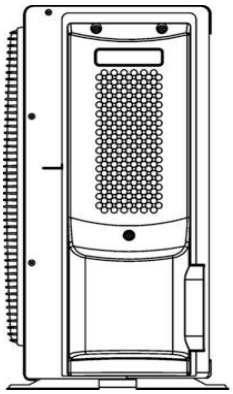
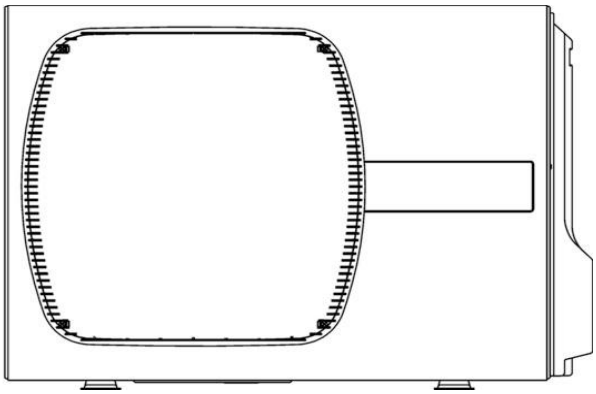
TECHNICAL DATA
& SERVICE MANUAL

OUTDOOR UNIT: **GR9FI50R5IAA**
GR9FI50R5IAB
GR9FI42R5IAA

DUAL SPLIT SYSTEM AIR CONDITIONER

Model No.	Product Code No.
GR9FI50R5IAA	38.7107.098
GR9FI50R5IAB	38.7107.103
GR9FI42R5IAA	38.7107.106





0.8180.597.03 09/2012

IMPORTANT!
Please read before installation

This air conditioning system meets strict safety and operating standards.
For the installer or service person, it is important to install or service the system so that it operates safely and efficiently.

For safe installation and trouble-free operation, you must:
- Carefully read this instruction booklet before beginning.
- Follow each installation or repair step exactly as shown.
- Observe all local, state and national electrical codes.
- Pay close attention to all warning and caution notices given in this manual.

•The unit must be supplied with a dedicated electrical line.

WARNING

This symbol refers to a hazard or unsafe practice which can result in severe personal injury or death.

CAUTION

This symbol refers to a hazard or unsafe practice which can result in personal injury or product or property damage.

If necessary, get help
These instructions are all you need for most installation sites and maintenance conditions.
If you require help for a special problem, contact our sale/service outlet or your certified dealer for additional instructions.

In case of improper installation
The manufacturer shall in no way be responsible for improper installation or maintenance service, including failure to follow the instructions in this document.

SPECIAL PRECAUTIONS

- During installation, connect before the refrigerant system and then the wiring one; proceed in the reverse orden when removing the units.

WARNING **When wiring**

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED, EXPERIENCED ELECTRICIANS SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and tubing are completed or reconnected and checked, to ensure the grounding.
- Highly dangerous electrical voltages are used in this system. Carefully refer to the wiring diagram and these instructions when wiring.
  Improper connections and inadequate grounding can cause **accidental injury and death**.
- **Ground the unit** following local electrical codes.
- The Yellow/Green wire cannot be used for any connection different from the ground connection.
- Connect all wiring tightly. Loose wiring may cause overheating at connection points and a possible fire hazard.
- Do not allow wiring to touch the refrigerant tubing, compressor, or any moving parts of the fan.
- Do not use multi-core cable when wiring the power supply and control lines. Use separate cables for each type of line.

When transporting
Be careful when picking up and moving the indoor and outdoor units. Get a partner to help, and bend your knees when lifting to reduce strain on your back. Sharp edges or thin aluminium fins on the air conditioner can cut your fingers.

When installing...
... In a ceiling or wall
Make sure the ceiling/wall is strong enough to hold the unit-weight. It may be necessary to build a strong wooden or metal frame to provide added support.

... In a room
Properly insulate any tubing run inside a room to prevent "sweating", which can cause dripping and water damage to walls and floors.

... In moist or uneven locations
Use a raised concrete base to provide a solid level foundation for the outdoor unit.
This prevents damage and abnormal vibrations.

... In area with strong winds
Securely anchor the outdoor unit down with bolts and a metal frame. Provide a suitable air baffle.

... In a snowy area (for heat pump-type systems)
Install the outdoor unit on a raised platform that is higher than drifting snow. Provide snow vents.

When connecting refrigerant tubing
- Keep all tubing runs as short as possible.
- Use the flare method for connecting tubing.
- Apply refrigerant lubricant to the matching surfaces of the flare and union tubes before connecting them; screw by hand and then tighten the nut with a torque wrench for a leak-free connection.
- Check carefully for leaks before starting the test run.

NOTE:
Depending on the system type, liquid and gas lines may be either narrow or wide. Therefore, to avoid confusion, the refrigerant tubing for your particular model is specified as narrow tube for liquid, wide tube for gas.

When servicing
- Turn the power OFF at the main power board before opening the unit to check or repair electrical parts and wiring.
- Keep your fingers and clothing away from any moving parts.
- Clean up the site after the work, remembering to check that no metal scraps or bits of wiring have been left inside the unit being serviced.
- Ventilate the room during the installation or testng the refrigeration system; make sure that, after the installation, no gas leaks are present, because this could produce toxic gas and dangerous if in contact with flames or heat-sources.

0.8180.531.00 05/2007

Table of Contents

1. OPERATING RANGE

GR9FI50R5IAA			
GR9FI50R5IAB			
GR9FI42R5IAA			
	Temperature	**Indoor Air Intake Temp.**	**Outdoor Air Intake Temp.**
Cooling	Maximum	32°C D.B. / 23°C W.B.	43°C D.B.
	Minimum	10°C D.B. / 6°C W.B.	-15°C D.B.
Heating	Maximum	27°C D.B.	24°C D.B. / 18°C W.B.
	Minimum	5°C D.B.	-15°C D.B.

2. SPECIFICATIONS

2-1 Unit Specifications

	GR9FI50R5IAA	GR9FI50R5IAB	GR9FI42R5IAA
Power source	220 - 240 V ~ 50 Hz		
Voltage rating	230 V		

Performance * MTAF(B)IA0R5I x2		Cooling	Heating	Cooling	Heating	Cooling	Heating
Capacity	kW	4,45	5,00	4,55	5,19	3,27	3,68
	BTU/h	15184	17061	15525	17709	11158	12557
Air circulation (High)	m³/h	600				600	
Moisture removal (High)	Liters/h	1,5	-	1,5	-	1,5	-

Electrical Rating		Cooling	Heating	Cooling	Heating	Cooling	Heating
Available voltage range	V	198 ~ 264					
Running amperes	A	6,10	5,20	6,00	5,30	4,34	3,73
Power input	W	1382	1180	1360	1210	980	840
Power factor	%	99	99	99	99	98	98
C.O.P.	W/W	3,22	4,24	3,35	4,29	3,34	4,38
Compressor locked rotor amperes	A	-	-	-	-	-	-

