



Air conditioners

Heating & Cooling

VRV IV Q-series

VRV III-Q

- » **Cost effective upgrade for R-22 systems**
- » **High efficiency**
- » **Possibility to increase capacity**
- » **Limited and planned downtime**
- » **Limited and phased investment cost**

Replacement VRV



www.daikin.eu



RXYQQ-T



Includes replacement technology

Replacement VRV

The Daikin Solution to R-22 Phase Out

Due to significant developments in heat pump technology, today's air conditioning systems, running on R-410A refrigerant, offer better performances than R-22 and R-407C systems did in the past. Furthermore, R-22 will be soon unavailable in Europe. Already today, only reclaimed or recycled R-22 can be used for servicing. To upgrade R-22 and R-407C systems as cost effectively as possible, Daikin units can be installed using existing pipe work. Replacement technology is available for residential and commercial applications in the following ranges:

- > Split
- > Sky Air
- > VRV

Plan your system replacement now!

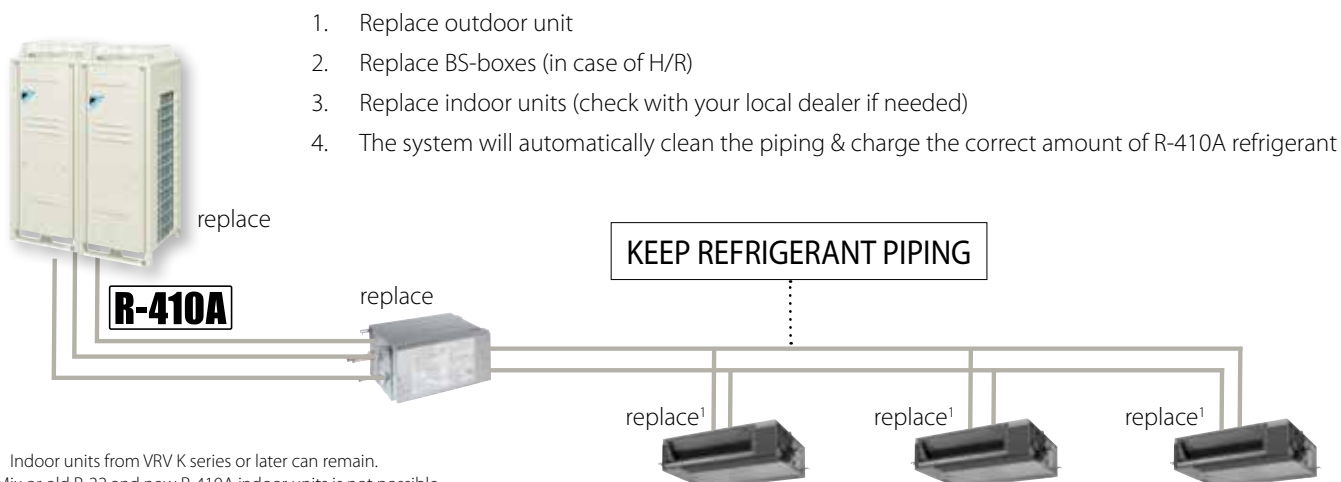
The R-22 phase-out regulation will impact on all currently operating R-22 systems, although reliable R-22 equipment does not need to be replaced immediately because maintenance can be carried out with recycled or reclaimed R-22 until January 1st, 2015. However, currently not enough R-22 is reclaimed or recycled to cover the

demand, supply shortages and price increases are expected. If there is no reclaimed or recycled R-22 available, certain repairs (for example: compressor change) are no longer possible and considerable air conditioning system downtime can occur.

It is therefore worthwhile to consider a replacement system before 2015, especially for air conditioning systems with a large impact on the daily running of the business.

Low cost refurbishment

Replace your R-22 / R-407C outdoor unit with R-410A technology, but keep your refrigerant piping and in some cases your indoor units¹. In case your indoor units can remain, works only need to be carried out at the outdoor unit and not inside your building (in case of a heat pump installation).



¹ Indoor units from VRV K series or later can remain. Mix of old R-22 and new R-410A indoor units is not possible.

