system removes the heat that is constantly generated by IT equipment, servers and business supporting equipment.



- For rooms and enclosures that require round-the-clock cooling
- Where continuous uptime is the absolute requirement for
 - server data protection
 - equipment protection

To serve the increasing digital and mobile data requirements of businesses and online consumers, the IT equipment, telecom and server infrastructure have to function round the clock. Unexpected or unplanned downtime is not only costly to businesses but also impacts end-consumers who depend on the continuous access to data connections for day-to-day activities. 24/7 operations of the infrastructure in turn increase the heat loads generated within the IT/server rooms and telecom shelters. Therefore your business infrastructure requires **reliable, efficient** and **flexible** cooling to ensure maximum uptime while offering the best return on investment.

25%

Basic cooling

Small split systems and Rooftops

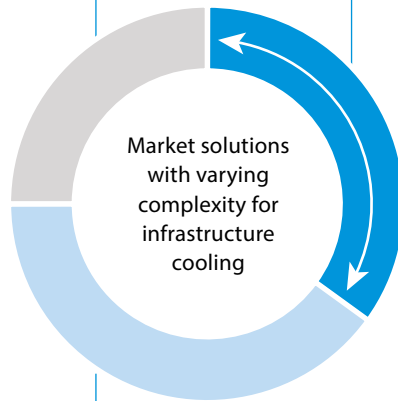
- low initial costs
- higher running costs
- limited flexibility

40%

Sophisticated precision cooling

Closed Control Systems

- high investment cost
- operation down to -20°C
- precise temperature control $\pm 1^\circ\text{C}$ deviation
- humidity control
- large footprint occupies available rack space
- free cooling and mixed operation



35%

Reliable continuous cooling

Sky Air systems

- good return on investment
 - low running costs from better energy efficiency
 - low upfront costs
 - small physical footprint
 - free cooling
- proven reliability
 - wide operation range down to -20°C and up to +52°C
- high flexibility
 - better suited indoor units
 - modular build up
 - controls (duty rotation)

Infrastructure cooling environments



Telecom shelters



Server rooms



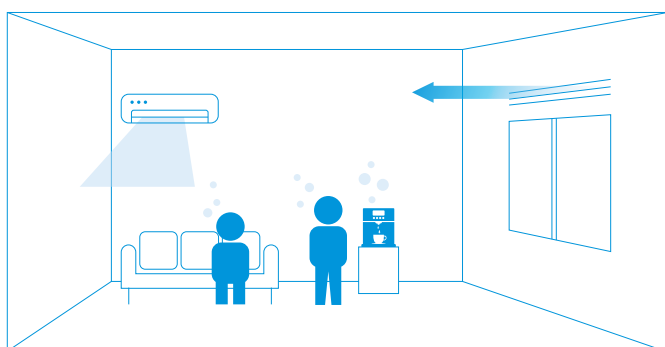
Laboratories

Specifically designed for infrastructure cooling applications

Understanding the mission-critical cooling application environment

Comfort cooling

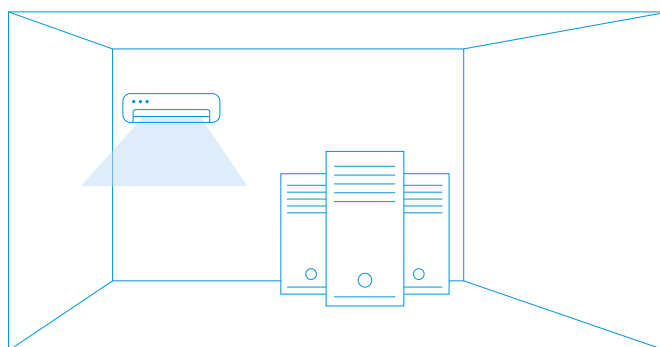
- Humidity is present
- Balanced sensible and latent capacity



- 60-70% temperature control
- 30-40% humidity control

Infrastructure cooling

- No or limited humidity
- Pure sensible capacity



- 80-90% temperature control
- 10-20% humidity control

Low humidity levels

Unlike a normal living environment, a typical server room or technology infrastructure environment does not generate or minimally generates humidity and moisture. Continuous cooling of such rooms also removes the humidity. Average relative humidity (RH) levels in server rooms or infrastructure rooms are lower than 30%.

These low humidity levels reduce the ability to transfer heat loads (to cool down the server rooms). Therefore the need **to boost** the cooling capacity of the indoor system.

Need for a reliable backup system

- When a failure occurs (error or shutdown by the temperature protection function), a dependable backup system should take over instantly
- Flexible control is needed to improve the reliability of the backup system

Constant cooling set at 20-22°C

- Protection of server equipment and back up power supply
- Emergency power supply lifetime is temperature dependant
- There is adequate buffer to compensate a potential rise in temperature
- In general, servers and other equipment infrastructure fluctuate in activity, so have increased flexibility to maintain constant temperature level

Correct system selection is critical

- Failure of the cooling system to provide the required capacity at any time can lead to infrastructure downtime and result in business costs
- It is critical to install the right combination of a split cooling system which can guarantee reliable operation 24/7, year-round

Why choose Daikin?

Daikin is the world leader when it comes to heating and cooling. With over 90 years of innovation and engineering expertise in specialised cooling, Daikin offers a Sky Air solution that is **reliable**, **efficient** and **flexible** to meet the demanding needs of infrastructure cooling environments.

Reliable

Guaranteed system operation:

- Oversized indoor units boost cooling capacity and prevent freeze-ups on the indoor side
- Wide operating range envelope: operation range in cooling down to -20°C and up to +52°C

Efficient

Optimum return on investment:

- Lowers running costs by using highly efficient direct expansion cooling systems
- Lower running costs compared to other DX systems and water based chillers.
- Reduces mechanical cooling and energy consumption with the free cooling option for single phase systems

Flexible

- Scalable in capacity
- Improved infrastructure control and management
- Lower physical footprint since no floor space is occupied
- Wide range of indoor units to suit application preferences (ceiling suspended cassettes, wall mounted indoors, concealed ceiling ducted type indoors)

page 5 **UNIQUE**

Boosted capacity system combinations for high sensible cooling

Benefits

1. Boost the heat transfer capacity of the indoor system
2. Ability to work with higher evaporation temperatures (Te) avoids downtime and enables continuous operation
3. Official energy labels for indoor and outdoor system combinations provide standardized and reliable performance data

page 6 **UNIQUE**

2-step solution for system selection

Benefits

1. Daikin makes the system selection procedure easy and reliable by providing detailed capacity tables based on extensive testing.
2. Choose the best product combination that meets end-user requirements

page 12 **UNIQUE**

Efficient cooling

Benefits

1. Free cooling: optimum energy efficiency using cold ambient air
2. Widest range of indoor systems with best in class energy efficiency
3. Wide indoor and outdoor operation range, reliable performance even in extreme conditions

page 14 **UNIQUE**

Flexible control

Benefits

1. Optimal backup supported by duty rotation control, automatic backup activation and remote alarms
2. Guaranteed continuous operation from extended compressor limits
3. Controller settings to adapt to specific infrastructure cooling environment conditions
4. Fewer start/stop cycles

Boosted capacity indoor systems

High reliability at lower running costs for infrastructure cooling

Split air conditioning systems for normal comfort cooling applications usually combine indoor systems with matching capacities, or multiple indoor systems with capacities lower than the outdoor system's capacity. This works because the indoor system's cooling capacity is sufficient to handle the higher humidity conditions and varying indoor temperature requirements that are common in a normal living environment.

Indoor systems for infrastructure cooling environments need enhanced capabilities for continuous heat transfer because they work harder to extract energy by cooling dry air. Daikin recommends and offers asymmetric combinations (boosted capacity indoor combinations: e.g. 71 class outdoor + 100 class indoor).

