R744 Load estimation

CDU-S

CDU-M

CDU-L

1. Using diagram/ calculator
2. MT application
3. LT application

April 2021

Unités de condensation 100% CO2

ECO-FRIENDLY REVOLUTION

1. Using diagram

The R744 loads are given for information, finetuning the load is always carried out with the control of the operating parameters of the CDU.

	Reminder volumes & distances		Medium Temperature (Positive)		Low Temperature (Negative)	
			Evaporator maximum distance	Evaporator maximum volume	Evaporator maximum distance	Evaporator maximum volume
CDU-L	R06A2A	230V 3ph	30m	15L*	20m	5L**
	R06A2B	400V 3ph + N	30m	15L*	20m	5L**
	R06A2C	400V 3ph + N	30m	15L	30m	5L
CDU-M	R04A1A	230V 3ph	30m	15L*	20m	5L**
	R04A1B	230V 1ph +N	30m	15L*	20m	5L**
	R04A1C	400V 3ph + N	30m	15L	30m	5L
	R04A1D	230V 1ph +N	30m	15L	30m	5L
CDU-S	R02A1A	230V 3ph	30m	15L*	20m	5L**
	R02A1B	230V 1ph +N	30m	15L*	20m	5L**
	R02A1D	230V 1ph +N	30m	15L	30m	5L

* Oil adding PZ68-S necessary from 7L Medium Temperature application
** Oil adding PZ68-S necessary from 3,3L Medium Temperature application
Maximum diameter of tubes inside evaporator : 3/8"

2.1. CDU S : MT application

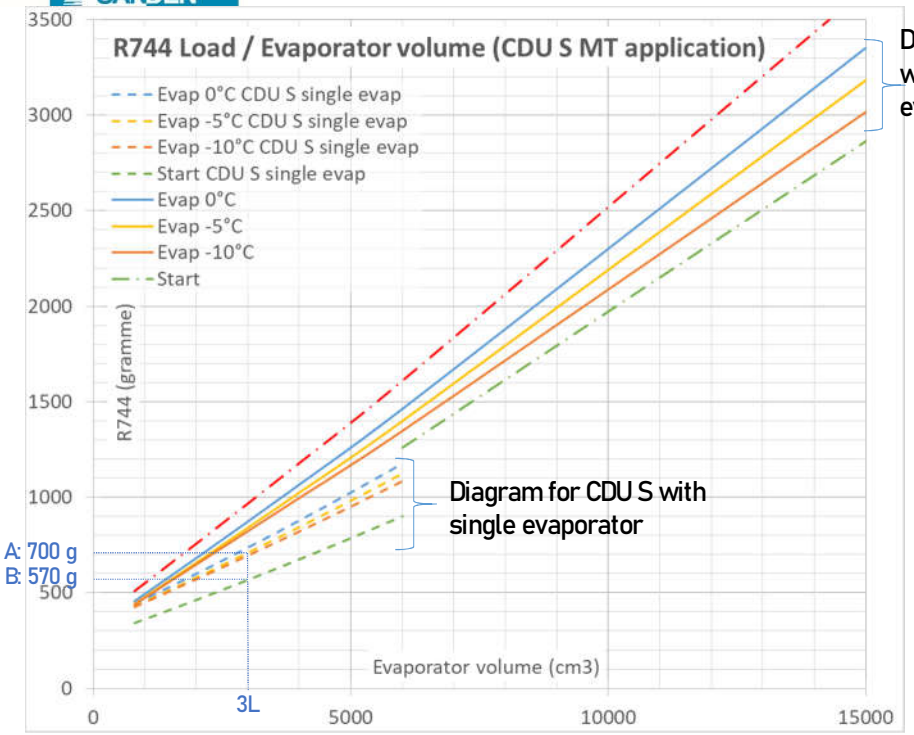
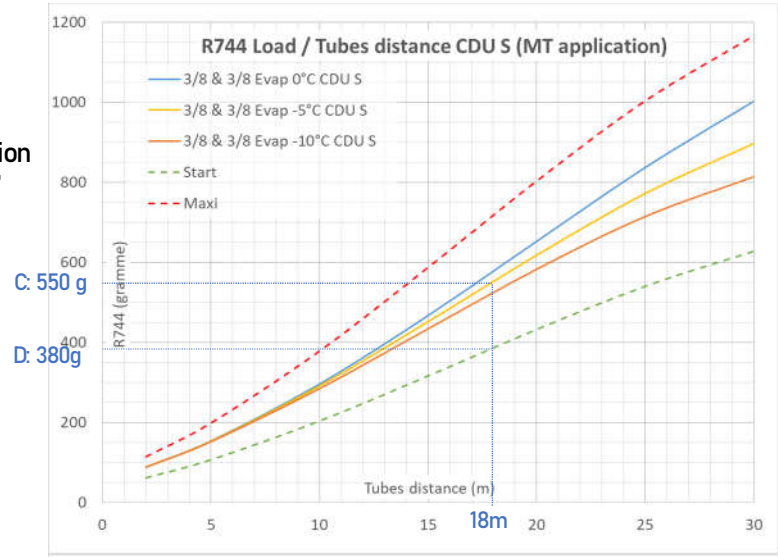