Features of VRV-Q

Fast Installation

It is not necessary to remove the existing piping and even the indoor units can remain (depending on type of indoor unit). This means work only has to be carried out at the outdoor unit and not inside your building in case of a heat pump installation. The outdoor unit automatically charges the refrigerant and cleans the refrigerant piping. This unique Daikin feature makes the installation time even shorter.

No Limitations on System History

As a result of the combined automatic charging and refrigerant pipe cleaning function, it is possible to ensure a clean piping network, even when a compressor breakdown has previously occurred.

In this way all correct installed R-22 and R-407C VRV and competitor VRF systems can be replaced.

Limited and Planned-Downtime

As the refrigerant piping can be maintained the installation is less intrusive and less time consuming than for a completely new system. Moreover, downtime can be carefully planned: whereas if a problem occurs when not enough reclaimed R-22 is available, a long and unplanned downtime can be the result.

Limited and Phased Investment Cost

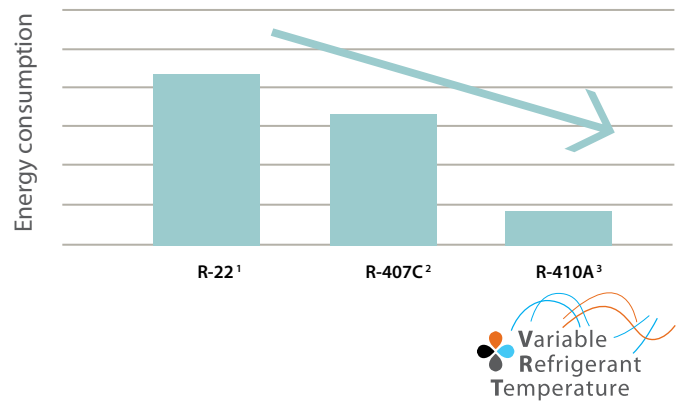
It is possible to spread the various stages of replacement over a certain period of time because the indoor units can remain in most cases. The air conditioning replacement therefore, can be incorporated in the general refurbishment schedule of the building and the investment cost can be spread. A further reduction in installation cost can be achieved by maintaining the old refrigerant copper pipe work.

High Efficiency

Upgrading an old R-22 system to a Replacement VRV system will result in increased system efficiency. Efficiency gains of more than 70% in cooling can be realized, by virtue of technological developments in current heat pump technology such as variable refrigerant temperature and the more efficient R-410A refrigerant. Increased energy efficiency equals lower energy consumption, subsequent lower energy costs and lower CO₂ emissions.

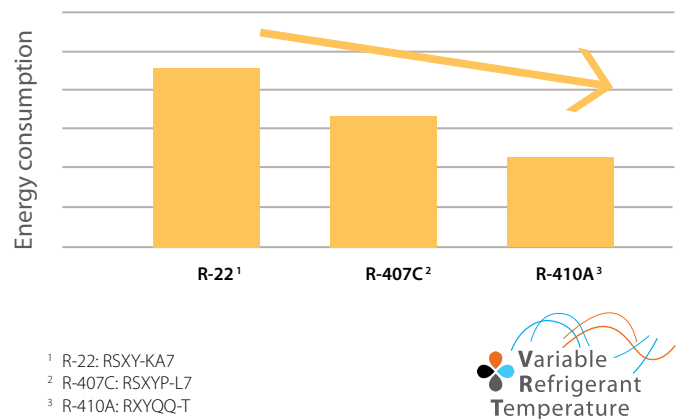
81% less consumption in cooling mode

Energy use of a 10HP system in cooling



48% less consumption in heating mode

Energy use of a 10HP system in heating



¹ R-22: RSXY-KA7
² R-407C: RSXYP-L7
³ R-410A: RXYQQ-T

COP/EER comparison

System (HP)	8		10	
	EER	COP	EER	COP
RXYQQ-T(R-410A)	4.30	4.54	3.84	4.45
RSXYP-L7(R-407C)	3.10	3.14	3.10	3.10
RSXY-KA7(R-22)	2.37	2.95	2.37	3.00