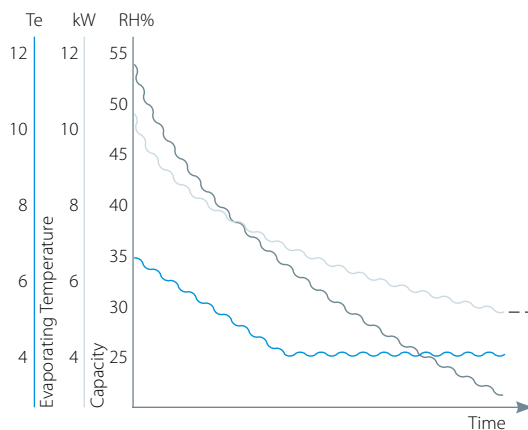
Applying this design logic to infrastructure cooling environments can lead to risky situations that might compromise overall system reliability and frequent downtimes of 15 minutes.

You can now confidently combine indoor systems with higher capacities than the outdoor system. This will boost heat transfer inside the technology or server room environments.

Infrastructure cooling application system solutions

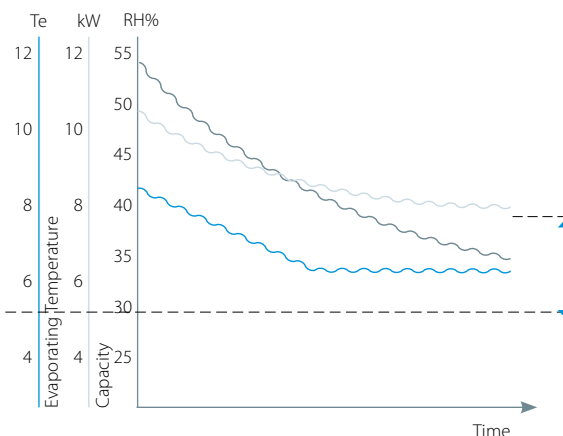
Traditional solution

Symmetric indoor-outdoor system combination



- Relative Humidity: ■ reduces over time
- Capacity: ■ reduced
- Evaporating temp: ■ drops to compensate reduced capacity
- too low Te can lead to freeze-up prevention, causing system downtime

Dedicated solution



Improved solution

- 👍 Boosted capacity indoors increase the heat transfer capacity at low relative humidity
- 👍 Allows the system to operate with higher Te, guaranteeing continuous operation and reducing unwanted dehumidification

Between 20-40% sensible capacity increase

Up to 18% savings on running cost

Low humidity + Low ambient environment

Outside temperature Ta	-5 °C
Set-point	22 °C
Humidity	35 %
Indoor wet-bulb temperature	13 °C

EER	
traditional solution	100%
improved solution	82%

18% savings

traditional solution

RZAG71 + FAA71	
Total Capacity (TC)	5.63 kW
Sensible Heat Capacity (SHC)	4.28 kW
Power Input (PI)	2 kW
Co-efficient of Power Input (CPI)	0.39
Corrected PI	0.78 kW
EER*	5.5

dedicated system combination solution

RZAG71 + FAA100	
Total Capacity (TC)	6.02 kW
Sensible Heat Capacity (SHC)	6.02 kW
Power Input (PI)	1.72 kW
Co-efficient of Power Input (CPI)	0.45
Corrected PI	0.77 kW
EER*	7.82

Sensible Heat Capacity increases 20-40% with dedicated system combination.

*EER = (SHC/Corrected PI)

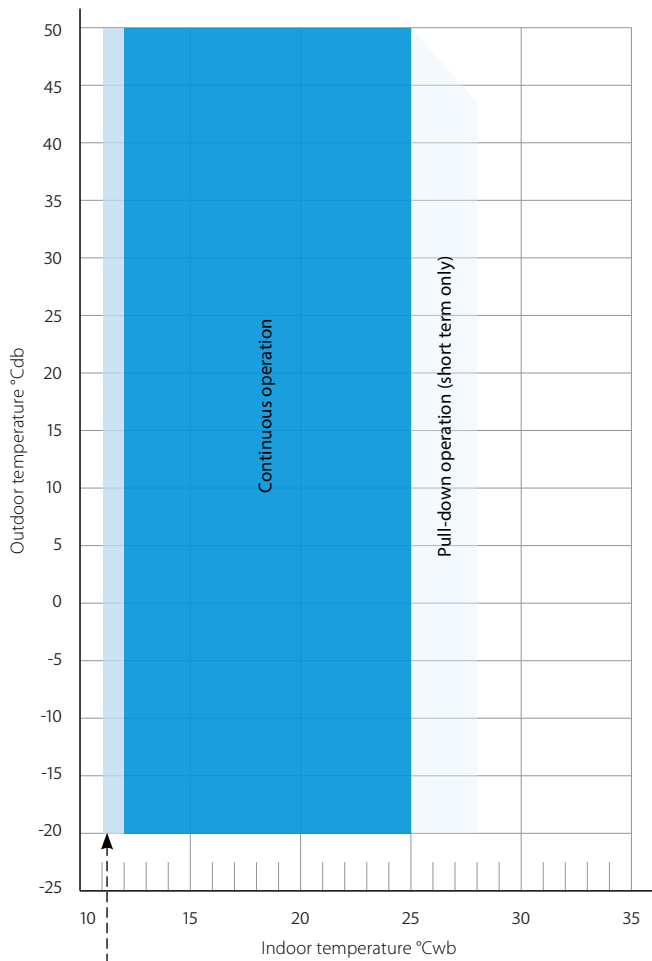
Efficient cooling

Wide operating range



Because infrastructure cooling systems must perform continuous cooling operations and may be required to run in demanding outdoor conditions, a flexible operating temperature map is critical. Daikin Sky Air infrastructure cooling systems offer reliable performance during extreme conditions.

- ✓ Outdoor cooling operation down to -20°C Ta
- ✓ Continuous cooling operation in outdoor temperatures as high as 52°C
- ✓ Extended indoor operation range from 12°C to 11°C Wet Bulb
Wet Bulb allows the indoor unit to operate at lower humidity



11 Indoor Operation range extended down to 11°C WB

Cooling operation

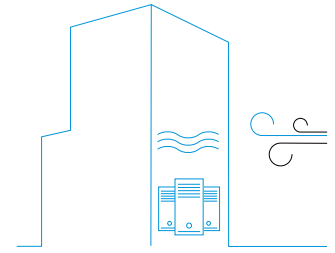
Infrastructure cooling applications have minimal relative humidity, which results in a low indoor Wet Bulb temperature. The units may operate close to, or just outside, their official operating range. Sky Air Seasonal Smart can be set to widen the indoor cooling operation range down to 11°C Wet Bulb temperature.

Typical IT or infrastructure room

Set point: 20°C
 Humidity: 30% RH
 Indoor Wet bulb temperature: 11°CWB
 By setting the controller from factory default 16 (26) - 2 - 01 to infrastructure cooling 16 (26) - 2 - 03, the indoor operation range increases from 12°C to 11°C Wet Bulb.

Free cooling

Lower energy consumption



Ensuring uptime for infrastructure cooling applications comes at the cost of higher energy consumption than in comfort cooling applications. Daikin Sky Air infrastructure cooling systems offer you a leading solution for year-round efficiency, while decreasing your running costs.