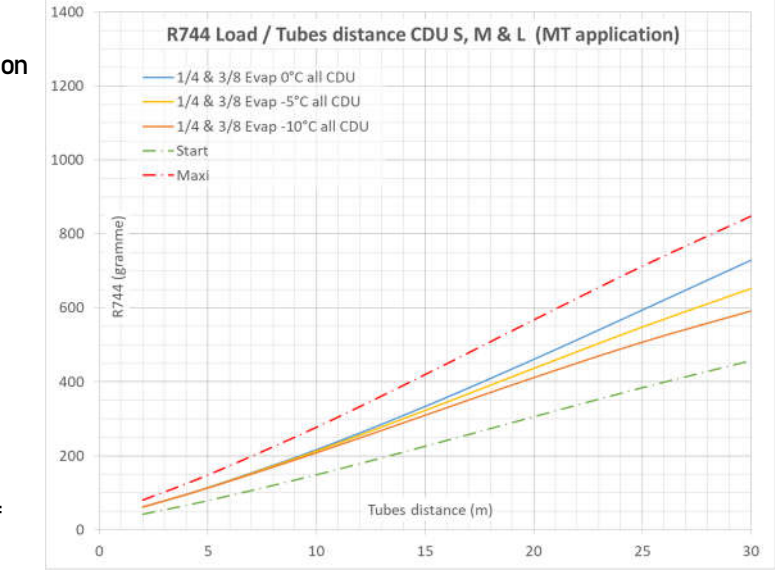
Diagram for CDU S with multi evaporators

Diagram for CDU S with single evaporator

Configuration 3/8" & 3/8"



Configuration 1/4" & 3/8"



1/ Determine the volume of evaporator(s) in cm3 *(example 3 Liters / 3000cm3)* .
Depending on evaporating temperature chosen and the single or multi evaporator installation, choose the appropriate load estimate *(example : A=700g for an evaporating t° at -5°C – single evaporator)*.
In parallel, determine corresponding loard to start *(example : B=570 g)*

2/ Choose the diagram corresponding to the configuration of piping installed
Determine according to the distance and the target evaporation temperature, the corresponding load estimated *(example : C=550g in a configuration with 2 pipes in 3/8" diameter and a distance of 18m)*.
In parallel, determine the minimum load corresponding to pipes to start *(example : D=380g)*

3/ **R744 load estimate corresponds to A+C =1250g.** The real load is determined according to the operating parameters of the CDU. The sum B + D = 950g, corresponds to the load necessary to start with