Features				
Fan speed		Variable (200÷800 continuous)		
Compressor		Rotary (Hermetic) DC inv.	TwinRotary (Hermetic) DCinv.	TwinRotary (Hermetic) DCinv.
Refrigerant / Amount charged at shipı	g	R410A / 1300	R410A / 1300	R410A / 1300
Refrigerant control		Electronic expansion valve		
Power noise level Hi	dB-A	59	58	58
Refrigerant tubing connections		Flare type		
Max. allowable tubing length at shipm	m	see installation instruction		
Refrigerant tube diameter	Narrow tube mm(in.)	6,35 (1/4)		
	Wide tube mm(in.)	9,52 (3/8)		

Dimensions & Weight				
Unit dimensions	Height	mm	630	630
	Width	mm	830	830
	Depth	mm	345	345
Package dimensions	Height	mm	710	710
	Width	mm	990	990
	Depth	mm	410	410
Weight	Net	kg	56,5	56,4
	Shipping	kg	61,5	61,4
Shipping volume		m³	0,29	0,29

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Remarks:

Rating Conditions are:

Cooling: Indoor Air Temperature 27°C D.B. / 19°C W.B.
Outdoor Air Temperature 35°C D.B. / 24°C W.B.

Heating: Indoor Air Temperature 20°C D.B.
Outdoor Air Temperature 7°C D.B. / 6°C W.B.

* For other INDOOR UNITS' MODELS, please refer to catalogue

2-2 Major Component Specifications

				GR9FI50R5IAA	GR9FI50R5IAB	GR9FI42R5IAA
Compressor						
Type				Rotary (Hermetic) DC inv.	TwinRotary (Hermetic) DCinv.	TwinRotary (Hermetic) DCinv.
Compressor model				G4B135LUBJH	SNB130FGBMT	SNB110FGYMT
Nominal input (compressor rating conditio			W	1324	1140	1035
Compressor oil…Amount			cc	FREOLα68ES-T/RB68EP600	FV50S ……350	FV50S ……350
Coil resistance (Ambient temp. 20°C)			Ω	0,64	0,98	0,98
Overload relay				Software Protection		
Safety devices	**Type**			-	-	-
	Operating Temp.	**Open**	°C	-	-	-
		Close	°C	-	-	-
Controller PCB						
Part No.				SAC DCI ODU		
Controls				Microprocessor		
Control circuit fuse				6,3x32 - 10A		
Expansion PCB						
Part No.				SAC DCI ESP DUAL		
Controls				---		
Control circuit fuse				---		
Fan & Fan Motor						
Type				Propeller		Propeller
Q'ty ……. Ø			Nr. ... mm	1…. Ø 400		1…. Ø 400
Fan motor model…Q'ty				P35810 P0012		BOM ZW465B57
No. Of poles…rpm				8 ... variable (200 ÷ 800)		8 . variable (200÷800)
Nominal output			W	20		20
Coil resistance (Ambient temp. 25 °C)			Ω	BRN-BLK: 210		BRN-BLK:206
			Ω	YEL-BLK: 210		WIT-BLK:206
			Ω	BRN-YEL: 210		BRN-WHT:206
Safety devices	**Type**			-		-
	Operating temp.	**Open**	°C	-		-
		Close	°C	-		-
Heat Exch. Coil						
Coil				Aluminium plate fin / Copper tube		
Rows				3	2	2
Fin pitch			mm	1,4	1,5	1,5
Face area			m^2	0,37	0,47	0,47
External Finish				Acrylic baked-on enamel finish		

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2-3 Other Component Specifications

		GR9FI50R5IAA	GR9FI50R5IAB	GR9FI42R5IAA
4-way Valve (20S)		**SQ-136 (Coil) SHF-4H-23U (Valve)**	**SQ-136(Coil)-SHF-7K-34U(Valve) STF-..J514.. (coil) - STF-0202G (valve)**	
Coil rating		AC 220/240 V, 50 Hz		
Coil resistance	**Ω (at 20°C)**	1440 ± 5%		

Electronic Expansion Valve		**CAM-MD12EX(Coil) ZCAM-BD15EX (Valve)**
Coil rating		DC 12 V
Coil resistance / phase	**Ω (at 20°C)**	46 ± 4%

Defrost Valve		**FQ-235-RK (Coil) FDF6A-049-RK (Valve)**
Coil rating		AC 220/240 V - 50 Hz
Coil resistance	**Ω (at 20°C)**	1273 ± 10%

Thermistor (coil sensor)		**NTC-THERMISTOR**
Resistance	**kΩ**	10 at 25 °C

Thermistor (compressor disch. sen.)		**NTC-THERMISTOR**
Resistance	**kΩ**	10 at 25 °C

Thermistor (inlet air sensor)		**NTC-THERMISTOR**
Resistance	**kΩ**	10 at 25 °C

Thermistor (wide tube A sensor)		**NTC-THERMISTOR**
Resistance	**kΩ**	10 at 25 °C

Thermistor (narrow tube A sensor)		**NTC-THERMISTOR**
Resistance	**kΩ**	10 at 25 °C

Thermistor (wide tube B sensor)		**NTC-THERMISTOR**
Resistance	**kΩ**	10 at 25 °C

Thermistor (narrow tube B sensor)		**NTC-THERMISTOR**
Resistance	**kΩ**	10 at 25 °C

Crank case heater		**30 W RESISTANCE**
Resistance	**Ω (at 20°C)**	1760 ± 10%

Base heater		**75W FLEXELEC CSC2**
Resistance	**Ω (at 20°C)**	705 ± 10%

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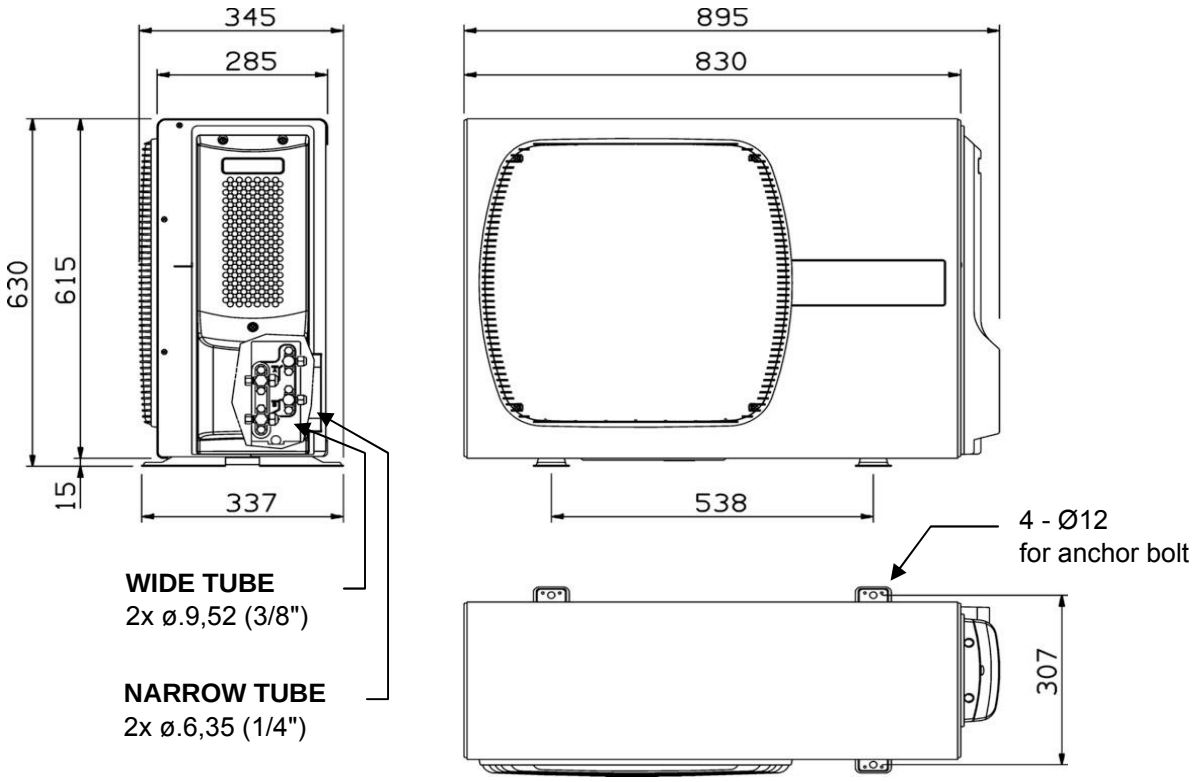
3. DIMENSIONAL DATA