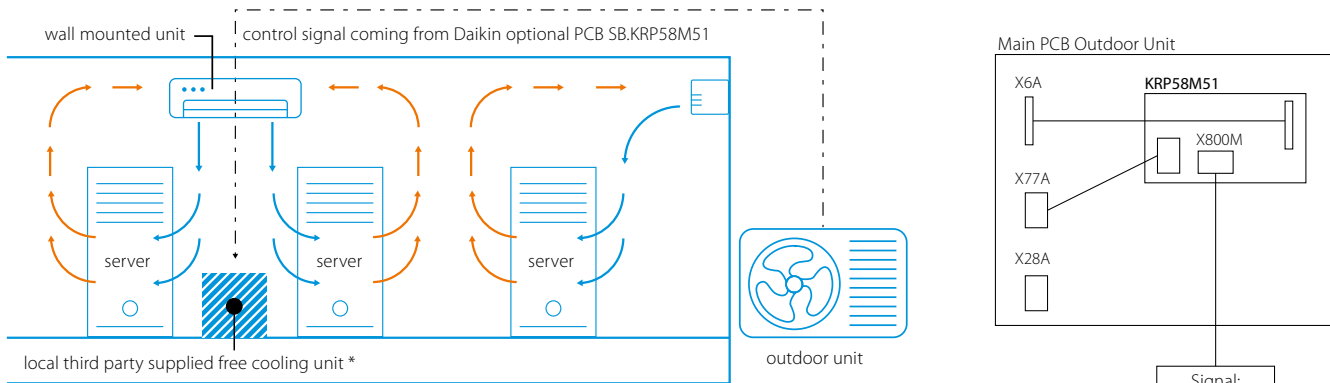
The energy savings potential of operating in free cooling mode in certain climates is an attractive proposition for continuous cooling environments.

Operating in free cooling mode saves energy by using outdoor air during colder months, which allows refrigerant-based cooling components such as compressors to be shut off or to operate at a reduced capacity.

Daikin Sky Air RZAG-N series provides a control signal that is intelligently based on:

- the indoor set temperature
- the actual indoor temperature
- the outdoor temperature

Typical Server room installation with a free cooling unit



* The free cooling unit should be installed opposite to the indoor unit, in such a way that there is no recirculation of cold air blowing from the free cooling unit.

With the free cooling 230 V signal supplied through optional control board SB.KRP58M51 available only for RZAG-N series outdoor systems, you can control a field supplied free cooling unit.

It is important to make setting 2-53-02 in case of the use of free cooling. This to guarantee that the free cooling will start up before the outdoor unit.

Energy efficiency benefits from free cooling

Estimated Annual Savings Potential for a typical small IT room operating 24/7/365

Boosted capacity indoor unit: FHA100, outdoor unit: RZAG

- Cooling load: 6.8 kW
- Set point: 20°C
- RH indoor: 30%
- Free cooling if $\Delta T_a > 5^\circ\text{C}$

ΔT_a = difference between indoor and outdoor temperature

Air flow (m³/h)	Estimated annual savings (euro)				
	United Kingdom London	Germany Berlin	Poland Warsaw	Austria Vienna	Czech Republic Prague
500	212	275	158	142	185
1000	376	458	267	256	318
1500	436	516	307	313	370
2000	464	550	325	342	392

The savings depend greatly on climate, (ΔT_a), air flow volume and local electricity prices

Flexible control

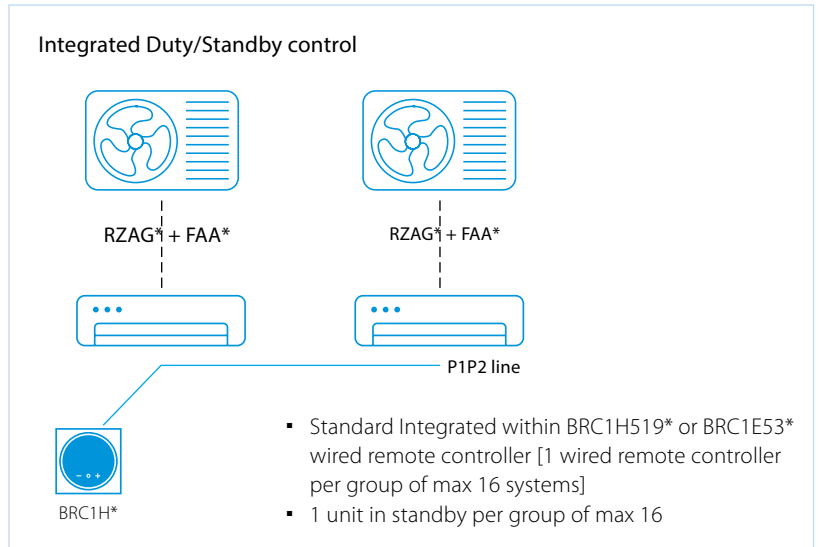
Flexible and reliable operation of the IT, server or data support infrastructure requires a scalable and redundant cooling infrastructure. Operators of infrastructure cooling environments also need easy means of controlling and pre-programming the cooling systems. Daikin Sky Air solution for infrastructure cooling offers control choices to address the demanding operational needs.

Standard integrated duty rotation and standby control

Standard control solution for most installations

1. Add **redundancy** for critical IT applications
 2. Increased **lifetime** of the system by altering operating units
 3. **Back-up** operation: If one unit fails, the other unit will automatically start.
- Duty rotation: After a certain period* of time, the operating unit will go in standby and the standby unit will take over.
 - Possibility to lock on/off and lock the mode button on the Remote Controller
 - Possibility to limit the setpoint range

* Rotation interval can be set from 6h, 12h, 24h, 72h, 96h, weekly



Madoka Assistant



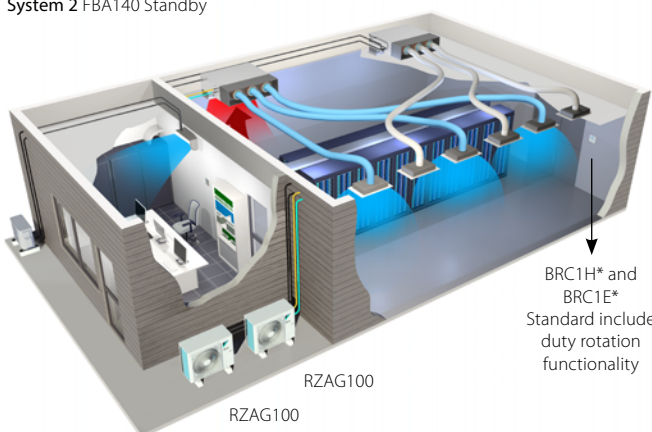
BRC1H*

Typical infrastructure cooling units	Modelname	
Wired remote control	BRC1H* or BRC1E*	
Concealed ceiling system	FBA*	
Wall mounted system	FAA*	
Ceiling suspended system	FHA*	

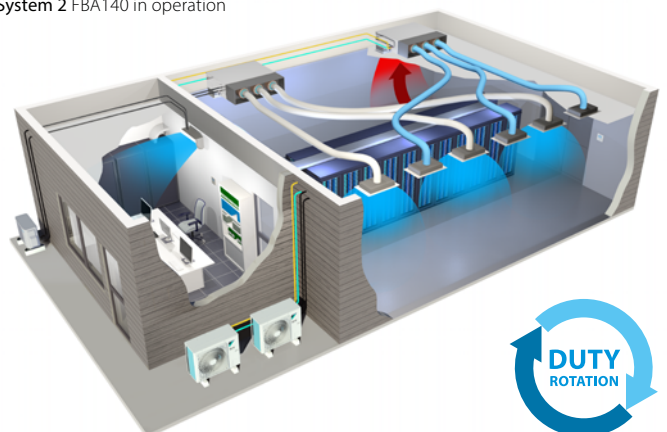
Duty rotation available on all Sky Air indoor units. Refer to combination table for detailed information on page 6.

