



# SARMAAFARIN

## Air-Cooled Scroll Condensing Units



Certificate No.: 9190.C308  
FORM SSI - 38RC (1404)

**38RC**  
**15-50**

(53 to 176 Nominal kW/IR)  
15 to 50 Nominal Tons

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## Features and Benefits

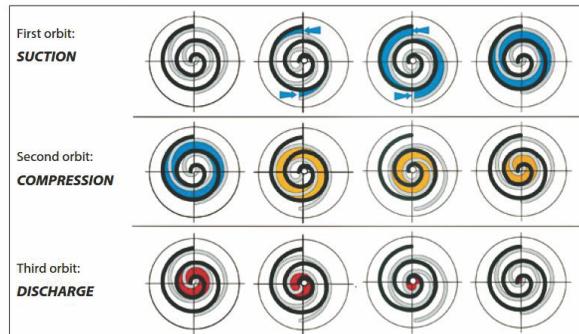
SarmaAfarin 38RC outdoor products provide split systems compatible with 39HX or 39FD series to satisfy in diverse choices of residential, industrial, and commercial cooling solution. 38RC Condensing Units' design leads to high reliability, efficient condensation and easy maintenance.

- 38RC series are available in six sizes: 15, 20, 25, 30, 40, and 50 TR
- Chlorine free and Ozone-friendly R407C and R134a refrigerants.
- Positive displacement, scroll compressor.
- Quiet axial condenser fan system
- Microchiller used to control the compressors and fans.
- Rated according to AHRI Standard 366.
- Capability to adjust with an AHU.
- Ready to install with least piping and electrical wiring work.
- High and low-pressure switches to maintain unit in its envelope.
- Full load EER up to 14.8 and COP up to 4.4
- Self-stand power and control electrical box
- Intelligence and connectivity (coupled PLC and BMS)
- Superior reliability and versatility
- Developed based on Carrier System Design Manual

## 38RC Scroll Condensing Units

Commercial and residential Condensing Units are introduced as 38RC series with united parts of refrigerant. In 38RC series, the best brands of scroll compressors are used to gain greater compressor lifecycle, wider range of applications, lower acoustic levels and higher energy efficiency.

Refrigerant compression continuously occurs by two scroll elements that include three stages of suction, compression, and discharge.



## SARMAAFARIN Coupling Products

The 38RC Condensing Units can be used with certain HVAC applications that require filtration and fresh air which can be achievable by 39HX series of AHU (manufactured according to BS/EN -13053). This type of air handling unit and also 39FD can be coupled with 38RC Condensing Units in order to deliver conditioned and ventilated air to customers.

## 38RC Specifications

The 38RC condensing units have single or dual independent circuits; providing inherent backup capability.

This series uses the right components including the compressor, condenser assembly, electrical and control parts, instruments like temperature, pressure transducer sensor, and metering device. This approach results in a product that our customers can rely on and trust. Pressure boosting of refrigerant is done by AHRI-rated scroll compressors. Scroll compressor benefits from different components like oil pump, oil heater, internal relief valve, high discharge temperature protection, PTFE Spring, and heat shield.

- Reliable and efficient orbiting scroll compressor.
- Heatshield isolates high-temperature discharge gas from the low-temperature side and leads to higher motor performance.
- Heatshield plays an acoustic dampener role in the compressors.
- Efficient air-cooled condenser leads to low condensing pressure and temperature.
- Pressure equalizer is used to make useful superheat more adjustable as a result evaporator with higher suction pressure.

- Thermostatic expansion device permitting operation at a lower condensing pressure and improving utilization of the evaporator heat exchange surface (superheat control).
- Cleanliness of oil and refrigerant is achieved by a filter drier that can eliminate moisture and acid.
- High-pressure relief valve is used for the safety of compressors, heat exchangers, and piping.
- High and low-pressure switches to maintain compressor in its application envelope.

## Low Operation Sound Levels

- Compressors
  - Residential and light commercial version
  - Full hermetic welded shell
  - Sound jacket to lower the compressor noises
  - Discharge check valve prevents reverse rotation, resulting in no shutdown noise
- Condenser section
  - Suction noise elimination
  - Rigid fan mounting preventing start-up noise

## Micro Controller

Microcontroller is a logic controller which limits the unit to operate in its envelope range.

The condenser fans and compressors, receive logical commands from controller to run in sequence based on a logic flow chart.

There are some limitations and safety precautions that are considered to prevent the unit from disruption. Due to changes in outdoor air temperature and cooling load, parameters are monitored by Microcontroller.

- Leaving and entering evaporator temperature
- Pressure transducer for suction and discharge gas of the compressor.

## Factory Testing

All SSI applied scroll Condensing Units are factory -tested prior to shipment. Operating and safety controls are checked for correct settings and operation. This testing helps reduce field start-up issues and maintain critical construction schedules. Operating and safety controls are meticulously checked for correct settings and functionality,

contributing to the adherence of critical construction schedules.

Before shipment, all units undergo a comprehensive run test in the factory. A systematic factory operation test is conducted, including a Quick-test function for step-by-step verification of instruments, expansion devices, fans, and compressors.