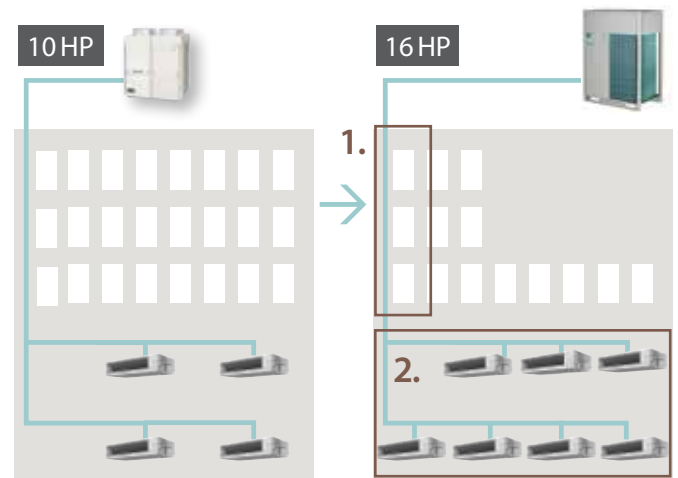
Zero ozone depleting

R-410A not only has a zero ozone depletion potential, it is also proven to be more energy efficient than R-22.

Possibility to Increase Capacity

Cooling loads often increase after to the initial installation of the air conditioning system. The Replacement VRV (VRVIII-Q) enables system capacity to be increased without changing the refrigerant piping (depending on system characteristics).

For example: It is possible to install a 16 HP Replacement VRV on the refrigerant piping of an R-22 10 HP system.

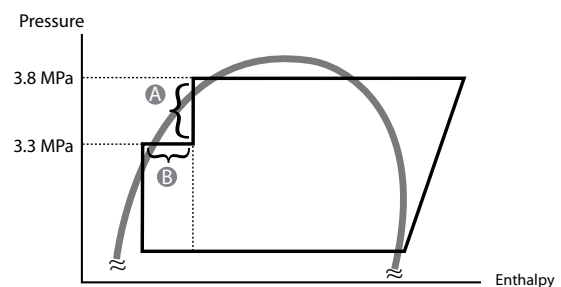


1. Keep main piping
2. Install indoor units with a higher total capacity

Technologies of VRV-Q

Reduced Pressure

As R-22 VRV systems used to work on a lower pressure than R-410A systems / thus the copper refrigerant piping was also designed for these lower pressures. Therefore the Replacement VRV must operate at lower pressures than the standard VRV series. However thanks to the sub cool circuit a high efficiency level can be kept even with the lower pressures.



- A Decompression to 3.3MPa(s) → R-22 existing piping can be used
- B Extra sub cool circuit → high COP

VRV IV Technologies



Customize your VRV for best seasonal efficiency & comfort with the weather dependant Variable Refrigerant Temperature function

- › Optimise the match of building requirements with comfort and efficiency
- › Automatic adjustment of refrigerant temperature guarantees customer satisfaction

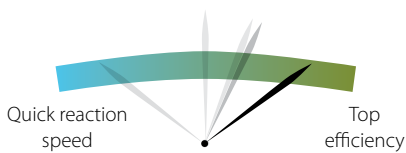
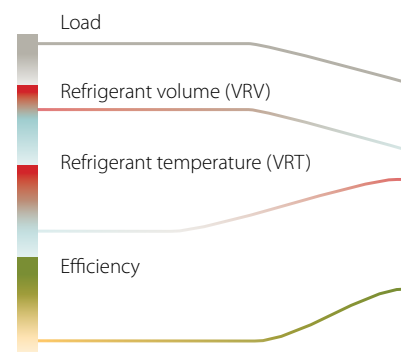
Revolutionary variable refrigerant temperature (VRT) control automatically adapts your VRV to your individual building and climate requirements for comfort and efficiency, thus drastically reducing operational running costs.

For example, in mid season when there is little cooling needed and the room temperature is close to the setpoint, the system will adjust its refrigerant temperature to a higher temperature so less energy is needed, leading to major savings in seasonal efficiency.

Unique VRT automatic mode leads to 28% increase in seasonal efficiency

In automatic mode the system will go for maximum efficiency throughout most of the year and for quick reaction speed on the hottest days, ensuring comfort at all times while still resulting in an increased seasonal efficiency up to 28%.