Application Example

System 1 FBA140 In Operation
System 2 FBA140 Standby



System 1 FBA140 standby
System 2 FBA140 in operation



Maximum reliability and flexibility for continuous operation

Advanced and scalable control

Modbus gateway RTD-10 option

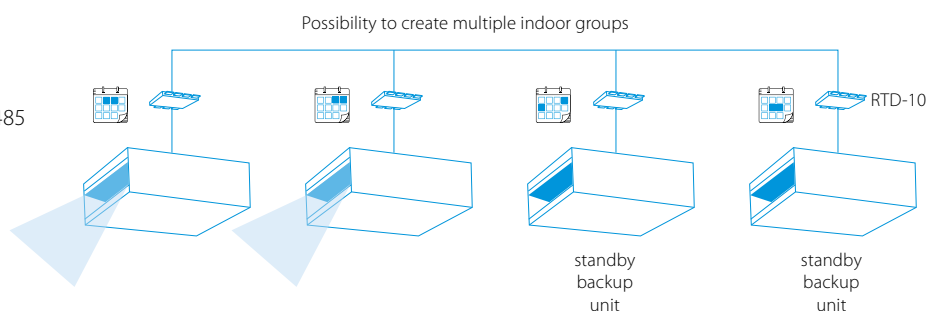
- **Automatic control** of indoor temperature
- **Guaranteed cooling operation mode**
- **Backup operation:**
 - If one unit fails, the other unit will automatically take over
 - When the temperature overshoots the standby unit will start operating
- **Duty rotation:** After a certain period of time, the operating unit will go into standby mode and the standby unit will take over
- **Rotation interval** can be set for 1 day, 1 week, 2 weeks or 4 weeks
- **Remote alarm signal**

Wiring scheme

Example: 2 operating units, 2 standby units

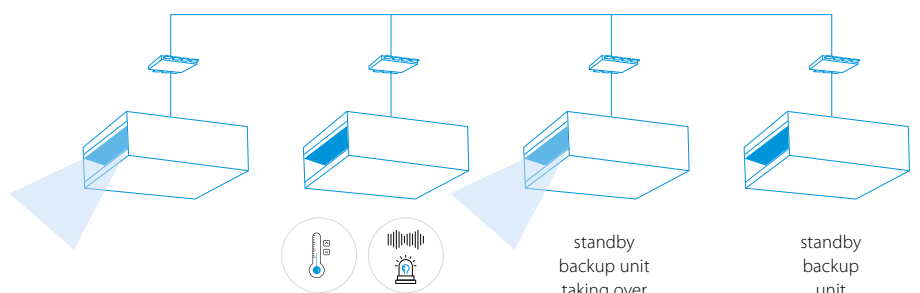
Dedicated duty / standby control

- RTD-10 [1 gateway for 1 indoor unit (group)]
- Up to 8 RTD-10 units can be combined in RS485 network
- 1 or 2 standby units per group



Backup operation

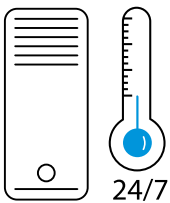
The failure of a unit initiates a safety procedure where the standby backup unit takes over automatically and a repair alarm is sent.








Controls - main functions overview

Infrastructure cooling



	Unit	Integrating	Advanced
			
	BRC1H52W7/S7/K7	RTD-10	DCM601B51
	1 remote controller for 1 indoor unit (group) (2)	1 gateway for 1 indoor unit (group) Up to 8 gateways can be linked together	1 iTM for 64 indoor unit(s) (groups) (1)
Automatic control of A/C	•	•	•
Back-up operation	•	•	•
Duty rotation	•	•	•
Limit control possibilities in the technical cooling room	•	•	•
If room temperature above max., then show alarm & start standby unit.		•	•
If an error occurs, an alarm will be shown.	•	•	•
If an error occurs, activate an alarm output	Via KRP2/4A option (3)	•	Via WAGO I/O

(1) 1 iTM plus adapters (DGE601A52 and DGE601A53) can be added to have 512 indoor groups and 80 outdoor (systems) | (2) Infrastructure cooling functions only compatible with indoor units connected to RZQG*/RZAG* outdoor units. | (3) See option list of indoor unit



Dedicated field settings

Adapted to the specific needs of infrastructure cooling

Overview of all settings for RZAG-N* series

	Function	Description	Setting	Where	Note
Field settings	Infrastructure Cooling Setting (EDP)	Low Humidity application	2-5-2	Outdoor unit - PCB setting	Continuous cooling operation for low humidity applications
	EDP Setting + Avoid unit OFF time	Slow Start + Increased Hysteresis	16(26)-7-02	Indoor Unit - Remote Controller	
	Maximize airflow	Set airflow high + ceiling soiling prevention	13(23)-0-03	Indoor Unit - Remote Controller	All indoor units except FAA
	Free cooling	To set optimal unit start in free cooling mode	2-58-2	Outdoor unit - PCB setting	
	Quick commissioning setting	Combined setting of 2-5-2 + 16(26)-7-02 + 2-58-2	2-57-2	Outdoor unit - PCB setting	
Options	Function		Option	Note	
	Backup operation, Duty Rotation, Additional unit comes in to deliver capacity, Visual Alarm Signal, I/O BMS connection - Forced On/Off operation + Alarm Monitoring		RTD-10	High end solution up to 8 indoors (1 per indoor unit)	
	Backup operation, Duty Rotation, I/O BMS connection - Forced On/Off operation, Sequential start control, Minimum Guaranteed units for Operation		DTA113B51	Basic solution up to 4 indoors (1 per group of 4 indoors)	
	Free cooling		SB.KRP58M52		
Above-mentioned+ mini-BMS connection and energy management		DCM601B51	iTM solution		

Continuous cooling operation

Avoid downtimes with specific system settings:

In low humidity environments indoor unit freeze-up is less likely. The setting 2-5-2 on **RZAG-N** series allows you to boost the indoor capacity and enables quick restart conditions in case of freeze-up prevention.

For **RZAG-B** series this setting is automated and is activated under -10°C outside temperature. This enables almost continuous heating and restart in case of freeze-up prevention.

Daikin recommends to enable 2-57-2 for infrastructure cooling applications

Built-in settings for improved operational reliability

When using standard AC systems for infrastructure cooling, frequent start / stop cycles of the compressor can occur due to:

1. incorrect selection / sizing of equipment

The typical solution:

- oversizing the air conditioning equipment to allow flexibility in server room occupancy
- oversizing by building in some spare, 'safety' capacity
- using rules of thumb as calculation method

2. installation/application related difficulties

- restricted air circulation
- blockage of air distribution from top blow server racks

Compressor and thermostat control are therefore optimized for infrastructure cooling

This setting available on **RZAG-N** series allows the outdoor system to gradually start. This prevents the outdoor system from going into thermo-off while still in start-up mode. This setting limits frequent on/off operation. By lowering the frequency of the compressor (and subsequently the capacity), the system modulates and avoids early thermo-off 16(26)-7-02 (setting).

ON/OFF differential prevents the output from making fast, continuous switches. Using the 16-7-02 setting activates a larger thermo on/off hysteresis to **enhance continuous operation**.

- 16 (26)-7-01: DEFAULT (Comfort cooling)
- 16 (26)-7-02: enhanced slow start + increased hysteresis
- This setting must always be combined with the EDP setting 2-5-2.

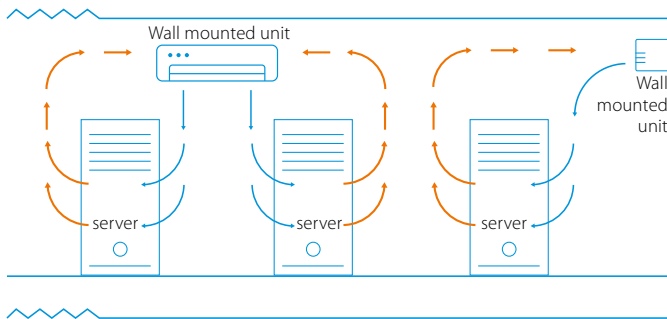
Best practices for planning and design

how to set-up cooling systems in server rooms

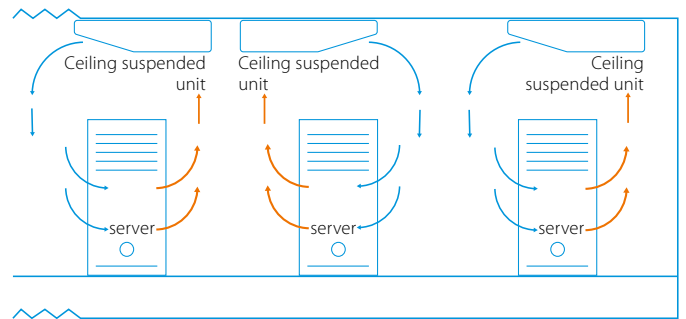
Flat floor or double floor not used for air distribution

Hot-isle / Cold-isle principles must be closely adhered to and the server orientation monitored.