Furthermore, the 38RC Condensing Units are designed, manufactured, and tested in a facility with a quality assurance system certified ISO 9001, ensuring a commitment to high standards throughout the entire process.

## Fast and simple installation and service

Easy access to all internal components: simply undo screws to remove the complete front panel to access the refrigerant piping connections. For control box and electrical connections mounted a separate access door for inspection and wiring work. Advanced circuit design and component selection have resulted in a compact unit with an exceptionally small footprint that is easy to transport even through narrow doors. Reduced operating weight and a handle on the unit panels to facilitate transport. 38RC Condensing Units are protected from high/low-temperature refrigerant by two transducers that are connected to the Microcontroller.

Various power cable outlet options: pre-punched holes in the cabinet panels permit cable exit on the side. Installer with electrical and control specialty can access refrigerant discharge pressure.

# Model Number Nomenclature

Çimento

**38 RC 030 A 4**

**Product Series**

Condensing Unit

**Condensing Type**

Air Cooled Scroll V Type

**Nominal Capacity(Ton)**

15            20

25            30

40            50

**Refrigerant Type**

1: R134a

4: R407C

**Fin Material**

A: Al

B: Al Coated

C: Cu



## Electrical Data

When designing electrical equipment, we carefully consider the IEC 60204-1 standards, which cover machine safety and general regulations for electrical machine components. The 38RC 015-050 units feature a single power connection point. Recommended is power supply: 380V~3-phase-50Hz which voltage variation tolerance and frequency variation tolerance are  $\pm 10\%$  and  $\pm 2\text{Hz}$  respectively. All 38RC units are protected to IP54 against dust and water.

38RC - R407C (380V $\pm 10\%$ ~50Hz - 3ph )							
38RC Model‡		15	20	25	30	40	50
<b>Compressor 1 :</b>							
MOC	A	17	24	31	35	47	58
LRA	A	98	130	145	175	215	270
<b>Compressor 2 :</b>							
MOC	A	17	24	31	35	47	58
LRA	A	98	130	145	175	215	270
<b>Total Pcons : **</b>	<b>kW</b>	17	24	31	35	49	59
<b>Total FLA : **</b>	<b>A</b>	32	43	53	61	81	97

38RC - R134a (380V $\pm 10\%$ ~50Hz - 3ph )							
38RC Model‡		15	20	25	30	40	50
<b>Compressor 1 :</b>							
MOC	A	17	24	31	35	47	58
LRA	A	98	130	145	175	215	270
<b>Compressor 2 :</b>							
MOC	A	17	24	31	35	47	58
LRA	A	98	130	145	175	215	270
<b>Total Pcons : **</b>	<b>kW</b>	13	17	22	25	35	44
<b>Total FLA : **</b>	<b>A</b>	26	34	41	47	62	77

### LEGEND

**FLA** - Full Load Amperage

**MOC** : Maximum Operating Current

**LRA** - Locked Rotor Amperage

**Pcons** : Power Consumption

‡- Rated in accordance with Danfoss Compressor at standard rating conditions.

\*\*- Total Pcons and FLA include fans and compressors.

# Physical Data

UNIT 38RC- R407C		15	20	25	30	40	50
General	AHRI Rated Capacity*(kWR)	43	58	79	87	122	144
	AHRI Rated COP*	3.7	3.3	3.6	3.3	3.5	3.2
	ICOP (Seasonal COP)	5.4	5.0	5.3	4.9	5.0	4.6
	Refrigerant Type	R407C					
Compressor	Type	Scroll Compressor					
	%CAP Circuit 1	50	50	50	50	50	50
	%CAP Circuit 2	50	50	50	50	50	50
	Control Steps	2	2	2	2	2	2
Condenser	Type	Multi-Pass Cross ,Corrugated Fin & Tube(14 FPI), V-Type					
	Condenser Fan	Axial Flow Fan, Vertical Discharge					
	Quantity	2					
	Total Air flow(CMH)x1000	16.8	17.2	27.0	27.0	37.4	37.4
Pipe Connection	Total Face Area (sq. m.)	1.6	1.6	3.2	3.2	4.4	4.4
	Liquid line (in.)	5/8	5/8	5/8	5/8	7/8	7/8
	Suction line (in.)	1 1/8	1 1/8	1 3/8	1 3/8	1 5/8	1 5/8
	Al Fin (kg)	810	870	910	935	1130	1140
Weight‡	Cu Fin(kg)	850	920	990	1010	1270	1290
	Length(m)	2.3					
	Width(m)	1.2					
	Height(m)	2.4	2.4	2.4	2.4	2.7	2.7

## LEGEND

**kWR** – kilowatt of Refrigeration

**COP** – Coefficient of Performance

**CMH** – Cubic meter per hour

**FPI** – Fin per inch

**ICOP** – Integrated Coefficient of Performance

\*Rated in accordance with AHRI Standard 366 at standard rating conditions.

Standard rating conditions are as follows:

Saturated Suction Temperature: 7°C

Condenser Entering Air Dry Bulb Temperature: 35°C

\*\*ICOP and COP Calculations are according to standard performances AHRI

‡The weight and dimensions of units are approximate and may subject to change.