2.2. CDU M & L : MT application

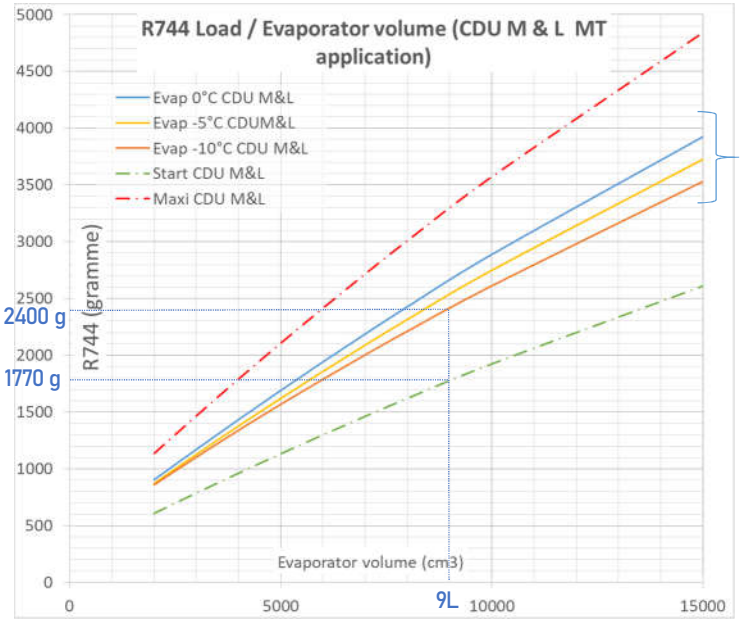


Diagram for CDU M & L with multi evaporators

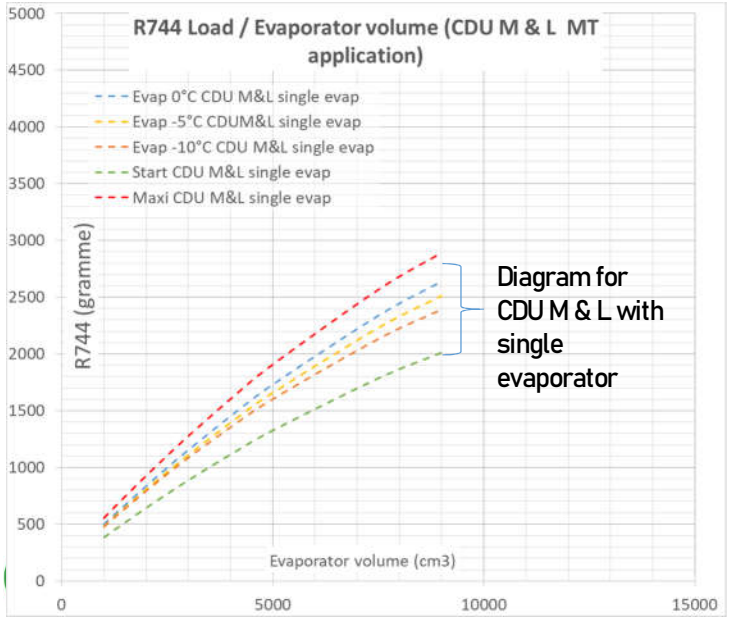
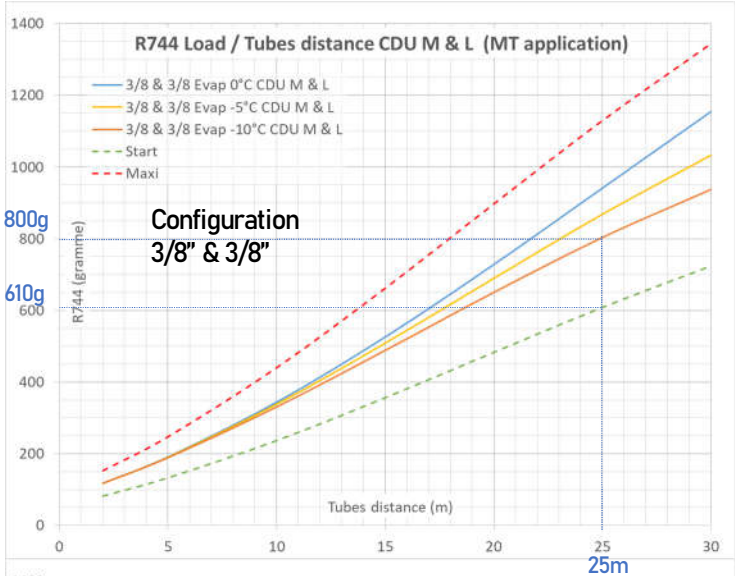


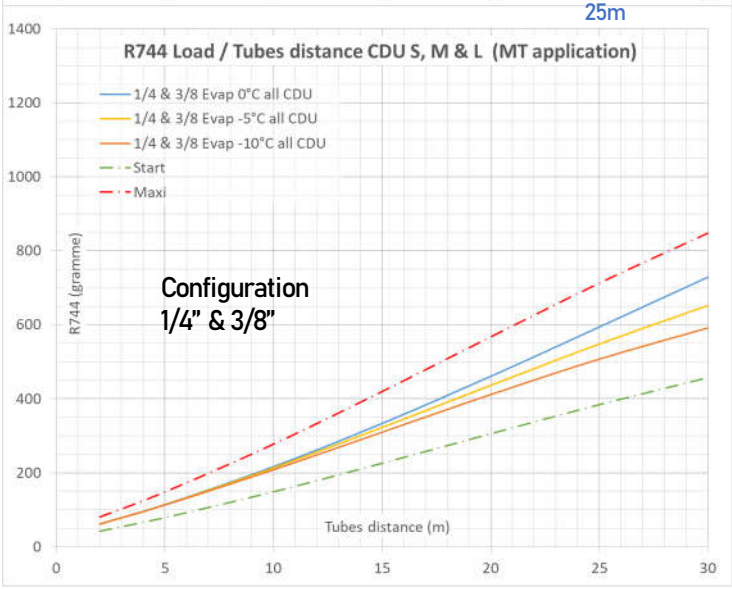
Diagram for CDU M & L with single evaporator

Example :
1/ The volume of multi evaporators is 9L (9000cm3)
Evaporating temperature targeted is-10°C. Load estimate for evaporators is A=2400g.
The appropriate load for starting is B=1770g.