With wall mounted units

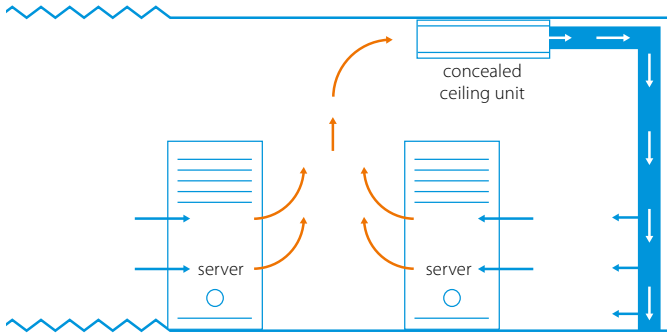


With ceiling suspended units



Install the ceiling suspended units in the opposite direction of the rack orientation

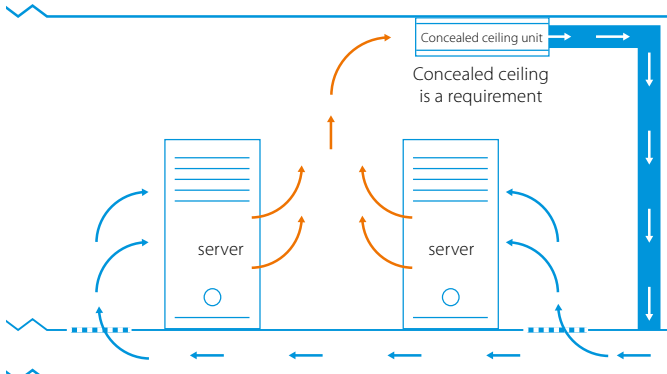
With concealed ceiling units



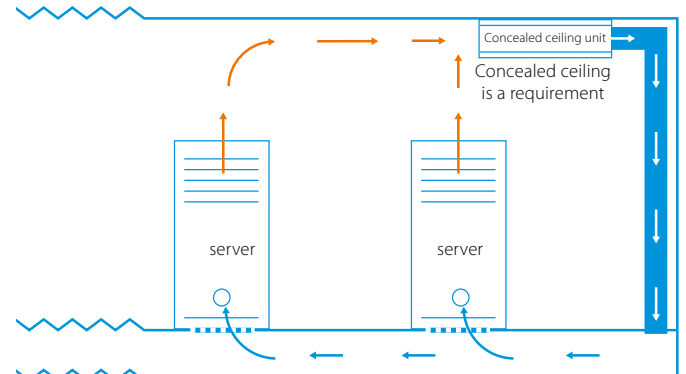
Use concealed ceiling units to distribute cold air where needed (down and to the suction side of the servers).

Flat floor or double floor used for air distribution

Hot-isle / Cold-isle set-up



Throughflow racks



Best match for double floor server rooms with concealed ceiling units

Best practice for cassette units

how to apply cassette type cooling systems in laboratories and other technical facilities

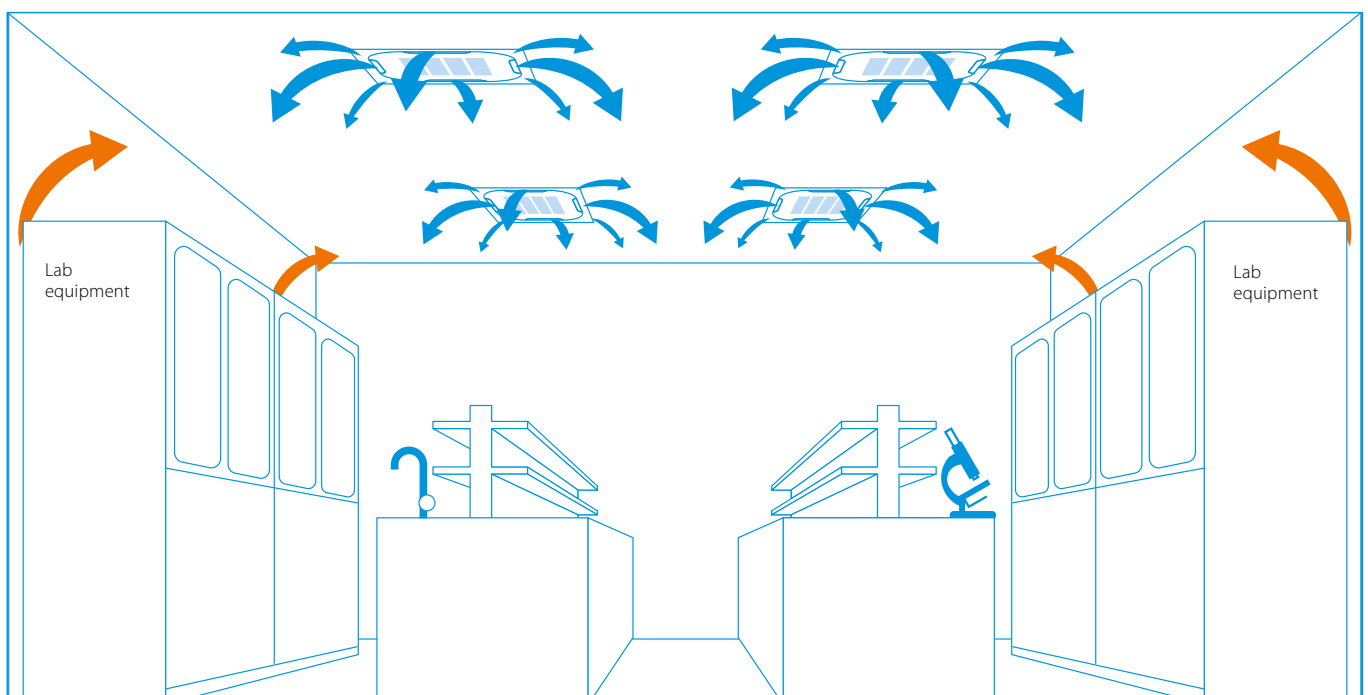
Flat floor or double floor not used for air distribution

Cassette type systems should only be used for specific room configurations where central ceiling installation is most suited for hot aisle/ cold aisle arrangements.

In a laboratory environment for example, when the cassette system is placed centrally on the ceiling and above the aisles, it will allow maximum uniform air distribution around the room.

It is not recommended to install cassette units right above a server or machine.

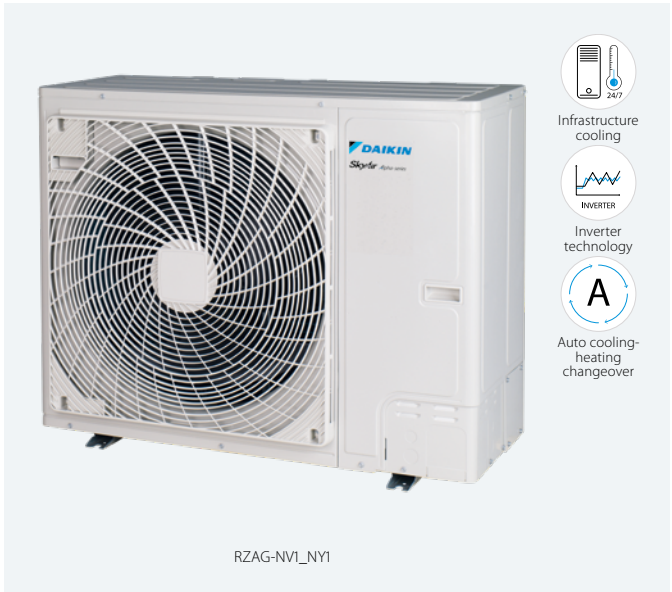
With cassette units



Sky Air Alpha-series

Industry leading technology for commercial applications and even for technical rooms