‡ Data is not contractually binding and for information only. The values are rounded.



## Physical Data

UNIT 38RC- R134a		15	20	25	30	40	50
General	AHRI Rated Capacity*(kWR)	32	43	57	65	88	107
	AHRI Rated COP*	4.4	4.0	4.2	4.1	4.0	3.8
	ICOP (Seasonal COP)	6.2	5.8	5.9	5.6	5.7	5.3
	Refrigerant Type	R134a					
Compressor	Type	Scroll Compressor					
	%CAP Circuit 1	50	50	50	50	50	50
	%CAP Circuit 2	50	50	50	50	50	50
	Control Steps	2	2	2	2	2	2
Condenser	Type	Multi-Pass Cross ,Corrugated Fin & Tube(14 FPI), V-Type					
	Condenser Fan	Axial Flow Fan, Vertical Discharge					
	Quantity	2					
	Total Air flow(CMH)x1000	16.8	17.2	27.0	27.0	37.4	37.4
Pipe Connection	Total Face Area (sq. m.)	1.6	1.6	3.2	3.2	4.4	4.4
	Liquid line (in.)	5/8	5/8	5/8	5/8	7/8	7/8
	Suction line (in.)	1 1/8	1 1/8	1 3/8	1 3/8	1 5/8	1 5/8
	Al Fin (kg)	810	870	910	935	1130	1140
Weight ‡	Cu Fin(kg)	850	920	990	1010	1270	1290
	Length(m)	2.3					
	Width(m)	1.2					
	Height(m)	2.4	2.4	2.4	2.4	2.7	2.7

### LEGEND

kWR – kilowatt of Refrigeration

COP – Coefficient of Performance

CMH – Cubic meter per hour

FPI – Fin per inch

ICOP – Integrated Coefficient of Performance

\*Rated in accordance with AHRI Standard 366 at standard rating conditions.

Standard rating conditions are as follows:

Saturated Suction Temperature: 7°C

Condenser Entering Air Dry Bulb Temperature: 35°C

\*\*ICOP and COP Calculations are according to standard performances AHRI

‡The weight and dimensions of units are approximate and may subject to change.

‡ Data is not contractually binding and for information only. The values are rounded.

# Performance Data



Model 38RC	SST 2°C	R407C		
		ENTERING AIR TEMPRETURE (°C)		
		30	35	40
15	TCG	38.6	36.3	33.9
	CMP	10.0	11.1	12.4
20	TCG	52.4	48.9	45.4
	CMP	14.8	16.7	18.7
25	TCG	70.6	66.6	62.4
	CMP	18.6	20.8	23.3
30	TCG	79.1	74.2	68.9
	CMP	22.4	25.0	27.9
40	TCG	109.5	103.1	96.4
	CMP	29.6	32.8	36.4
50	TCG	130.3	122.7	114.6
	CMP	38.3	42.6	47.3

Model 38RC	SST 4°C	R407C		
		ENTERING AIR TEMPRETURE (°C)		
		30	35	40
15	TCG	41.5	39.0	36.4
	CMP	10.1	11.3	12.6
20	TCG	56.0	52.4	48.6
	CMP	15.1	17.0	19.0
25	TCG	75.7	71.4	66.9
	CMP	19.0	21.2	23.8
30	TCG	84.6	79.3	73.7
	CMP	22.9	25.5	28.4
40	TCG	117.4	110.5	103.4
	CMP	30.3	33.5	37.2
50	TCG	139.2	131.0	122.3
	CMP	39.4	43.8	48.5

Model 38RC	SST 6°C	R407C		
		ENTERING AIR TEMPRETURE (°C)		
		30	35	40
15	TCG	44.4	41.8	39.0
	CMP	10.3	11.5	12.8
20	TCG	59.8	56.0	51.9
	CMP	15.4	17.3	19.4
25	TCG	81.0	76.4	71.6
	CMP	19.3	21.6	24.2
30	TCG	90.3	84.7	78.7
	CMP	23.4	26.0	29.0
40	TCG	125.6	118.2	110.6
	CMP	31.0	34.3	38.1
50	TCG	148.4	139.6	130.3
	CMP	40.5	45.0	49.9

Model 38RC	SST 7°C	R407C		
		ENTERING AIR TEMPRETURE (°C)		
		30	35	40
15	TCG	46.0	43.3	40.4
	CMP	10.4	11.6	12.9
20	TCG	61.8	57.8	53.6
	CMP	15.5	17.4	19.6
25	TCG	83.7	78.9	74.0
	CMP	19.5	21.8	24.4
30	TCG	93.3	87.4	81.3
	CMP	23.6	26.3	29.3
40	TCG	129.9	122.2	114.4
	CMP	31.4	34.8	38.5
50	TCG	153.1	144.1	134.3
	CMP	41.1	45.6	50.5