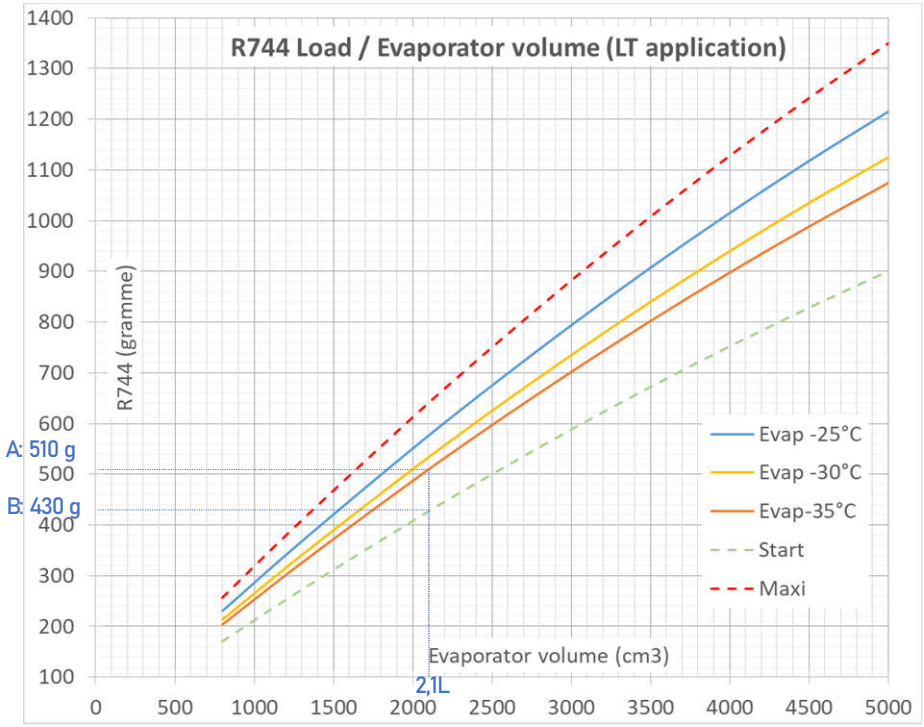
2/Configuration of piping is in 3/8" diameter for the suction and the liquid line. The chosen distance is 25m. Note: in multi-evaporators operation, the distance to each evaporator must be counted the total, see technical guide for the reference of the CDU concerned.
The load estimate for pipes is C = 800g.
The corresponding load to start is D = 610g.

3/ **R744 load estimate corresponds to A+C = 3200g.**
The real load is determined according to the operating parameters of the CDU. The sum B + D = 2380g, corresponds to the load necessary to start with





3. CDU M & L : LT application

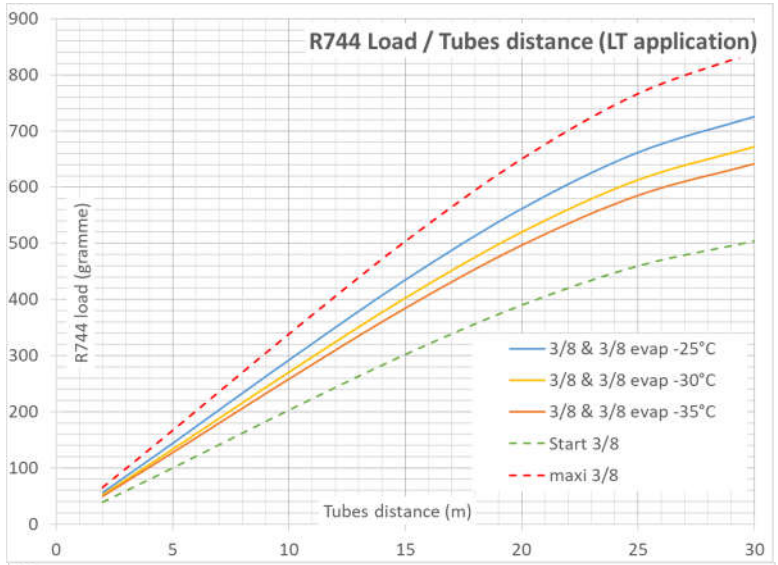


1/ Determine the volume of evaporator in cm3 *(example 2,1Litres / 2100 cm3)* .
Operation in LT application is necessarily single evaporator.
Depending on evaporating temperature chosen, choose the appropriate load estimate *(example : A=510g for an evaporating t° at -35°C)*. In parallel, determine corresponding loard to start *(example : B=430 g)*

2/ / Choose the diagram corresponding to the configuration of piping installed
Determine according to the distance and the target evaporation temperature, the corresponding load estimate *(example : C=210g in a configuration with the liquid line in ¼ " and suction in 3/8" diameter and a distance of 13m)*. In parallel, determine the minimum load corresponding to pipes to start *(example : D=1600g)*

3/ **R744 load estimate corresponds to A+C =725g.** The real load is determined according to the operating parameters of the CDU. The sum B + D = 590g, corresponds to the load necessary to start with

Configuration 3/8" & 3/8"



Configuration 1/4" & 3/8"