Automatic mode (Default setting on VRV IV)



The perfect balance :
Maximum efficiency throughout most of the year. Quick reaction speed on the hottest days

VRV configurator software

- › Less time needed for commissioning
- › Manage multiple systems in exactly the same way
- › Retrieve initial system settings



Simplified commissioning

The VRV configurator is an advanced software solution that allows for easy system configuration and commissioning:

- › less time is required on the roof configuring the outdoor unit.
- › multiple systems at different sites can be managed in exactly the same way, thus offering simplified commissioning for key accounts.
- › Initial settings on the outdoor unit can be easily retrieved.

Simplified servicing

Outdoor unit display for quick on-site settings and easy read out of errors together with the indication of service parameters for checking basic functions.

- › easy-to-read error report.
- › indication of basic service parameters to quickly check basic functions.
- › clear menu indicating quick and easy on-site settings.



RQYQ140P

RXYQQ-T

Heating & Cooling

VRV IV Q-series VRV III-Q

OUTDOOR UNIT				RQYQ140P	RXYQQ8T	RXYQQ10T	RXYQQ12T	RXYQQ14T	RXYQQ16T	RXYQQ18T	RXYQQ20T	
Capacity range	HP			5	8	10	12	14	16	18	20	
Cooling capacity	Nom.			kW	14.0	22.4	28.0	33.5	40.0	50.0	56.0	
Heating capacity	Nom.			kW	16.0	25.0	31.5	37.5	45.0	56.0	63.0	
Power input - 50Hz	Cooling	Nom.		kW	3.36	5.21	7.29	8.98	11.0	14.7	18.5	
	Heating	Nom.		kW	3.91	5.51	7.38	9.10	11.2	12.8	14.4	
EER					4.17	4.30	3.84	3.73	3.64	3.40	3.03	
ESEER					-	6.37 (2) / 7.53 (3)	5.67 (2) / 7.20 (3)	5.50 (2) / 6.96 (3)	5.31 (2) / 6.83 (3)	5.05 (2) / 6.50 (3)	4.97 (2) / 6.38 (3)	
COP					4.09	4.54	4.27	4.12	4.02	3.91	3.71	
Maximum number of connectable indoor units					10	64 (1)						
Indoor index connection	Min.				62.5	100	125	150	175	200	225	
	Nom.				125	200	250	300	350	400	450	
	Max.				162.5	260	325	390	455	520	585	
Dimensions	Unit	HeightxWidthxDepth		mm	1,680x635x765			1,685x930x765			1,685x1,240x765	
Weight	Unit			kg	175	187	194		305		314	
Fan	Air flow rate		Cooling	Nom.	m ³ /min	-	162	175	185	223	260	
										251	261	
Sound power level	Cooling	Nom.		dBA	-	78	79	81		86	88	
Sound pressure level	Cooling	Nom.		dBA	54	58		61	64	65	66	
Operation range	Cooling	Min.~Max.		°CDB	-5~43							
	Heating	Min.~Max.		°CWB	-20~15.5							
Refrigerant	Type				R-410A							
Piping connections	Liquid	OD		mm	9.52			12.7		15.9		
	Gas	OD		mm	15.9	19.1	22.2	28.6		300		
	Total piping length		System	Actual	m	300						
Power supply	Phase/Frequency/Voltage			Hz/V	3~/50/380-415			3N~/50/380-415				
Current - 50Hz	Maximum fuse amps (MFA)			A	15	20	25	32		40	50	

OUTDOOR UNIT				RXYQQ22T	RXYQQ24T	RXYQQ26T	RXYQQ28T	RXYQQ30T	RXYQQ32T	RXYQQ34T	RXYQQ36T
System	Outdoor unit module 1			RXYQQ10T	RXYQQ8T	RXYQQ12T			RXYQQ16T		
	Outdoor unit module 2			RXYQQ12T	RXYQQ16T	RXYQQ14T	RXYQQ16T	RXYQQ18T	RXYQQ16T	RXYQQ18T	RXYQQ20T
	Outdoor unit module 3										
Capacity range	HP			22	24	26	28	30	32	34	36
Cooling capacity	Nom.			kW	61.5	67.4	73.5	78.5	83.5	90.0	101.0
Heating capacity	Nom.			kW	69.0	75.0	82.5	87.5	93.5	100.0	113.0
Power input - 50Hz	Cooling	Nom.		kW	16.3	18.2	20.0	22.0	23.7	26.0	27.7
	Heating	Nom.		kW	16.5	18.3	20.3	21.9	23.5	25.6	27.2
EER					3.77	3.70	3.68	3.57	3.52	3.46	3.21
ESEER					5.58 (2) / 7.07 (3)	5.42 (2) / 6.81 (3)	5.39 (2) / 6.89 (3)	5.23 (2) / 6.69 (3)	5.17 (2) / 6.60 (3)	5.05 (2) / 6.50 (3)	5.01 (2) / 6.44 (3)
COP					4.18	4.10	4.06	4.00	3.98	3.91	3.79
Maximum number of connectable indoor units					64 (1)						
Piping connections	Liquid	OD		mm	15.9			19.1			
	Gas	OD		mm	28.6	34.9			41.3		
	Total piping length		System	Actual	m	300					
Current - 50Hz	Maximum fuse amps (MFA)			A	63				80		