## LEGEND

**TCG:** Total Capacity Gross (kW)

**CMP:** Compressor Power Input (kW)

**SST:** Saturated Suction Temperature (°C)

R134a							
Model 38RC	SST 2°C	ENTERING AIR TEMPRETURE (°C)					
		30	35	40	45	50	52
15	TCG	28.1	26.7	25.2	23.6	21.9	21.2
	CMP	6.4	7.2	8.0	8.9	10.0	10.4
20	TCG	38.2	36.3	34.1	31.9	29.5	28.5
	CMP	9.3	10.4	11.5	12.9	14.4	15.0
25	TCG	49.6	47.2	44.6	42.0	39.3	38.2
	CMP	11.7	13.0	14.4	16.0	17.8	18.6
30	TCG	57.3	54.4	51.4	48.2	44.9	43.5
	CMP	14.0	15.5	17.1	18.9	20.9	21.8
40	TCG	76.9	73.0	69.0	64.9	60.7	59.0
	CMP	19.1	20.9	23.0	25.2	27.7	28.8
50	TCG	93.9	88.9	83.9	78.7	73.4	71.3
	CMP	24.6	27.0	29.7	32.7	36.0	37.5

R134a							
Model 38RC	SST 4°C	ENTERING AIR TEMPRETURE (°C)					
		30	35	40	45	50	52
15	TCG	30.3	28.8	27.2	25.5	23.7	22.9
	CMP	6.5	7.2	8.1	9.0	10.1	10.5
20	TCG	41.2	39.0	36.8	34.4	31.8	30.8
	CMP	9.4	10.5	11.7	13.1	14.6	15.2
25	TCG	53.5	50.9	48.2	45.4	42.5	41.3
	CMP	11.9	13.2	14.6	16.2	18.0	18.8
30	TCG	61.7	58.6	55.4	52.0	48.4	46.9
	CMP	14.2	15.7	17.4	19.2	21.3	22.1
40	TCG	83.1	78.8	74.5	70.1	65.6	63.8
	CMP	19.3	21.2	23.3	25.6	28.1	29.2
50	TCG	101.1	95.8	90.4	84.8	79.2	76.9
	CMP	25.0	27.6	30.3	33.4	36.7	38.2

R134a							
Model 38RC	SST 6°C	ENTERING AIR TEMPRETURE (°C)					
		30	35	40	45	50	52
15	TCG	32.5	30.9	29.2	27.4	25.5	24.7
	CMP	6.6	7.3	8.2	9.1	10.2	10.6
20	TCG	44.2	42.0	39.6	37.0	34.3	33.1
	CMP	9.6	10.7	11.9	13.2	14.7	15.4
25	TCG	57.6	54.8	51.9	48.9	45.8	44.5
	CMP	12.1	13.4	14.8	16.4	18.3	19.1
30	TCG	66.3	63.0	59.6	55.9	52.1	50.6
	CMP	14.5	16.0	17.6	19.5	21.6	22.5
40	TCG	89.6	84.9	80.3	75.6	70.7	68.8
	CMP	19.7	21.6	23.7	26.0	28.6	29.7
50	TCG	108.6	103.0	97.2	91.3	85.2	82.8
	CMP	25.6	28.1	30.9	34.1	37.5	39.0

R134a							
Model 38RC	SST 7°C	ENTERING AIR TEMPRETURE (°C)					
		30	35	40	45	50	52
15	TCG	33.7	32.0	30.3	28.4	26.4	25.6
	CMP	6.6	7.4	8.2	9.2	10.3	10.7
20	TCG	45.8	43.5	41.0	38.3	35.5	34.3
	CMP	9.6	10.7	12.0	13.3	14.9	15.5
25	TCG	59.8	56.9	53.8	50.7	47.5	46.2
	CMP	12.2	13.5	14.9	16.6	18.4	19.2
30	TCG	68.7	65.3	61.7	58.0	54.0	52.4
	CMP	14.6	16.1	17.8	19.6	21.7	22.6
40	TCG	92.9	88.1	83.3	78.4	73.4	71.4
	CMP	19.8	21.8	23.9	26.2	28.8	29.9
50	TCG	112.6	106.7	100.7	94.6	88.3	85.8
	CMP	25.8	28.4	31.3	34.4	37.9	39.4

R134a							
Model 38RC	SST 8°C	ENTERING AIR TEMPRETURE (°C)					
		30	35	40	45	50	52
15	TCG	34.9	33.2	31.4	29.4	27.4	26.5
	CMP	6.6	7.4	8.3	9.2	10.3	10.8
20	TCG	47.4	45.0	42.4	39.7	36.8	35.6
	CMP	9.7	10.8	12.0	13.4	14.9	15.6
25	TCG	62.0	58.9	55.8	52.6	49.3	47.9
	CMP	12.3	13.6	15.0	16.7	18.5	19.3
30	TCG	71.1	67.6	63.9	60.0	56.0	54.3
	CMP	14.7	16.2	17.9	19.8	21.9	22.8
40	TCG	96.4	91.4	86.4	81.3	76.2	74.1
	CMP	20.0	21.9	24.1	26.4	29.1	30.2
50	TCG	116.6	110.5	104.3	98.0	91.6	88.9
	CMP	26.1	28.7	31.6	34.8	38.3	39.8