GR9FI50R5IAA

GR9FI50R5IAB

GR9FI42R5IAA

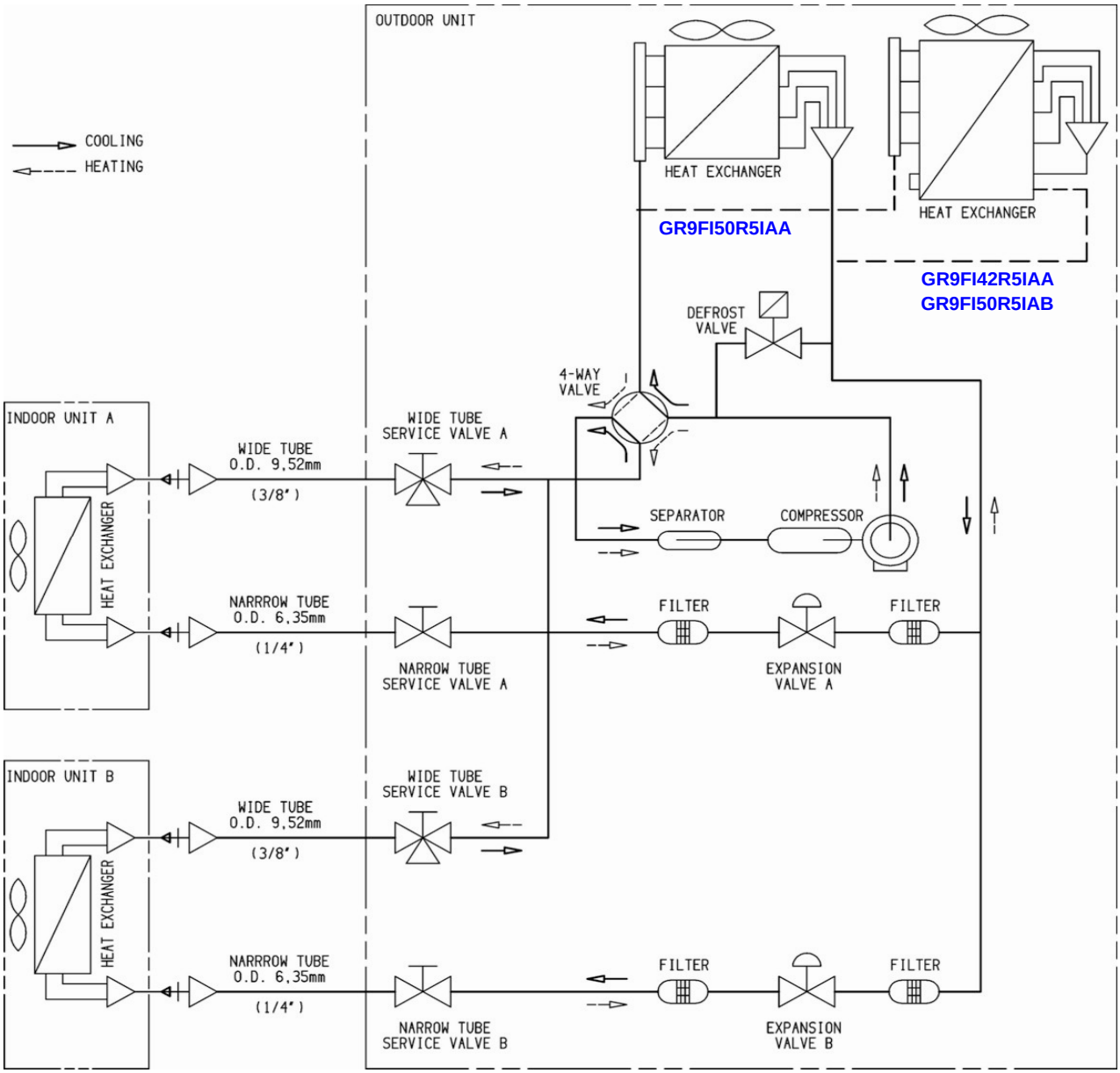


dimension [mm]

4. REFRIGERANT FLOW DIAGRAM

4-1 Dual Split System Refrigerant Flow Diagram

Outdoor Unit:	**GR9FI50R5IAA**	Indoor Unit:	**MTAF(B)IA0R5I x2**
	GR9FI50R5IAB		**MTAF(B)IA0R5I x2**
	GR9FI42R5IAA		**MTAF(B)IA0R5I x2**



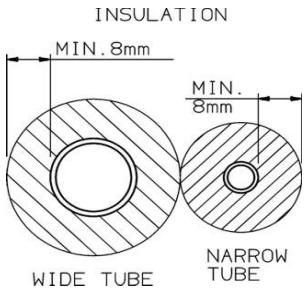
Insulation of Refrigerant Tubing

IMPORTANT

Because expansion valve is used in the outdoor unit, both the wide and narrow tubes of this air conditioner become cold. To prevent heat loss and wet floors due to dripping of condensation, both tubes must be well insulated with a proper insulation material.
The thickness of the insulation should be a min. 8mm.