- Unique, low-height single fan range
- Compact dimensions allow almost unnoticeable installation
- Market-leading serviceability and handling, thanks to wide access area, 7-segment display and additional handle
- The perfect balance in efficiency and comfort thanks to Variable Refrigerant Temperature: top seasonal efficiency throughout most of the year and quick reaction speed on the hottest days.
- Suits high sensible, infrastructure cooling applications
- Replace existing systems with R-32 technology without needing to replace the piping
- Guarantees operation in both heating and cooling mode down to -20°C
- Refrigerant cooled PCB guarantees reliable cooling, as it is not influenced by ambient temperature.
- Maximum piping length up to 85m (50m for RZAG-B)
- Outdoor units for pair, twin, triple, double twin application
- Combines with EKLN-A low sound enclosure



Infrastructure cooling combination table

NEW

	FTXM-A				FAA-B				FHA-A(9)				FBA-A(9)				FDXM-F9		FUA-A		FNA-A9		FVA-A		FFA-A9		FCAHG-H		FCAG-B												
capacity class	35	50	60	71	71	100	35	50	60	71	100	125	140	35	50	60	71	100	125	140	35	50	60	71	100	125	140	35	50	60	71	100	125	140	35	50	60	71	100	125	140
RZAG35B	P												P				P		P		P		P		P		P		P		P										
RZAG50B	P												P				P		P		P		P		P		P		P		P		P								
RZAG60AB	P								P				P				P		P		P		P		P		P		P		P		P								
RZAG71NV1	RZAG71NY1				P 3 2				P				3 2				P		3 2		P		3 2		P		3 2		P		3 2		P								
RZAG100NV1	RZAG100NY1				2 4 3				2				P 4 3				2		P 4 3		2		4 3		P 4 3		2		P 4 3		2		P								
RZAG125NV1	RZAG125NY1				2 4 3				2				P 4 3				2		P 4 3		2		4 3		P 4 3		2		P 4 3		2		P								
RZAG140NV1	RZAG140NY1				2 4 3				2				P 4 3				2		P 4 3		2		4 3		P 4 3		2		P 4 3		2		P								

P = Pair, 2 = Twin, 3 = Triple, 4 = Double twin; For more information on infrastructure cooling options refer to infrastructure cooling catalogue.

		RZAG-B				RZAG-NV1				RZAG-NY1				
Outdoor unit		RZAG	35B	50B	60B	71NV1	100NV1	125NV1	140NV1	71NY1	100NY1	125NY1	140NY1	
Dimensions	Unit	mm				734x870x373				870x1,100x460				
Weight	Unit	kg				52				81 85 95 81 85 94				
Sound power level	Cooling	dBA	62.0	63.0	64.0	64	66	69	70	64	66	69	70	
	Heating	dBA	62.0	63.0	64.0	-		68(1)	71(1)	-		68(1)	71(1)	
Sound pressure level	Cooling	Nom. dBA	48.0	49.0	50.0	46	47	49	50	46	47	49	50	
	Heating	Nom. dBA	48.0	49.0	50.0	48	50	52		48	50	52		
Operation range	Cooling	Ambient Min.~Max.	°CDB				-20~52				-20~52			
	Heating	Ambient Min.~Max.	°CWB				-20~24				-20~18			
Refrigerant	Type/GWP	R-32/675.0												
	Charge	kg/TCO2Eq	1.55/1.05				3.20/2.16		3.70/2.50		3.20/2.16		3.70/2.50	
Piping connections	Liquid/Gas OD	mm	6.35/9.52		6.35/12.7		9.52/15.9							
	Piping length	OU - IU Max.	m				55				85			
		System Equivalent	m				75				100			
	Chargeless		m				30				40			
	Level difference IU - OU Max.		m				30.0				30			
Additional refrigerant charge		kg/m	0.02 (for piping length exceeding 30m)											
Power supply	Phase/Frequency/Voltage	Hz/V	1~/50/220-240				20				32			
Current - 50Hz	Maximum fuse amps (MFA)	A	-				-				16			

(1)According to ENER Lot 21 | Contains fluorinated greenhouse gases

Wall mounted unit

For rooms lacking false ceilings or free floor space

- Suitable for air circulation for infrastructure cooling rooms (air suction is located at the top, where the hot air tends to be)
- No floor occupancy
- Maintenance operations are easily controlled from the front of the unit.



FTXM-A

Indoor unit		FTXM		50A	60A	71A	
Dimensions	Unit	HeightxWidthxDepth		mm	298x804x252	298x997x292	
Weight	Unit			kg	11.5	14.5	
Air filter	Type	Removable / washable					
Fan	Air flow rate	Cooling	Silent operation/ Low/Medium/High	m ³ /min	5.9/7.8/10.4/12.7	8.6/11.2/13.4/15.6	9.3/11.4/13.6/15.8
		Heating	Silent operation/ Low/Medium/High	m ³ /min	6.9/8.6/11.5/14.5	10.5/11.8/14.6/15.9	11.2/12.3/15.3/17.3
Sound power level	Cooling			dBA	60		
	Heating			dBA	60	61	
Sound pressure level	Cooling	Silent operation/Low/High		dBA	27/33/46	32/38/47	
	Heating	Silent operation/Low/High		dBA	31/34/46	34/37/46	
Control systems	Infrared remote control		ARC466A86				
	Wired remote control		BRC073A1				

FAA-B

Wall mounted unit

For rooms with no false ceilings nor free floor space

- Suitable for air circulation for infrastructure cooling rooms (air suction is located at the top, where the hot air tends to be)
- Long throw of air for optimal coverage
- No floor occupancy
- Air is equally distributed upwards and downwards due to 5 different discharge angles that are programmable via remote control
- Maintenance operations are easily controlled from the front of the unit.



FAA-B

Indoor unit		FAA		71B	100B	
Dimensions	Unit	HeightxWidthxDepth		mm	290x1,050x269	340x1,200x262
Weight	Unit			kg	14.0	18
Fan	Air flow rate	Cooling	Low/Medium/High	m ³ /min	12.1/13.4/16.2	18.7/21.1/23.0
		Heating	Low/Medium/High	m ³ /min	12.7/14.2/16.9	18.7/20.9/23.0
Sound power level	Cooling			dBA	61.0	
	Heating			dBA	61.0	65.0
Sound pressure level	Cooling	Low/Medium/High		dBA	40.0/42.0/45.0	41.0/45.0/49.0
	Heating	Low/Medium/High		dBA	40.0/42.0/45.0	41.0/45.0/49.0
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/220-240		

Ceiling suspended unit

For wide rooms with no false ceilings nor free floor space

- Perfect air distribution for wide rooms due to the Coanda effect: up to 100° discharge angle
- Rooms with ceilings up to 3.8m can be cooled easily and without capacity loss
- No floor occupancy
- Can be mounted in corners and narrow spaces, because it only requires 30mm of lateral service space



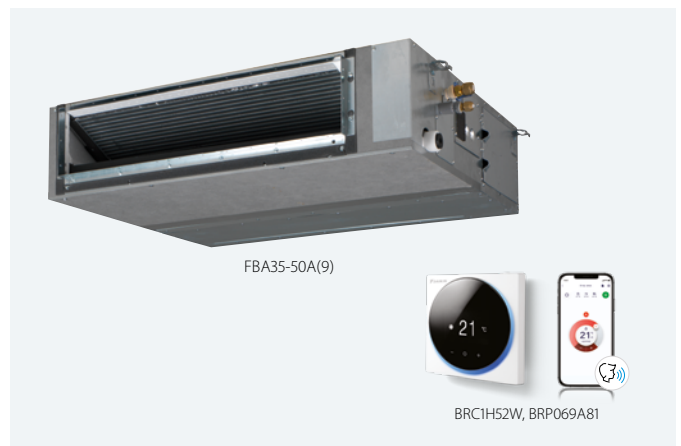
FHA-A(9)