### LEGEND

**TCG:** Total Capacity Gross (kW)

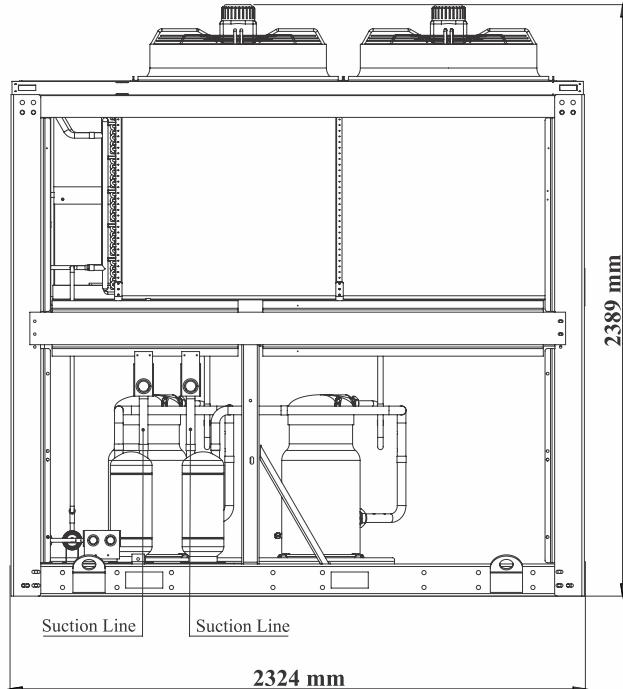
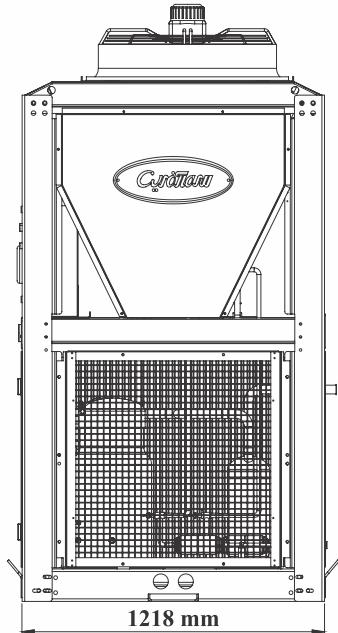
**CMP:** Compressor Power Input (kW)

**SST:** Saturated Suction Temperature (°C)

# Dimensions



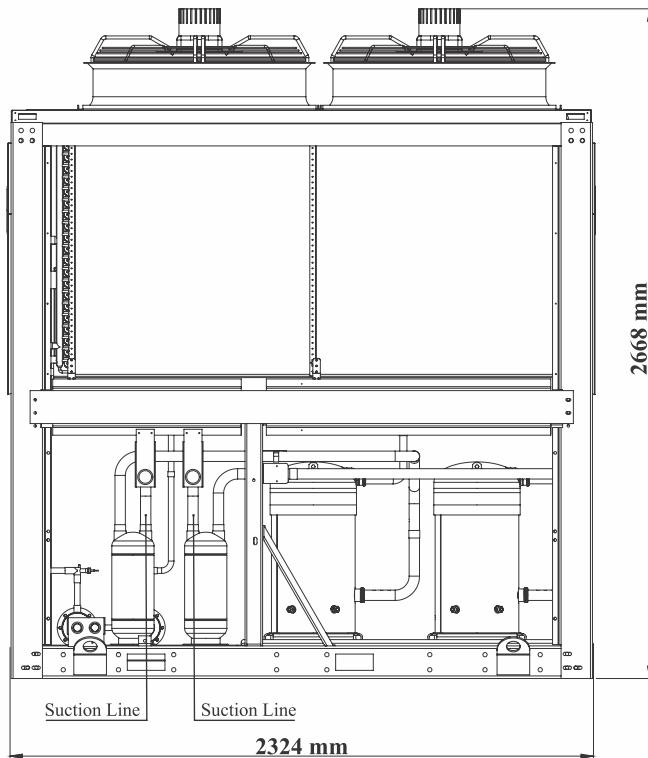
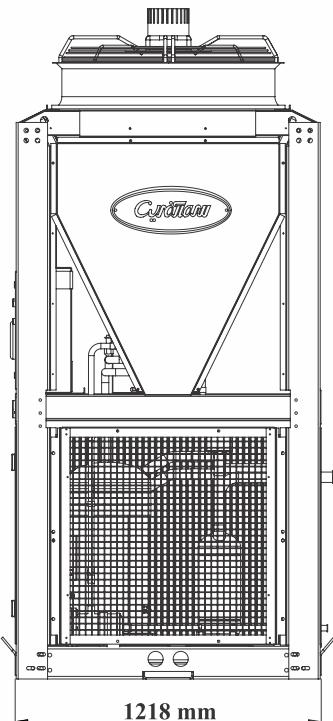
## 38RC015-030



Front View

Right View

## 38RC040-050



Front View

Right View

## Field Installation

### Expansion valve

The expansion valve sensing bulb must be installed after at least two 90 degree bends at the evaporator outlet. Ideally the expansion valve should be installed in a vertical pipe run. If that is not possible, the valve may be rotated through a full 90, with the horizontal pipe remaining at the base.

