

Check Of Density Limit - Sanyo 26 series Installation Instructions Manual

Split system heat pump air conditioner

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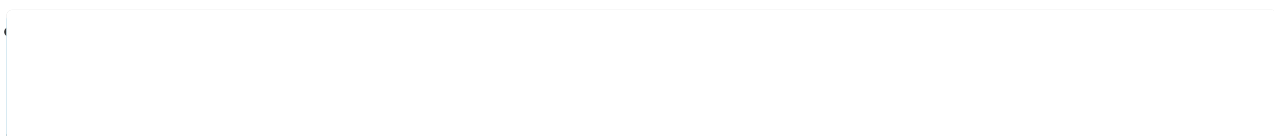
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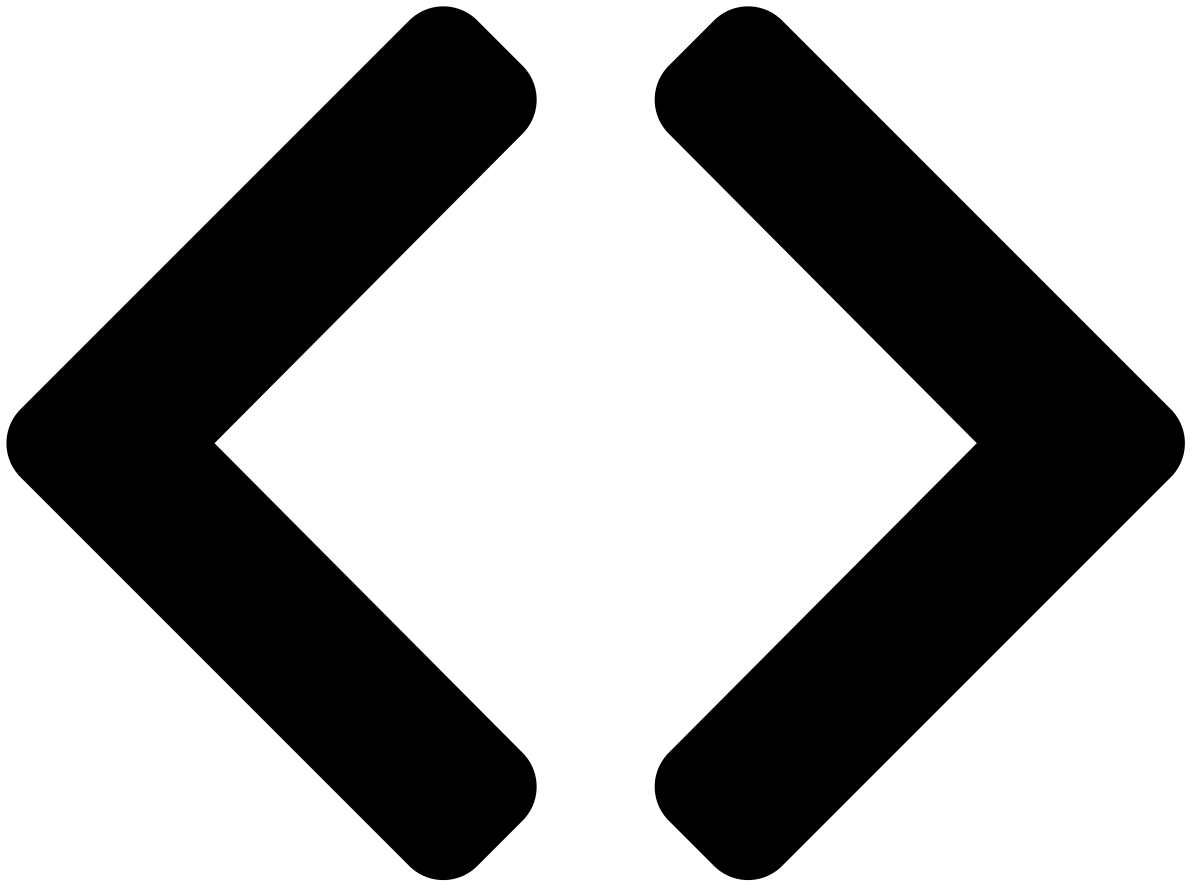


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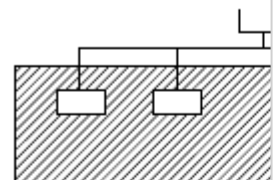


Enlarged version

Check of Density Limit

The room in which the air conditioner is to be installed requires a design that in the event of refrigerant gas leaking out, its density will not exceed a set limit.