CAUTION

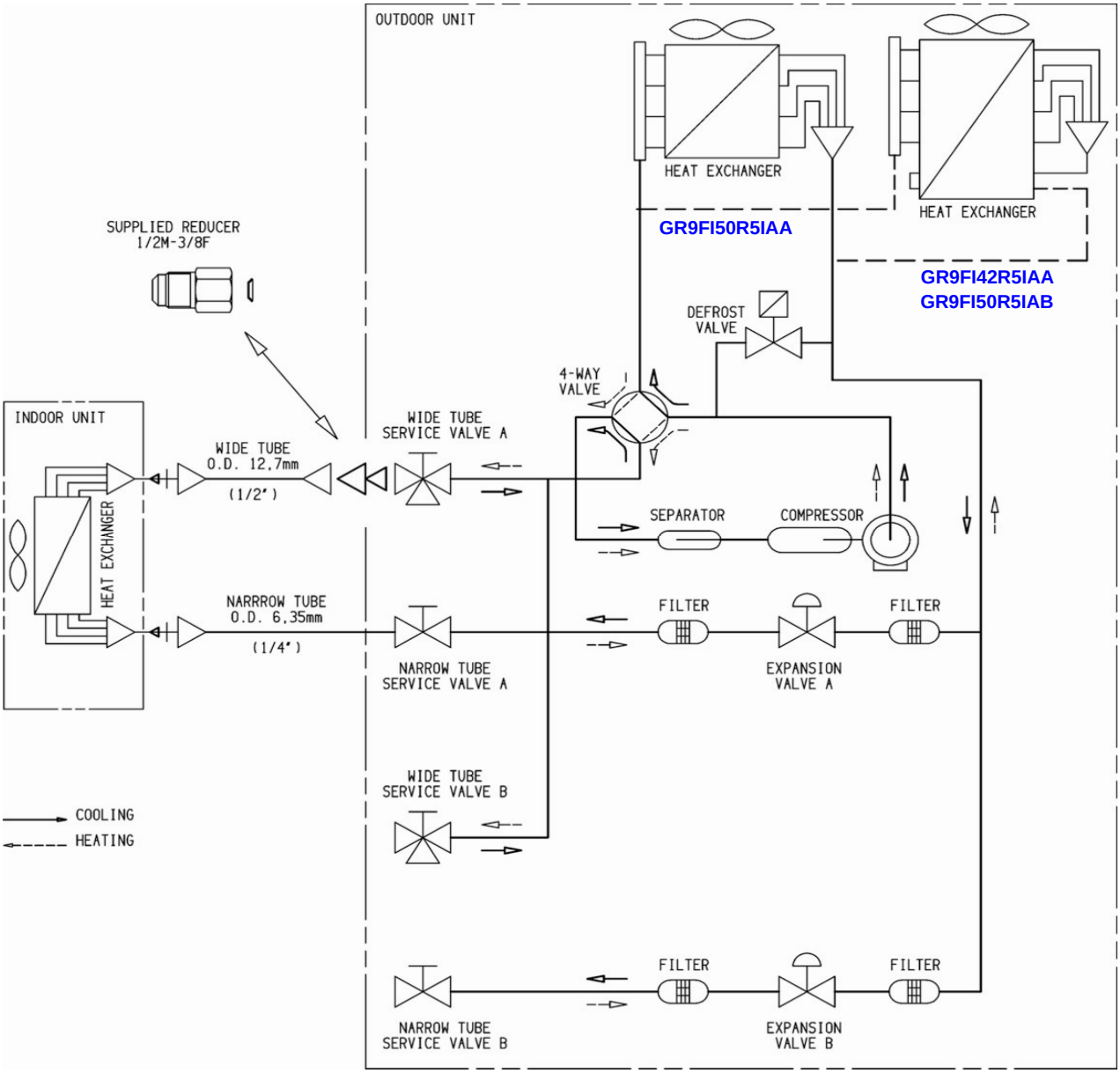
After a tube has been insulated, never try to bend it into a narrow curve because it can cause the tube to break or crack.



4-2 Mono Split System Refrigerant Flow Diagram

Outdoor Unit: **GR9FI50R5IAA** Indoor Unit: **MPA9FIB0R5IAA x1**

GR9FI50R5IAB **MPA9FIB0R5IAA x1**



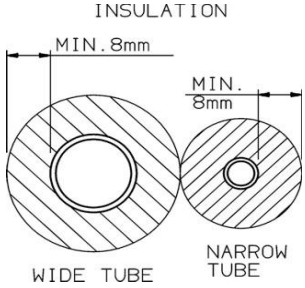
Insulation of Refrigerant Tubing

IMPORTANT

Because expansion valve is used in the outdoor unit, both the wide and narrow tubes of this air conditioner become cold. To prevent heat loss and wet floors due to dripping of condensation, both tubes must be well insulated with a proper insulation material.
The thickness of the insulation should be a min. 8mm.

CAUTION

After a tube has been insulated, never try to bend it into a narrow curve because it can cause the tube to break or crack.