### Solenoid Valve

Liquid line solenoid valves are necessary, either with single circuit or with dual-circuit. The solenoid valve should be controlled in case of evaporators be deactivated in the upper section of the evaporator coil and reduce the load on the compressor (capacity unloaders operated by suction pressure).

## Installation of Piping

### Caution:

- In order to prevent vibration and possible pipe breaks install proper pipe supports for all pipes at the point where they leave the unit.

The design and operation of refrigerant piping systems should:

- Ensure proper refrigerant feed to evaporators.
- Provide practical refrigerant line sizes without excessive pressure drop.
- Prevent excessive amounts of lubricating oil from being trapped in any part of the system.
- Protect the compressor at all times from loss of lubricating oil.
- Prevent liquid refrigerant or oil slugs from entering the compressor during operating and idle time.
- Maintain a clean and dry system

## Liquid accessories

The filter-drier should have maximum unit capacity and minimum pressure drop and should be installed before the expansion valve and the moisture indicator just after the shut-off valve in the same line. These are available as factory-ordered. It is somehow obligatory to install a moisture indicator in liquid line just after condenser to be sure about the refrigerant charge.

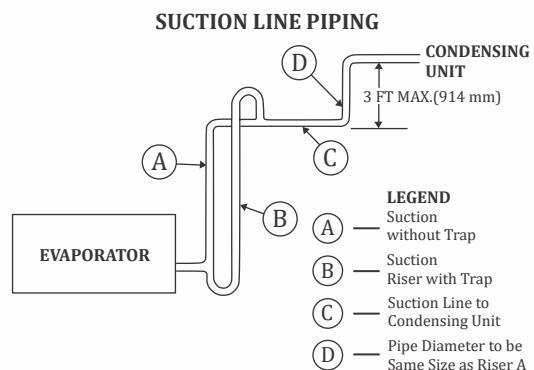
## Oil Return

Condensing units with multiple-step unloading may require double suction risers to ensure proper oil return at minimum load. The refrigerant suction line should be insulated in accordance with the guidelines set forth in the "Carrier System Design Manual".

The more important point is that, the oil charge must be adjusted to allow for extra line length. This is done by adding 1% of the nominal oil charge for the compressor every 3 m of piping in excess of 16 m.

When Sizing the refrigerant lines, consider the length of piping required between condensing unit and evaporator, the amount of liquid lift, and the compressor oil return. Refer to the dimensional drawings for the size, type and location of the suction and liquid line pipe connections. Refer to the "Carrier System Design Manual". Include a liquid receiver in the installation if it seems to be necessary.

*Note: If it is obligatory to implement double riser suction line some points should be considered as follow.*



### IMPORTANT

Condensing units applied in any systems must have field-supplied and installed accumulators.

### IMPORTANT

Some areas should be insulated to guarantee the performance of the outdoor unit and indoor unit as well.

## Insulation

Liquid lines should not be insulated if the surrounding temperature is lower than or equal to the temperature of the liquid. Insulation is recommended only when the liquid line can pick up a considerable amount of heat.

Moreover, it is not needed to insulate the hot gas line but at the other hand in suction line the thickness of insulation required to prevent condensation on the outer surface.

## Piping Size

The following table represents the suction and liquid line for different equivalent pipeline lengths based on various units. In case of ambient temperature higher than 46°C suction line should be one size smaller than the specified diameter. Oil separator in discharge line and accumulator in suction line are recommended for long-distance pipeline.

R407C	Total Equivalent Length(m)											
	0-5		5-10		10-15		15-20		20-25		25-30	
38RC	S	L	S	L	S	L	S	L	S	L	S	L
15	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8
20	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 3/8	5/8
25	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	7/8	1 3/8	7/8
30	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	7/8	1 3/8	7/8	1 3/8	7/8
40	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8
50	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8

R134a	Total Equivalent Length(m)											
	0-5		5-10		10-15		15-20		20-25		25-30	
38RC	S	L	S	L	S	L	S	L	S	L	S	L
15	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 3/8	5/8
20	1 1/8	5/8	1 1/8	5/8	1 1/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8
25	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	7/8	1 5/8	7/8
30	1 3/8	5/8	1 3/8	5/8	1 3/8	5/8	1 3/8	7/8	1 5/8	7/8	1 5/8	7/8
40	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8
50	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	1 5/8	7/8	2 1/8	7/8	2 1/8	7/8