Indoor unit		FHA		35A9	50A9	60A9	71A9	100A	140A
Dimensions	Unit	HeightxWidthxDepth	mm	235x960x690		235x1,270x690		235x1,590x690	
Weight	Unit		kg	26	27	32	34	41	
Air filter	Type			Resinnet					
Fan	Air flow rate	Cooling	Low/Medium/High m ³ /min	10.0/11.5/14.0	10.0/12.0/15.0	11.5/15.0/19.5	14.0/17.0/20.5	20.0/24.0/28.0	24.0/29.0/34.0
		Heating	Low/Medium/High m ³ /min	10.0/11.5/14.0	10.0/12.0/15.0	11.5/15.0/19.5	14.0/17.0/20.5	20.0/24.0/28.0	24.0/29.0/34.0
Sound power level	Cooling		dB(A)	53.0	54.0	55.0	60.0	64.0	
	Heating		dB(A)	53.0	54.0	55.0	60.0	64.0	
Sound pressure level	Cooling	Low/High	dB(A)	31.0/36.0	32.0/37.0	33.0/37.0	34.0/38.0	34.0/42.0	38.0/46.0
	Heating	Nom./High	dB(A)	34.0/36.0	35.0/37.0	36.0/38.0	38.0/42.0	42.0/46.0	
Control systems	Infrared remote control			BRC7GA53-9 / BRC7GA56					
	Wired remote control			BRC1H52W/S/K / BRC1353A/B/C / BRC1D52					
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220					
Piping connections	Drain			VP20					

Concealed ceiling unit with medium ESP

Slimmest yet most powerful medium static pressure unit on the market

- Top efficiency in market
- Compact unit can easily be mounted in a ceiling of only 285mm, leaving only suction and discharge grilles visible
- Sound levels lower than 29 dBA
- Medium external static pressure up to 150Pa allows the use of flexible ducts with varying lengths
- Flexible installation, the air suction direction can be altered from rear to bottom suction
- Standard built-in drain pump increases flexibility and installation speed
- No floor occupancy



FBA-A(9)

Indoor unit		FBA		35A9	50A9	60A9	71A9	100A	140A
Dimensions	Unit	HeightxWidthxDepth	mm	245x700x800		245x1,000x800		245x1,400x800	
Weight	Unit		kg	28.0		35.0		46.0	
Air filter	Type			Resinnet					
Fan	Air flow rate	Cooling	Low/Medium/High m ³ /min	10.5/12.5/15.0		12.5/15.0/18.0		23.0/26.0/29.0	23.5/29.0/34.0
		Heating	Low/Medium/High m ³ /min	10.5/12.5/15.0		12.5/15.0/18.0		23.0/26.0/29.0	23.5/29.0/34.0
	External static pressure	Nom./High	Pa		30/150		40/150	50/150	
Sound power level	Cooling		dB(A)	60.0		56.0		58.0	62.0
Sound pressure level	Cooling	Low/High	dB(A)	29.0/35.0		25.0/30.0		30.0/34.0	32.0/37.0
	Heating	Low/High	dB(A)	29.0/37.0		25.0/31.0		30.0/36.0	32.0/38.0
Control systems	Infrared remote control			BRC4C65 / BRC4C66					
	Wired remote control			BRC1H52W/S/K / BRC1353A/B/C / BRC1D52					
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/60/220-240/220					
Piping connections	Drain			VP20 (I.D. 20/O.D. 26)					
Drain-up height			mm	625					

Concealed ceiling unit

Compact concealed ceiling unit, with a height of only 200mm

- Compact dimensions, can easily be mounted in a ceiling void of only 240mm
- Medium external static pressure up to 40Pa facilitates unit use with flexible ducts of varying lengths
- Standard built-in drain pump increases flexibility and installation speed
- No floor occupancy



FDXM-F9

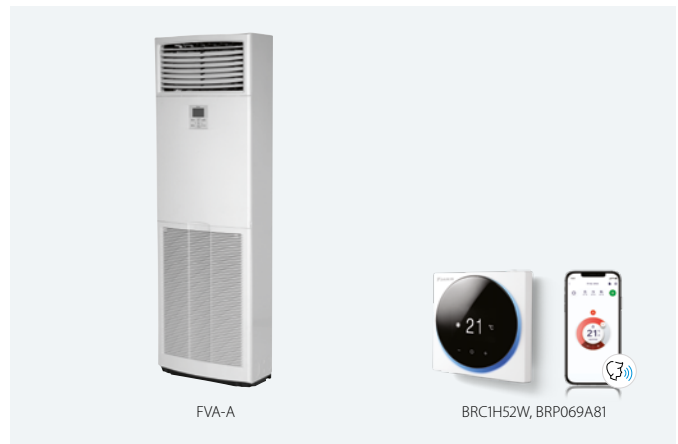
Indoor unit		FDXM		35F9		50F9		60F9		
Dimensions	Unit	HeightxWidthxDepth	mm	200x750x620		200x1,150x620				
Weight	Unit		kg	21		28				
Air filter	Type	Removable / washable								
Fan	Air flow rate	Cooling	Low/Medium/High	m ³ /min	7.3/8.0/8.7		13.3/14.6/15.8		13.5/14.8/16.0	
		Heating	Low/Medium/High	m ³ /min	7.3/8.0/8.7		13.3/14.6/15.8		13.5/14.8/16.0	
	External static pressure	Nom.		Pa	30		40			
Sound power level	Cooling			dBA	53.0		55.0		56.0	
	Heating			dBA	53.0		55.0		56.0	
Sound pressure level	Cooling	Low/High		dBA	27.0/35.0		30.0/38.0			
	Heating	Low/High		dBA	27.0/35.0		30.0/38.0			
Control systems	Infrared remote control			BRC4C65						
	Wired remote control			BRC1H52W/S/K, BRC1E53A/B/C, BRC1D52						

FVA-A

Floor standing unit

For commercial spaces with high ceilings

- Ideal solution for commercial spaces without or with narrow false ceilings
- Easy installation in new and refurbishment projects
- Very efficient for use in rooms with high ceilings
- Decreases temperature variation with an automatic fan
- speed selection and freely selectable 3-step fan speed
- Selectable horizontal out blow better suits the layout of your room
- Reduced energy consumption due to specially developed DC fan motor



FVA-A

Indoor unit		FVA		71A		100A		140A		
Dimensions	Unit	HeightxWidthxDepth	mm	1,850x600x270		1,850x600x350				
Weight	Unit		kg	42		50				
Air filter	Type	Resin net								
Fan	Air flow rate	Cooling	Low/Medium/High	m ³ /min	14/16/18		22/25/28		26/28/30	
		Heating	Low/Medium/High	m ³ /min	14/16/18		22/25/28		26/28/30	
Sound power level	Cooling			dBA	55		62		65	
	Heating			dBA	55		62		65	
Sound pressure level	Cooling	Low/High		dBA	38/43		44/50		48/53	
	Heating	Nom./High		dBA	41/43		47/50		51/53	
Control systems	Wired remote control			BRC1H52W/S/K / BRC1353A/B/C / BRC1D52						
Power supply	Phase/Frequency/Voltage			Hz/V						
Piping connections	Drain			I.D. 20/O.D. 26						

4-way blow ceiling suspended unit

Unique Daikin unit for high rooms with no false ceilings nor free floor space

- Rooms with ceilings up to 3.5m can be cooled easily without capacity loss
- Can be installed in both new and refurbishment projects
- Flexibility to suit every room layout without changing the location of the unit. The wired remote controller allows you to control and close each flap individually.
- Reduced energy consumption as a result of the specially developed small tube heat exchanger, DC fan motor and drain pump
- 5 different discharge angles between 0 and 60° can be programmed via remote control
- Standard drain pump with 500mm lift increases flexibility and installation speed



Cassette units should only be used for specific room configurations where central installation is most suited for hot aisle/ cold aisle arrangements. See page 19 for more information