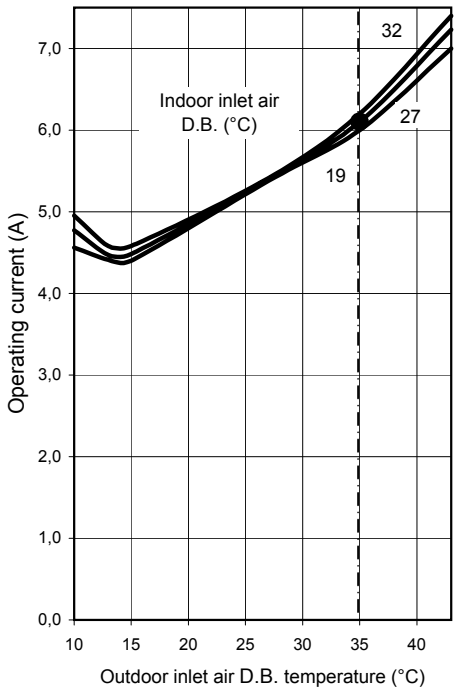


5. PERFORMANCE DATA

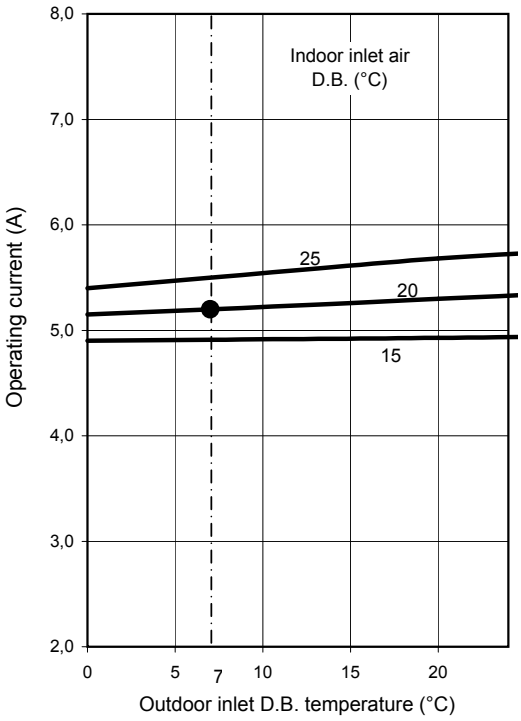
5-1 Performance charts

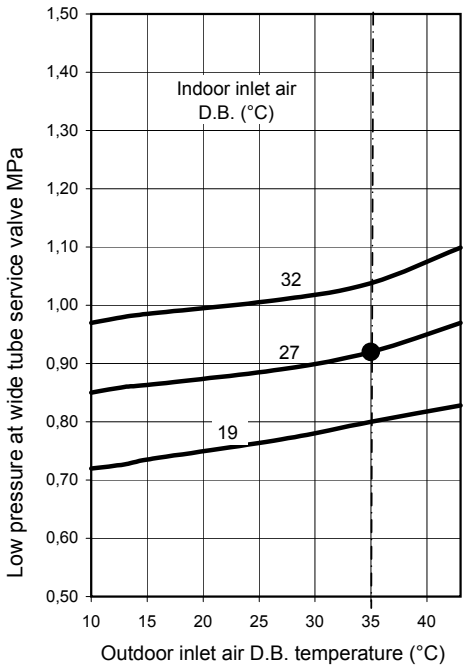
GR9FI50R5IAA

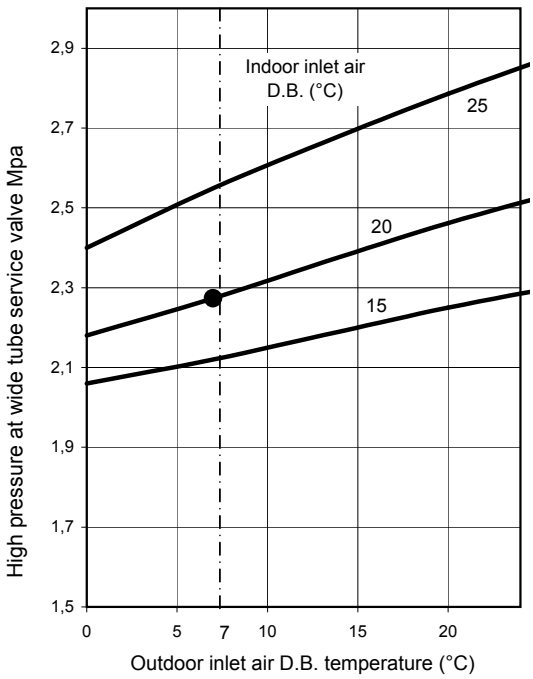
■ Cooling Characteristics



■ Heating Characteristics







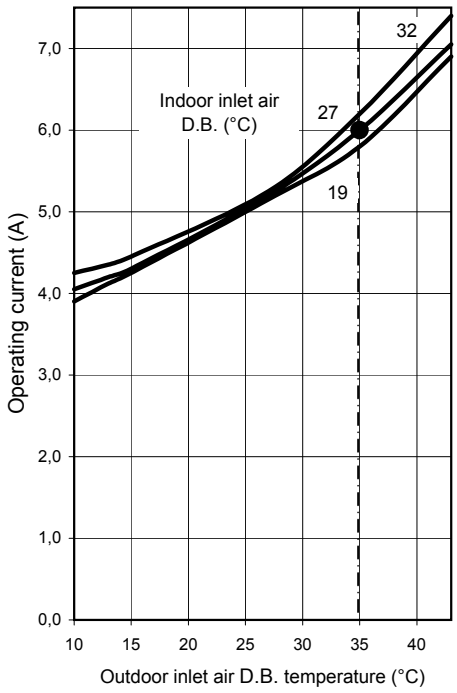
Note

Overload prevention operates to protect the air conditioner when outdoor ambient temperature reaches extremely high values in heating mode.

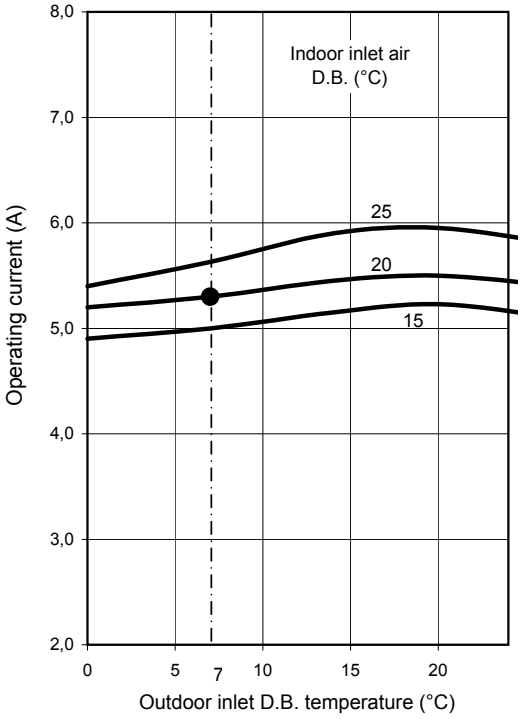
● Points of Rating condition Data referred to **MTAF(B)IA0R5I x2**