### LEGEND

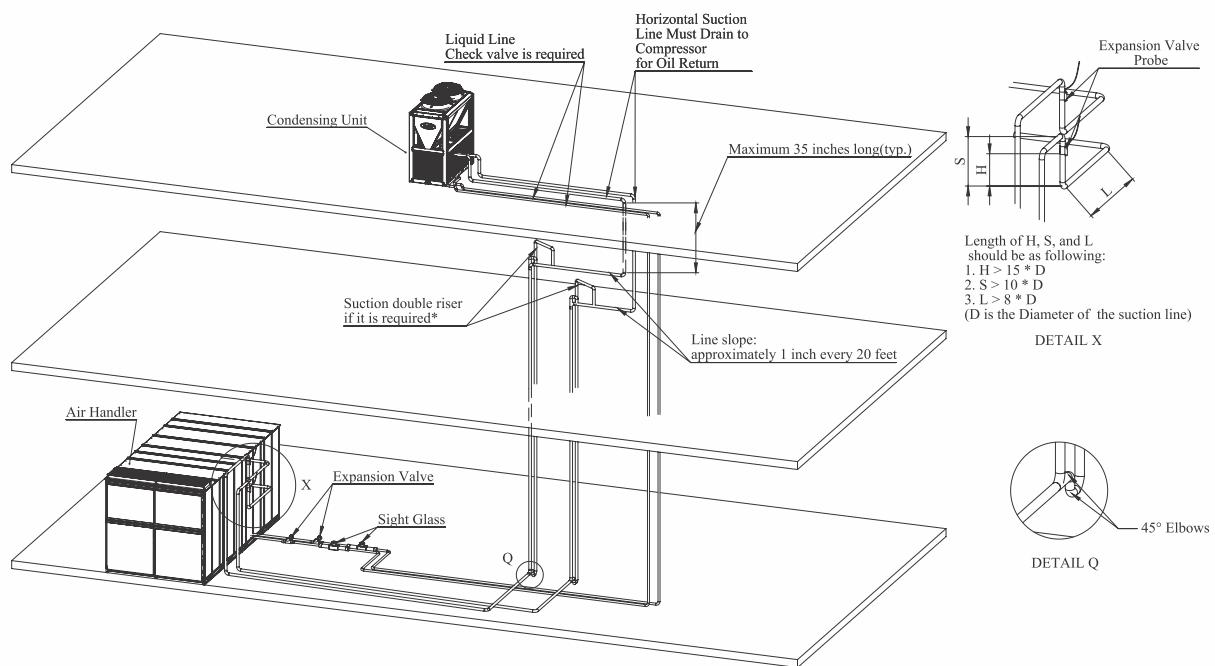
**L** - Liquid

**S** - Suction

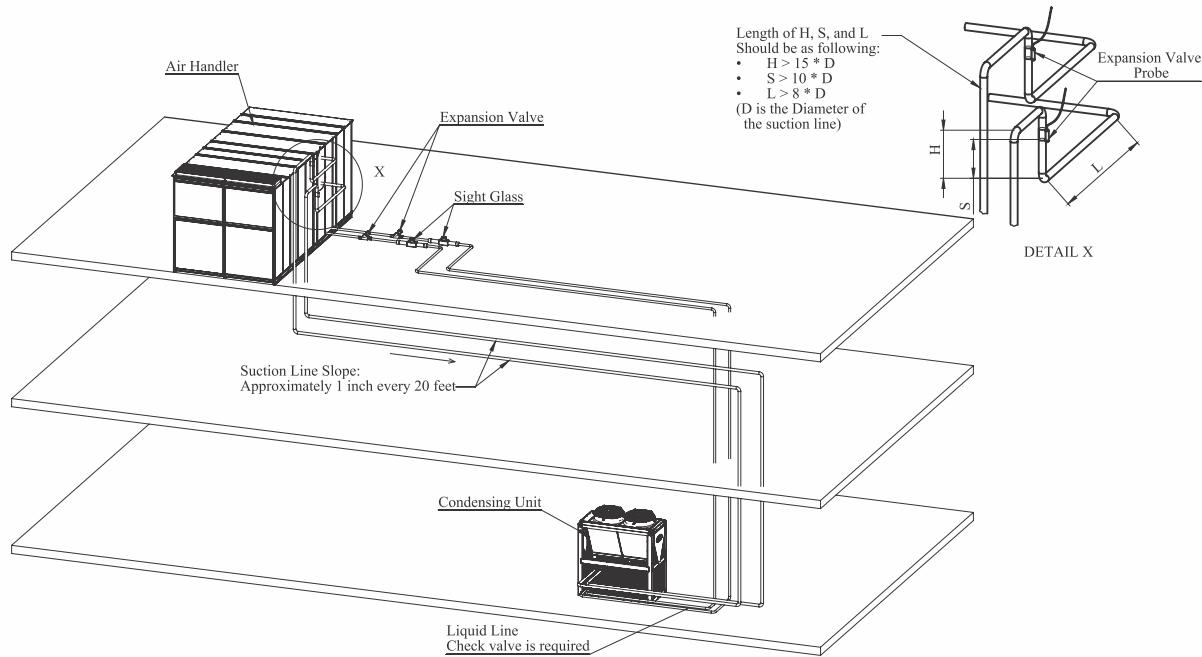
### NOTES:

1. Pipe sizes are based on a 1° F loss for liquid lines and a 2° F loss for suction lines
2. Pipe sizes are designed to ensure oil return and to optimize velocity and pressure drop.
3. If you use pipe sizes other than those indicated in the table, the company will not be responsible for any issues related to oil return disruption or increase in pressure drop.
4. For systems with excess piping length, it is essential to account for the addition of oil separator and a liquid receiver.