The refrigerant (R410A), which is used in the air conditioner, is safe, without the toxicity or combustibility of ammonia, and is not restricted by laws imposed to protect the ozone layer. However, since it contains more than air, it poses the risk of suffocation if its density should rise excessively. Suffocation from leakage of refrigerant is almost non-existent. With the recent increase in the number of high density buildings, however, the installation of multi air conditioner systems is



on the increase because of the need for effective use of floor space, individual control, energy conservation by curtailing heat and carrying power, etc.

Most importantly, the multi air conditioner system is able to replenish a large amount of refrigerant compared to conventional individual air conditioners. If a single unit of the multi air conditioner system is to be installed in a small room, select a suitable model and installation procedure so that if the refrigerant accidentally leaks out, its density does not reach the limit (and in the event of an emergency, measures can be made before injury can occur).

In a room where the density may exceed the limit, create an opening with adjacent rooms, or install mechanical ventilation combined with a gas leak detection device. The density is as given below.

Total amount of refrigerant (oz.)

Min. volume of the indoor unit installed room (ft.³)

<

Density limit (oz./ft.³)

The density limit of refrigerant which is used in multi air conditioners is 0.3 oz./ft.³ (ISO 5149).

1. If there are 2 or more refrigerating systems in a single refrigerating device, the amount of refrigerant should be as charged in each independent device.

For the amount of charge in this example:

e.g., charged amount (22 lbs.)

Indoor unit

Room A Room B Room C Room D Room E Room F

The possible amount of leaked refrigerant gas in rooms A, B and C is 22 lbs.

The possible amount of leaked refrigerant gas in rooms D, E and F is 33 lbs.

3

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3

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Outdoor unit

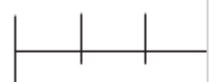
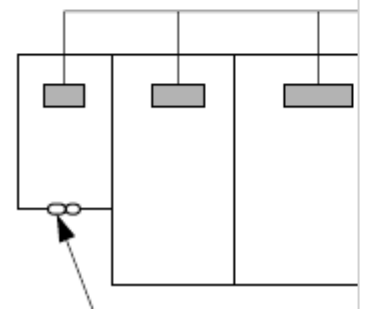
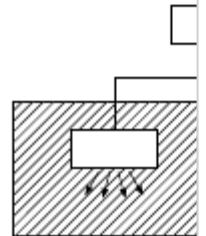
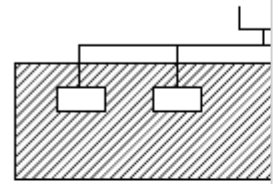
e.g., charged amount (33 lbs.)

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2. The standards for minimum room volume are as follows.

(1) No partition (shaded portion)

(2) When there is an effective opening with the adjacent room for ventilation of leaking refrigerant gas (opening without a door, or an opening 0.15% or



larger than the respective floor spaces at the top or bottom of the door).

(3) If an indoor unit is installed in each partitioned room and the refrigerant tubing is interconnected, the smallest room of course becomes the object. But when mechanical ventilation is installed interlocked with a gas leakage detector in the smallest room where the density limit is exceeded, the volume of the next smallest room becomes the object.

Very
small
room
Small
Medium
room
room

Mechanical ventilation device - Gas leak detector

3. The minimum indoor floor space compared with the amount of refrigerant is roughly as follows (when the ceiling is 9 ft. high):

430

Range below the

376

³
ft.

density limit

³

of 0.3 oz./ft.

323

(countermeasures

not needed)

269

215

161

108

54

0

22

Total amount of refrigerant

Outdoor unit

Refrigerant tubing

Indoor unit

Refrigerant tubing

Outdoor unit

Indoor unit

Large room

Range above

the density limit

³

of 0.3 oz./ft.

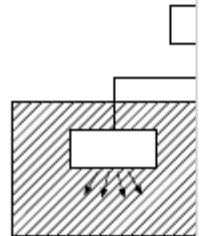
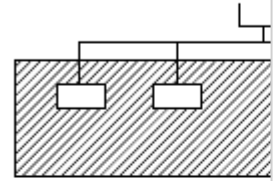
(countermeasures

needed)

44

66

lbs.



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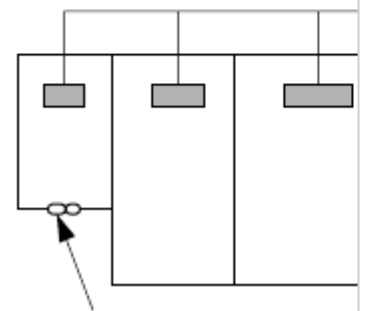


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