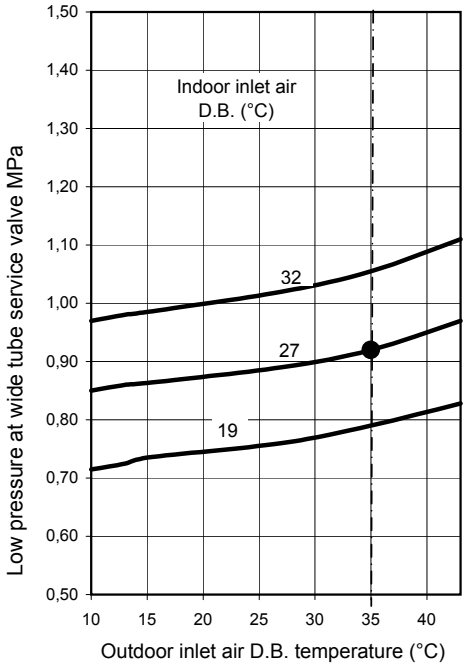
GR9FI50R5IAB

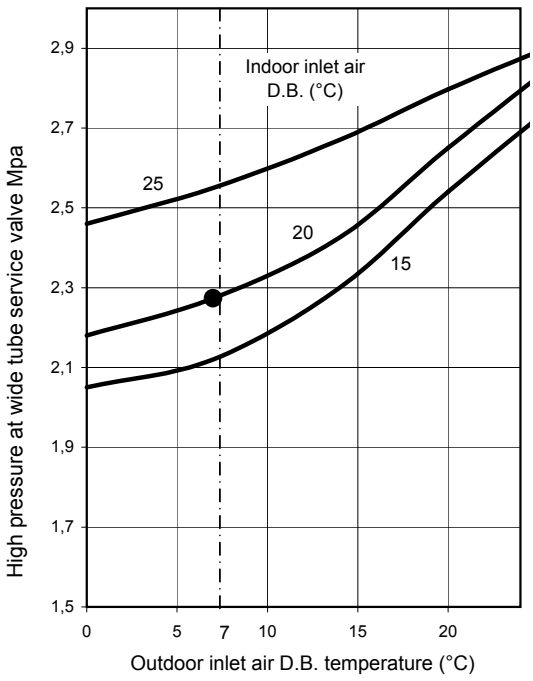
■ Cooling Characteristics



■ Heating Characteristics







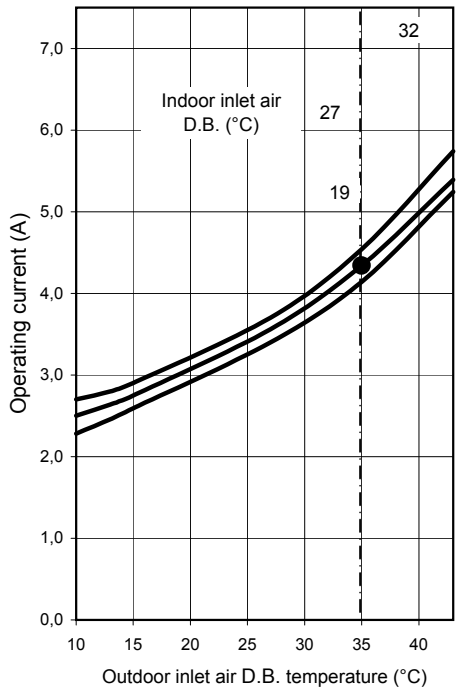
Note

Overload prevention operates to protect the air conditioner when outdoor ambient temperature reaches extremely high values in heating mode.

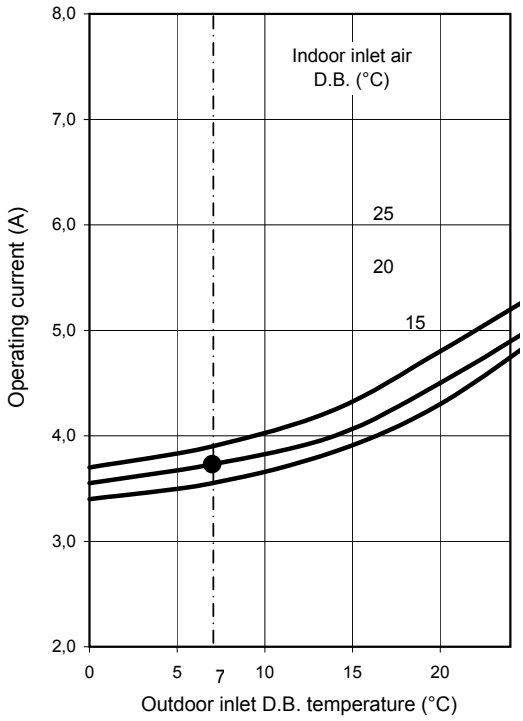
● Points of Rating condition Data referred to **MTAF(B)IA0R5I x2**

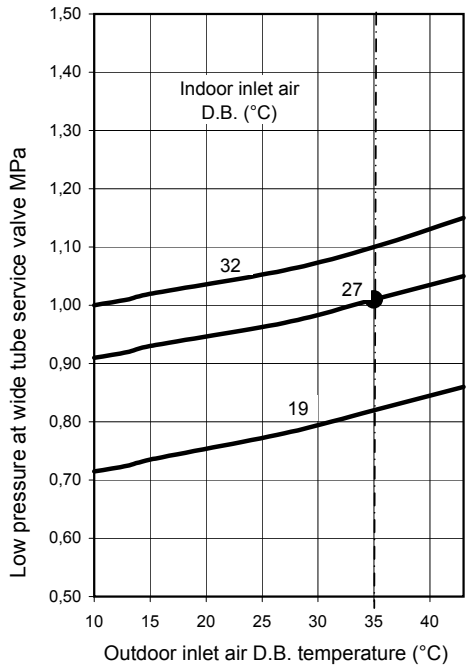
GR9FI42R5IAA

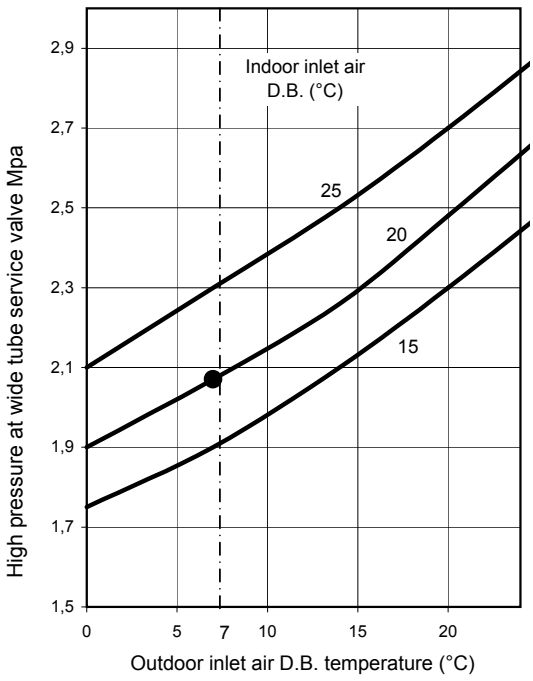
■ Cooling Characteristics



■ Heating Characteristics







Note

Overload prevention operates to protect the air conditioner when outdoor ambient temperature reaches extremely high values in heating mode.

● Points of Rating condition Data referred to **MTAF(B)IA0R5I x2**

6. ELECTRICAL DATA

6-1 Electrical characteristics

GR9FI50R5IAA

COOLING

			2 Indoor Unit	Outdoor unit	Complete Unit
			Fan Motor	Fan Motor + Compressor	
Performance at			230 V - 1 Phase - 50 Hz		
Rating conditions	Running Amps.	A	0,26	5,84	6,1
	Power input	kW	0,062	1,320	1,382

Rating Conditions: Indoor Air Temperature 27°C D.B. / 19°C W.B.
Outdoor Air Temperature 35°C D.B. / 24°C W.B.

HEATING

			2 Indoor Unit	Outdoor unit	Complete Unit
				Fan Motor + Compressor	
Performance at			230 V - 1 Phase - 50 Hz		
Rating conditions	Running Amps.	A	0,26	4,94	5,2
	Power input	kW	0,062	1,118	1,180

Rating Conditions: Indoor Air Temperature 20°C D.B.
Outdoor Air Temperature 7°C D.B. / 6°C W.B.

NOTE: Data referred to **2** indoor unit, **MTAF(B)IA0R5I x2**
For other indoor unit models there could be some differences.

GR9FI50R5IAB

COOLING

			2 Indoor Unit	Outdoor unit	Complete Unit
			Fan Motor	Fan Motor + Compressor	
Performance at			230 V - 1 Phase - 50 Hz		
Rating conditions	Running Amps.	A	0,26	5,74	6,0
	Power input	kW	0,062	1,298	1,360

Rating Conditions: Indoor Air Temperature 27°C D.B. / 19°C W.B.
Outdoor Air Temperature 35°C D.B. / 24°C W.B.

HEATING

			2 Indoor Unit	Outdoor unit	Complete Unit
				Fan Motor + Compressor	
Performance at			230 V - 1 Phase - 50 Hz		
Rating conditions	Running Amps.	A	0,26	5,04	5,3
	Power input	kW	0,062	1,148	1,210

Rating Conditions: Indoor Air Temperature 20°C D.B.
Outdoor Air Temperature 7°C D.B. / 6°C W.B.

