

New Products Information

Distributed to √ Areas:					
All Areas		Oceania		Europe	√
China		India		NA	
ASEAN and Others		ME		LA	
Taiwan		Africa		Brazil	
NOTE ()					

HITACHI

TECHNICAL BULLETIN

SUBJECT

Additional refrigerant charge per indoor unit in combination with outdoor units
RAS-4FS(V)NME(1)~RAS-6FS(V)NME(1)

DATE: Feb'23

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Summary

- 1 This technical bulletin informs about the application of a new additional refrigerant charge requirement per indoor unit in combination with RAS-4FS(V)NME(1)~RAS-6FS(V)NME(1) .
- 2 Details are indicated in the description

1. Applicable products

MODEL TYPE	CODE	DESCRIPTION	APPLICATION
Set Free Mini	7E322007	RAS-4FSVNME, 1~ 230V 50Hz	Mar'23
	7E322008	RAS-5FSVNME, 1~ 230V 50Hz	
	7E322009	RAS-6FSVNME, 1~ 230V 50Hz	
	7E322107	RAS-4FSNME, 3~ 400V 50Hz	
	7E322108	RAS-5FSNME, 3~ 400V 50Hz	
	7E322109	RAS-6FSNME, 3~ 400V 50Hz	
	7E322207	RAS-4FSVNME1, 1~ 230V 50Hz	
	7E322208	RAS-5FSVNME1, 1~ 230V 50Hz	
	7E322209	RAS-6FSVNME1, 1~ 230V 50Hz	
	7E322307	RAS-4FSNME1, 3~ 400V 50Hz	
	7E322308	RAS-5FSNME1, 3~ 400V 50Hz	
	7E322309	RAS-6FSNME1, 3~ 400V 50Hz	

2. Background

In RAS-(4-6)FS(V)NME(1) high demand installations with 0.4HP indoor units, system performance can be improved adding extra refrigerant per indoor unit. This improvement is more effective in installations at different heights.

After analyzing the situation it is adopted as a countermeasure to add extra refrigerant charge to the installation. Refrigerant was added respecting the maximum allowable refrigerant charge.

Outdoor unit	Refrigerant charge before shipment (kg)	Maximum additional charge (kg)
RAS-4FS(V)NME(1)	3,7	9,3
RAS-5FS(V)NME(1)	4,1	8,9
RAS-6FS(V)NME(1)	4,1	8,9

3. Modification description

In RAS-(8-12)FS(V)NME installations, for 0.4-1.0 indoor units it is assumed the following:

In case of connecting 0,4-0,6HP indoor units, add 0,2 kg per installed unit.

Despite this change, maximum refrigerant charge remains unmodified. This same concept is applied from now for 4 to 6HP.

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4. Before / After

Before

8.5.1 For RAS-(4-6)FS(V)NME

- W - Calculation of additional charge for liquid piping (kg)

Pipe diameter (mm)	Total piping length (m)	Refrigerant amount for 1m pipe (kg/m)	Additional charge (kg)
Ø12.70	m	× 0.085 =	= kg
Ø9.52	m	× 0.050 =	= kg
Ø6.35	m	× 0.020 =	= kg
Total additional charge for liquid piping =			= kg

- Total refrigerant charge in the system

Total refrigerant charge = $W + W_0$

After

8.5.1 For RAS-(4-6)FS(V)NME

- W_1 - Calculation of additional charge for liquid piping (kg)

Pipe diameter (mm)	Total piping length (m)	Refrigerant amount for 1m pipe (kg/m)	Additional charge (kg)
Ø12.70	m	× 0.085 =	= kg
Ø9.52	m	× 0.050 =	= kg
Ø6.35	m	× 0.020 =	= kg
Total additional charge for liquid piping =			= kg

- W_2 - For indoor unit (kg)

Depending of the type and number of connected indoor units, select the refrigerant quantity from the following table:

Indoor Unit Capacity (HP)	0.4 - 0.6	0.8 - 6.0
Additional Refrigerant Charge (kg)	0.2	0

- Total refrigerant charge in the system

Total refrigerant charge = $W_0 + W_1 + W_2$

5. Additional comments

Notes from catalogue considered for developing this Technical Bulletin:

- When the total length of the refrigerant pipes exceeds 300 m, the maximum additional refrigerant charge is restricted.
- The total charge must not exceed the charge indicated in the first table (13kg).