OUTDOOR UNIT				RXYQQ38T			RXYQQ40T			RXYQQ42T		
System	Outdoor unit module 1			RXYQQ8T			RXYQQ10T			RXYQQ10T		
	Outdoor unit module 2			RXYQQ10T			RXYQQ12T			RXYQQ16T		
	Outdoor unit module 3			RXYQQ20T			RXYQQ18T			RXYQQ16T		
Capacity range	HP			38			40			42		
Cooling capacity	Nom.			kW			106.0			118.0		
Heating capacity	Nom.			kW			120.0			132.0		
Power input - 50Hz	Cooling	Nom.		kW			31.0			33.3		
	Heating	Nom.		kW			29.9			30.9		
EER				3.42			3.61			3.54		
ESEER				5.03 (2) / 6.36 (3)			5.29 (2) / 6.74 (3)			5.19 (2) / 6.65 (3)		
COP				4.01			4.05			4.00		
Maximum number of connectable indoor units				64 (1)								
Piping connections	Liquid	OD		mm								
	Gas	OD		mm								
	Total piping length		System	Actual	m							
Current - 50Hz	Maximum fuse amps (MFA)			A								

(1) Actual number of connectable indoor units depends on the indoor unit type (VRV indoor, Hydrobox, RA indoor, etc.) and the connection ratio restriction for the system (50% <= CR <= 130%) (2) The STANDARD ESEER value corresponds with normal VRV4 Heat Pump operation, not taking into account advanced energy saving operation functionality (3) The AUTOMATIC SEER value corresponds with normal VRV4 Heat Pump operation, taking into account advanced energy saving operation functionality (variable refrigerant temperature control operation)



RQCEQ-P

Heat Recovery

OUTDOOR SYSTEM				RQCEQ280P	RQCEQ360P	RQCEQ460P	RQCEQ500P	RQCEQ540P	RQCEQ636P	RQCEQ712P	RQCEQ744P	RQCEQ816P	RQCEQ848P	
System	Outdoor unit module 1			RQEQ140P	RQEQ180P	RQEQ140P		RQEQ180P	RQEQ212P	RQEQ140P		RQEQ180P	RQEQ212P	
	Outdoor unit module 2			RQEQ140P	RQEQ180P	RQEQ140P		RQEQ180P	RQEQ212P	RQEQ180P		RQEQ212P		
	Outdoor unit module 3							RQEQ180P		RQEQ212P	RQEQ180P	RQEQ212P		
	Outdoor unit module 4							-		RQEQ212P				
Capacity range	HP			10	13	16	18	20	22	24	26	28	30	
Cooling capacity	Nom.			kW	28.0	36.0	45.0	50.0	54.0	63.6	71.2	74.4	81.6	84.8
Heating capacity	Nom.			kW	32.0	40.0	52.0	56.0	60.0	67.2	78.4	80.8	87.2	89.6
Power input - 50Hz	Cooling		Nom.	kW	7.04	10.3	12.2	13.9	15.5	21.9	21.2	23.3	27.1	29.2
	Heating		Nom.	kW	8.00	10.7	13.4	14.7	16.1	17.7	20.7	21.2	23.1	23.6
EER					3.98	3.48	3.77	3.61	3.48	2.90	3.36	3.19	3.01	2.90
COP					4.00	3.72	3.89	3.80	3.72	3.79	3.80	3.81	3.77	3.79
Maximum number of connectable indoor units					21	28	34	39	43	47	52	56	60	64
Sound pressure level	Cooling		Nom.	dBA	57	61		62	63	64	63	64	65	66
	Liquid		OD	mm	9.52	12.7		15.9			19.1			
Piping connections	Gas		OD	mm	22.2	25.4		28.6			34.9			
	Discharge gas		OD	mm	19.1		22.2		25.4		28.6			
	Piping length		OU - IU	Max.					120					
	Total piping length		System	Actual					300					
Level difference		OU - IU					50 (outdoor unit in highest position)							
Current - 50Hz	Maximum fuse amps (MFA)			A	30	40	50	60	70	80	90			