NOTE: Data referred to **2** indoor unit, **MTAF(B)IA0R5I x2**
For other indoor unit models there could be some differences.

GR9FI42R5IAA

COOLING

			2 Indoor Unit	Outdoor unit	Complete Unit
			Fan Motor	Fan Motor + Compressor	
Performance at			230 V - 1 Phase - 50 Hz		
Rating conditions	Running Amps.	A	0,26	4,08	4,34
	Power input	kW	0,062	0,918	0,980

Rating Conditions: Indoor Air Temperature 27°C D.B. / 19°C W.B.
Outdoor Air Temperature 35°C D.B. / 24°C W.B.

HEATING

			2 Indoor Unit	Outdoor unit	Complete Unit
				Fan Motor + Compressor	
Performance at			230 V - 1 Phase - 50 Hz		
Rating conditions	Running Amps.	A	0,26	3,47	3,73
	Power input	kW	0,062	0,778	0,840

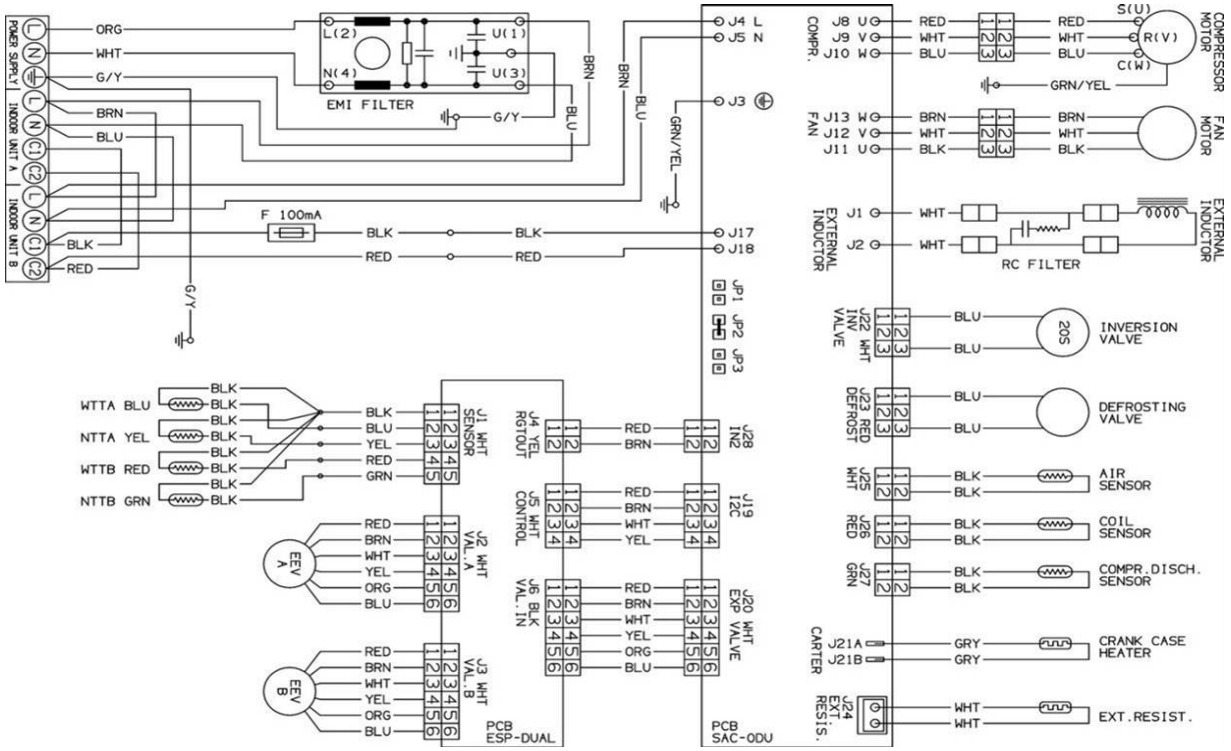
Rating Conditions: Indoor Air Temperature 20°C D.B.
Outdoor Air Temperature 7°C D.B. / 6°C W.B.

NOTE: Data referred to **2** indoor unit, **MTAF(B)IA0R5I x2**
For other indoor unit models there could be some differences.