FUA-A

Indoor unit				FUA	71A	100A
Dimensions	Unit	HeightxWidthxDepth		mm	198x950x950	
Weight	Unit			kg	25.0	26.0
Air filter	Type				Resinnet	
Fan	Air flow rate	Cooling	Low/Medium/High	m ³ /min	16.0/19.5/23.0	20.0/25.5/31.0
		Heating	Low/Medium/High	m ³ /min	16.0/19.5/23.0	20.0/25.5/31.0
Sound power level	Cooling			dB(A)	59	64
Sound pressure level	Cooling	Low/High		dB(A)	35/41	39/46
	Heating	Low/High		dB(A)	35/41	39/46
Control systems	Wired remote control		BRC1H52W/S/K / BRC1E53A/B/C / BRC1D52			
Piping connections	Drain		VP25 (OD Ø32.0)			

Fully flat cassette

Unique design in the market that integrates fully flat into the ceiling

- Fully flat integration in standard architectural ceiling types
- Remarkable blend of iconic design and engineering excellence with an elegant finish in white or a combination of silver and white
- Less energy consumption as a result of the specially developed small tube heat exchanger, DC fan motor and drain pump
- Fresh air intake integrated in the same system reduces installation costs because additional ventilation is not required
- Standard drain pump with 850mm lift increases flexibility and installation speed
- No adapter needed for DIII-connection; link your unit into the wider building management system



Cassette units should only be used for specific room configurations where central installation is most suited for hot aisle/ cold aisle arrangements. See page 19 for more information

FFA-A9 RZAG-B

Indoor unit				FFA	35A9	50A9	60A9
Dimensions	Unit	HeightxWidthxDepth		mm	260x575x575		
Weight	Unit			kg	16.0	17.5	
Air filter	Type				Resin net		
Decoration panel	Model				BYFQ60C2W1W / BYFQ60C2W1S / BYFQ60B2W1 / BYFQ60B3W1		
	Colour				White (N9.5)/SILVER/White (RAL9010)/WHITE (RAL9010)		
Fan	Air flow rate	Cooling	Low/Medium/High	m ³ /min	6.5/8.5/10.0	8.6/10.9/12.7	9.5/12.5/14.5
		Heating	Low/Medium/High	m ³ /min	6.5/8.5/10.0	8.6/10.9/12.7	9.5/12.5/14.5
Sound power level	Cooling			dB(A)	51.0	56.0	60.0
Sound pressure level	Cooling	Low/Medium/High		dB(A)	25.0/30.5/34.0	27.0/34.0/39.0	32.0/40.0/43.0
	Heating	Low/Medium/High		dB(A)	25.0/30.5/34.0	27.0/34.0/39.0	32.0/40.0/43.0
Control systems	Infrared remote control		BRC7EB530W (standard panel) / BRC7F530W (white panel) / BRC7F530S (grey panel)				
	Wired remote control		BRC1H52W/S/K / BRC1353A/B/C / BRC1D52				
Power supply	Phase/Frequency/Voltage		Hz/V	1~/50/220-240			



Round flow cassette

360° air discharge for optimum efficiency and comfort

- 360° air discharge ensures uniform air flow and temperature distribution
- Automatic filter cleaning yields higher efficiency and lower maintenance costs. Dust can easily be removed with a vacuum cleaner, without opening the unit
- Flexibility to suit every room layout without changing the location of the unit. The wired remote controller allows you to control and close each flap individually.



Cassette units should only be used for specific room configurations where central installation is most suited for hot aisle/ cold aisle arrangements.
See page 19 for more information

FCAG-B

Indoor unit		FCAG		35B	50B	60B	71B	100B	140B		
Dimensions	Unit	HeightxWidthxDepth		mm	204x840x840			246x840x840			
Weight	Unit			kg	18	19		21			
Air filter	Type				Resin net						
Decoration panel	Model				Standard panels: BYCQ140E - white with grey louvers / BYCQ140EW - full white / BYCQ140EB - black Auto cleaning panels: BYCQ140EGF - white / BYCQ140EGFB - black Designer panels: BYCQ140EP - white / BYCQ140EPB - black						
		Dimensions	HeightxWidthxDepth	mm	Standard panels: 65x950x950 / Auto cleaning panels: 148x950x950 / Designer panels: 106x950x950						
		Weight		kg	Standard panels: 5.5 / Auto cleaning panels: 10.3 / Designer panels: 6.5						
Fan	Air flow rate	Cooling	Low/Medium/High	m ³ /min	8.8/10.6/12.9	9.4/11.8/14.6	9.6/12.2/14.9	10.8/13.0/15.1	13.0/17.8/22.7	13.1/20.4/27.2	
		Heating	Low/Medium/High	m ³ /min	9.4/11.6/14.1	9.4/11.8/14.6	9.6/12.2/14.9	10.8/12.9/15.1	13.2/18.1/23.0	13.0/20.2/27.0	
Sound power level	Cooling			dBA	49.0		51.0		58.0		
	Heating			dBA	49.0		51.0		58.0		
Sound pressure level	Cooling	Low/High			dBA	27.0/31.0		28.0/33.0		29.0/37.0	
	Heating	Low/High			dBA	27.0/31.0		28.0/33.0		29.0/37.0	
Control systems	Infrared remote control				BRC7FA532F / BRC7FB532F / BRC7FA532FB / BRC7FB532FB						
	Wired remote control				BRC1H52W/S/K / BRC1353A/B/C / BRC1D52						
Power supply	Phase/Frequency/Voltage				1~/50/60/220-240/220						
Piping connections	Drain				VP25 (O.D. 32 / I.D. 25)						



High COP, round flow cassette

360° air discharge for optimum efficiency and comfort

- High efficiency cassette provides top performance, great savings in energy consumption
- 360° air discharge ensures uniform air flow and temperature distribution
- Automatic filter cleaning yields higher efficiency and lower maintenance costs. Dust can easily be removed with a vacuum cleaner, without opening the unit
- Flexibility to suit every room layout without changing the location of the unit. The wired remote controller allows you to control and close each flap individually.



Cassette units should only be used for specific room configurations where central installation is most suited for hot aisle/ cold aisle arrangements.
See page 19 for more information



FCAHG-H

Indoor unit		FCAHG		71H	100H	140H	
Dimensions	Unit	HeightxWidthxDepth		mm	288x840x840		
Weight	Unit			kg	25.0		
Air filter	Type			Resin net			
Decoration panel	Model			Standard panels: BYCQ140E - white with grey louvers / BYCQ140EW - full white / BYCQ140EB - black Auto cleaning panels: BYCQ140EGF - white / BYCQ140EGFB - black Designer panels: BYCQ140EP - white / BYCQ140EPB - black			
		Dimensions	HeightxWidthxDepth	mm	Standard panels: 65x950x950 / Auto cleaning panels: 148x950x950 / Designer panels: 106x950x950		
		Weight		kg	Standard panels: 5.5 / Auto cleaning panels: 10.3 / Designer panels: 6.5		
Fan	Air flow rate	Cooling	Low/Medium/High	m ³ /min	13.7/18.8/23.6	19.1/25.7/32.2	21.2/27.3/34.4
		Heating	Low/Medium/High	m ³ /min	13.7/18.8/23.6	18.3/24.6/30.8	19.7/25.5/32.1
Sound power level	Cooling			dBA	53.0		
	Heating			dBA	53.0		
Sound pressure level	Cooling	Low/High			dBA	29.0/36.0	
	Heating	Low/High			dBA	29.0/36.0	
Control systems	Infrared remote control				BRC7FA532F / BRC7FB532F / BRC7FA532FB / BRC7FB532FB		
	Wired remote control				BRC1H52W/S/K / BRC1353A/B/C / BRC1D52		
Power supply	Phase/Frequency/Voltage				1~/50/60/220-240/220		
Piping connections	Drain				VP25 (I.D. 25/O.D. 32)		



Reliable, efficient and flexible infrastructure cooling 24/7/365 with Sky Air from Daikin

- Boosted capacity indoor systems with official energy labels
- Efficient cooling with widest indoor system range and free cooling option
- 2-step solution for system selection
- Flexible control with guaranteed cooling mode, backup operation and duty rotation

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