OUTDOOR UNIT MODULE				RQEQ140P				RQEQ180P				RQEQ212P							
Dimensions	Unit	HeightxWidthxDepth		mm				1,680x635x765											
Weight	Unit					175				179									
Sound pressure level	Cooling	Nom.		dBA				54				58				60			
Operation range	Cooling	Min.~Max.		°CDB				-5~43											
	Heating	Min.~Max.		°CWB				-20~15											
Refrigerant	Type			R-410A															
Power supply	Phase/Frequency/Voltage			Hz/V												3~/50/380-415			

Accessories

	RQYQ 140	RXYQ8-12T	RXYQ14-20T	2-module systems	3-module systems
Multi-module connection kit (obligatory) - Connects multiple modules into a single refrigerant system	-	-	-	BHFP22P1007	BHFP22P1517
Central drain pan kit - Installs onto the underside of the outdoor unit and collects drain water from all bottom plate outlets into a single outlet. In cold areas should be heated by a field-supplied heater to prevent drain water from freezing in the drain pan.	KWC26B160	-	-	-	-
Heater tape kit - Optional electrical heater to guarantee trouble-free operation in extremely cold and humid climates	-	EKBPH012T* + EKBPH-CBT*	EKBPH020T* + EKBPH-CBT*	-	-
External control adaptor for outdoor unit - Allows to activate Low Noise Operation and three levels of Demand Limiting via external dry contacts. Connects to the F1/F2 communication line and requires power supply from an indoor unit*, BSVQ box, or VRV-WIII outdoor unit.	DTA104A53/61/62 For installation into an indoor unit: exact adaptor type depends on type of indoor unit. See Options & Accessories of indoor units				
BHGP26A1 - Digital pressure gauge kit – displays current condensing and evaporating pressures in the system as standard, or expansion valve positions and temperature sensor data in a special service mode. Connect to the outdoor unit PCB, for installation in the outdoor unit.	✓	✓	✓	1 kit per system	1 kit per system
KRC19-26A - Mechanical cool/heat selector – allows to switch an entire Heat Pump system, or one BS-box of a Heat Recovery system between cooling, heating and fan only. Connects to the A-B-C terminals of the outdoor unit / BS-box.	✓	✓	✓	1 kit per system	1 kit per system
BRP2A81 - Cool/heat selector PCB (required for VRV IV)	-	✓	✓	✓	✓
KKSA26A560* - Cool/heat selector PCB mounting plate (only required when cool/heat selector PCB and Heater tape kit are combined)	-	✓	✓	✓	✓
KJB111A - Installation box for remote cool/heat selector KRC19-26A	✓	✓	✓	1 kit per system	1 kit per system
EKPCCAB1 - VRV configurator	-	✓	✓	✓	✓
DTA104A61/62* - Demand PCB allowing external input to limit power consumption	-	✓	✓	✓	✓
KKS26B1* - Demand PCB mounted plate. Needed to mount Demand PCB for some outdoor units.	-	-	✓	-	-