6-2 Electric Wiring Diagram

Outdoor unit: **GR9FI50R5IAA**

PRODUCED BEFORE DEC.31, 2010

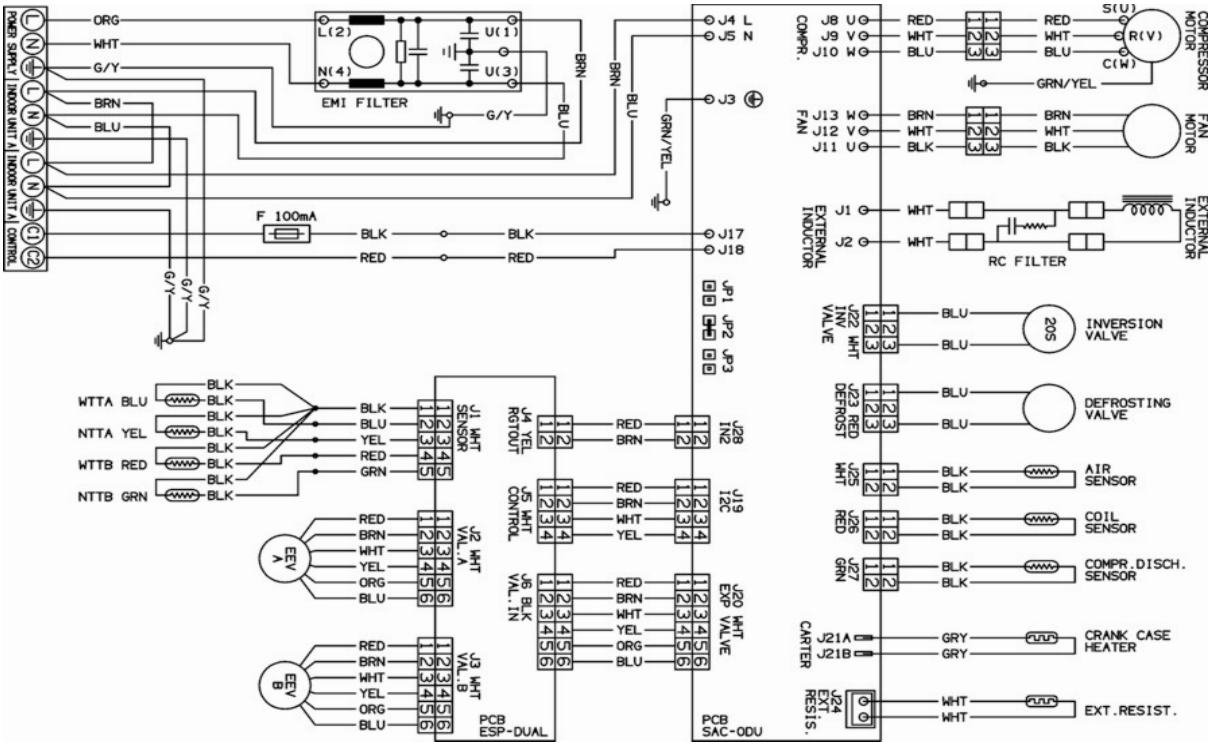


Outdoor unit: **GR9FI50R5IAA**

PRODUCED AFTER GEN.1, 2011

GR9FI50R5IAB

GR9FI42R5IAA

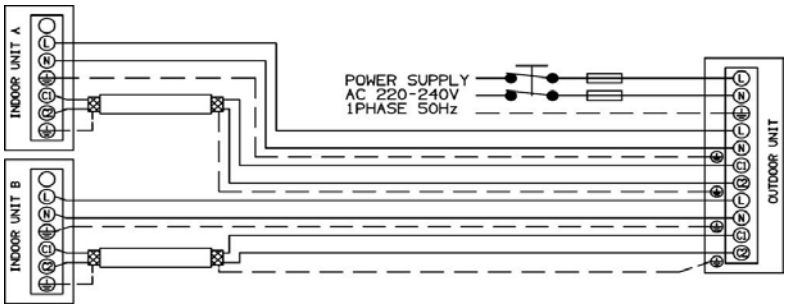


6-3 Dual Split System Wiring Diagram

Outdoor unit: **GR9FI50R5IAA**

PRODUCED BEFORE DEC.31, 2010

Indoor unit: **MTAF(B)IA0R5I x2**



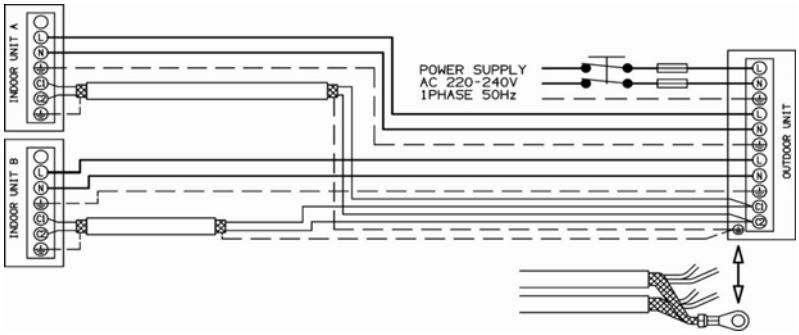
Outdoor unit: **GR9FI50R5IAA**

PRODUCED AFTER GEN.1, 2011

GR9FI50R5IAB

GR9FI42R5IAA

Indoor unit: **MTAF(B)IA0R5I x2**

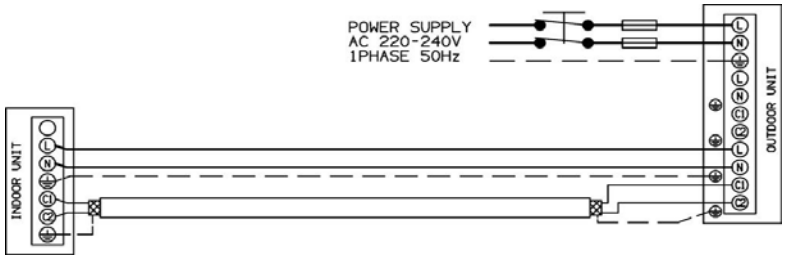


6-4 Mono Split System Wiring Diagram

Outdoor unit: **GR9FI50R5IAA**

PRODUCED BEFORE DEC.31, 2010

Indoor unit: **MPA9FIB0R5IAA**

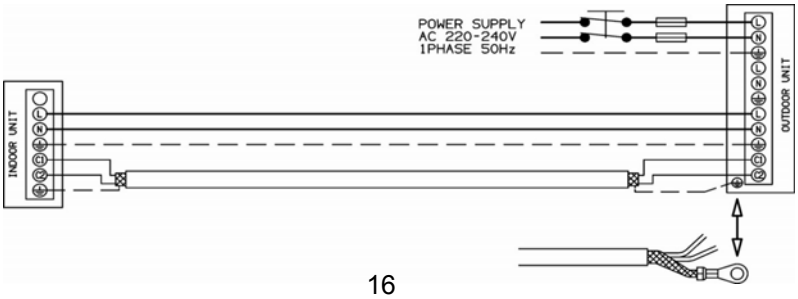


Outdoor unit: **GR9FI50R5IAA**

PRODUCED AFTER GEN.1, 2011

GR9FI50R5IAB

Indoor unit: **MPA9FIB0R5IAA**



7. FUNCTION

7-1 Diagnostic

With this feature is possible to have a visual signal that a trouble is occurring.
This mode is always active and the signalling is made through the display board LEDS .
In case of no troubles the LEDS status follows its normal function.
The detected troubles are showed to the user/technician using the 3 or 5 leds of the indoor unit receiver and the 5 leds on the outdoor pcb. For each fault there are different effects upon the operation of the A/C:

NOTES

- The troubles are showed according to a priority list that is in case of more than one trouble present, is always showed, at first, the one with the highest priority (3 ⇨ 2⇨ 1 etc).
- Sensor damaged means a situation where sensor is short-circuited or opened.
- In case of damaged sensors, the system (CM, FMO, FMI etc), if in OFF state, does not start.

RANK	DIAGNOSIS CONTENTS	DL3	DL4	DL5	DL6	DL7	EFFECTS
15	WRONG CONNECTION PIPES	☼	X	☼	X	☼	system does not operate. To re-start the system, power re-setting (off-on) is required note: before restoring power, adjust the dip-switch status on idu according to the connection pipes
14	NTTB PROBE DAMAGED OR NOT CONNECTED	X	X	☼	X	☼	
13	NTTA PROBE DAMAGED OR NOT CONNECTED	X	☼	X	☼	X	
12	WTTB PROBE DAMAGED OR NOT CONNECTED	☼	X	☼	X	X	
11	WTTA PROBE DAMAGED OR NOT CONNECTED	X	☼	X	X	X	
10	CDT PROBE DAMAGED OR NOT CONNECTED	X	X	☼	X	X	
9	OAT PROBE DAMAGED OR NOT CONNECTED	X	X	X	☼	X	system does not operate. as soon as fault is cleared, the system automatically restart after 3 min. during this time, the signalling is showed
8	OCT PROBE DAMAGED OR NOT CONNECTED	X	X	X	X	☼	
7	COMPRESSOR OVERCURRENT	☼	☼	X	X	X	
6	COMPRESSOR OVERTEMPERATURE	X	☼	☼	X	X	
5	FAN OVERCURRENT	X	X	☼	☼	X	
4	FAN OVERTEMPERATURE	X	X	X	☼	☼	
3	PFC FAULT	☼	☼	☼	X	X	
2	FAULT ON INDOOR UNIT A-B	X	☼	☼	☼	X	
1	COMUNICATION ERROR INDOOR UNIT A-B	X	X	☼	☼	☼	

Technibel
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