## ROOFTOP INSTALLATION-38RC



## GROUND LEVEL INSTALLATION - 38RC



### NOTES:

1. All piping must follow standard refrigerant piping techniques such as ASHRAE, CARRIER.
2. All wiring must comply with the applicable local and national codes.
3. Wiring and piping shown are general points-of-connection guides only so, they are not intended for, or to include all details for, a specific installation

## Split system location and Clearances

Do not locate near sound sensitive areas without proper acoustic consideration. For applications requiring mounting a split system on a building rooftop, consideration should be given to using rubber-in-shear or spring isolators to minimize structure-borne transmission. Unit must be level when installed to ensure proper oil return to the compressors.

Clearances must be provided around split systems for air low, service and local code requirements. See dimensional drawings for specific unit clearance requirements. Ensure adequate clearance between adjacent split systems is maintained.

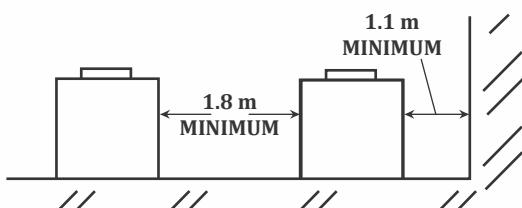
A minimum of 1.8 m. is recommended.

Split system fan discharge must be at least as high as adjacent solid walls. Installation in pits is not recommended.

### Minimum clearances

The recommended minimum clearance to ensure proper airflow through the condenser coils and to allow fan maintenance is as shown below.

*Note: If the device is to be installed in a pit, immediate consultation with the SSI after-sales department is required.*



Multiple Unit Separation Aligned Side By Side

Acceptable clearance between the split system and a single wall may be reduced to 1.1 m. on one side or end opposite the control panel without sacrificing performance.

There are applications, however, in which recommended minimum clearances are not available. In these situations, customers should contact "SarmaAfarin after Sales Department" to request a prediction of the Condensing units performance within the confined space.

## Over sizing split systems

Over sizing split systems by more than 15% at design conditions must be avoided as the system operating efficiency is adversely affected (resulting in greater or excessive electrical demand).

When future expansion of equipment is anticipated, install a single split system to meet present load requirements and add a second split system to meet the additional load demand. It is also recommended

that 2 smaller split systems be installed where operation at minimum load is critical. The operation of a smaller split system loaded to a greater percentage over minimum is preferred to operating a single split system at or near its minimum recommended value

## High ambient temperature operation

High outdoor ambient split system start-up and operation is possible for 38RC with R134a split systems at standard ambient and high temperatures up to 52 °C at nominal voltage as well.

## Low ambient temperature operation

Units will start and operate down -10 °C as standard. Operation -19 °C requires optional low ambient head pressure control as well as wind baffles (field fabricated and installed to all units for operation below -10 °C if wind velocity is anticipated to be greater than 10 km/h.

## Altitude Correction Factors

Correction factors must be applied to standard ratings at altitudes above 600 m. using the following multipliers:

Altitude Correction Factor			
Altitude		Capacity Multiplier	Compressor Power Multiplier
(ft.)	(m)		
2000	610	0.99	1.01
4000	1219	0.98	1.02
6000	1829	0.97	1.03
8000	2438	0.96	1.04
10000	3048	0.95	1.05

## Condenser Airflow

Airflow restrictions on units with standard fans will affect the unit capacity, condenser head pressure, and compressor power input. Correction factors to be applied for external static restrictions up to 0.2 in.w.g (50 Pa) are as follows:

External Static		Capacity Multiplier	Compressor Power Multiplier
In.Wg	Pa		
0.0	0.0	1.000	1.00
0.1	25.0	0.986	1.01
0.2	50.0	0.968	1.03

## Condenser Coil Protection

**Aluminum fin/copper tube coils** are constructed of seamless copper tubes mechanically bonded to aluminum fins. The fins have corrugated enhancements. These coils are not recommended for corrosive environments.



**Coated aluminum-fin coils** have a durable epoxy-phenolic coating applied to the fin to provide protection in mildly corrosive coastal environments. Coated coils provide superior protection with unmatched flexibility, edge coverage, metal adhesion, thermal performance and most importantly, corrosion resistance. This economical option provides substantial corrosion protection beyond the standard uncoated coil construction.

**Copper-fin coils** provide increased corrosion resistance compared to aluminum fin coils. All-copper coils eliminate bimetallic construction to eliminate the potential for galvanic corrosion. Application in industrial environments is not recommended due to potential attack from sulfur, sulfur oxide, nitrogen oxides, carbon and several other industrial airborne contaminants.



**Sanaye Sarmaafarin Iran**

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(کریپر ترموفریگ)



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سپهوردی شمالی، خیابان خرمشهر، شماره ۱۹۴، تهران، صندوق پستی: ۴۴۹۱۳-۱۵۳۳۷، تلفن: ۸۸۷۶۲۰۴۸، فاکس: ۸۸۷۶۲۰۳۳

Manufacturer reserves the right to discontinue or change at time, specifications of designs without notice and without incurring obligations