	RQEQ 140~212	2-module systems	3-module systems	4-module systems
Multi-module connection kit (obligatory) - Connects multiple modules into a single refrigerant system	-	BHFP26P36C	BHFP26P63C	BHFP26P84C
Central drain pan kit Installs onto the underside of the outdoor unit and collects drain water from all bottom plate outlets into a single outlet. In cold areas should be heated by a field-supplied heater to prevent drain water from freezing in the drain pan.	KWC26B160	1 kit per module	1 kit per module	1 kit per module
External control adaptor for outdoor unit Allows to activate Low Noise Operation and three levels of Demand Limiting via external dry contacts. Connects to the F1/F2 communication line and requires power supply from an indoor unit*, BSVQ box, or VRV-WIII outdoor unit.	DTA104A53/61/62 For installation into an indoor unit: exact adaptor type depends on type of indoor unit. See Options & Accessories of indoor units			
BHGP26A1 Digital pressure gauge kit – displays current condensing and evaporating pressures in the system as standard, or expansion valve positions and temperature sensor data in a special service mode. Connect to the outdoor unit PCB, for installation in the outdoor unit.	✓	1 kit per system	1 kit per system	1 kit per system

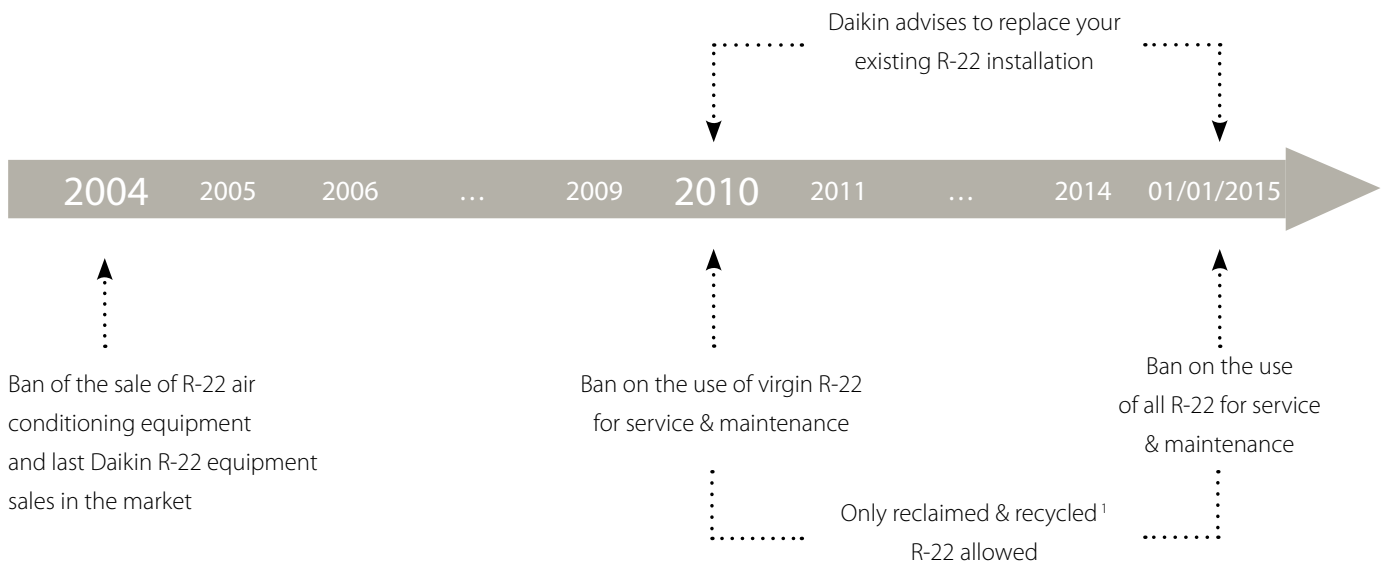
R-22 an ozone depleting refrigerant

R-22 is a hydrochlorofluorocarbon (HCFC) which was commonly used in air conditioning systems. When R-22 is released into the air, the ultraviolet rays of the sun cause it to decompose and chlorine is released in the stratosphere. Chlorine reacts with ozone, reducing the amount of the ozone.

Due to ozone layer depletion, harmful ultraviolet rays reach the surface of the earth giving rise to a number of health and environmental issues. The international community therefore, signed the Montreal Protocol to phase out ozone depletion materials by 2030. The European Union however, decided to ban R-22 already in 2015.

Daikin advises to replace your existing installation already today.

When will R-22 be banned in Europe?



¹ Recycled: re-use of R-22 following a basic cleaning process. Recycled R-22 must be re-used by the same company that carried out the recovery (can be done by installer)
 Reclaimed: reprocessed R-22 in order to meet the equivalent performance of virgin R-22 (by specialized company)

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