

Condenser Refrigerant Charge Flooded Condenser Refrigerant Charge

A properly sized condenser will operate efficiently during warm and hot months with the refrigerant charge shown in the Std. Charge Lbs. column of the Flooded Refrigerant Charge table (Table E). This charge data can also be used in condensers with fan cycling controls, as additional refrigerant is not needed for mild weather control.

However, a majority of units are required to operate at ambient temperatures below their design dry bulb temperature for most of the year. To eliminate insufficient

refrigerant being fed to the evaporator or iced evaporator coils, condenser flooding is recommended through the use of additional refrigerant and head pressure controls. (For details on flooded head pressure controls, see the Condenser Splitting/Head Pressure Valve Installation bulletin elsewhere in the ACC product section.) Table E indicates the additional refrigerant charge needed for use with flooded head pressure controls.

To determine the refrigerant charge for flooded condensers,

use the following equation –
Flooded Condenser Charge = Standard condenser charge (Table E) + Additional Charge (Table E) x Flooded Charge T.D. Factor (Table F)

Calculation Example

For model ACC-46, what is the flooding charge required to operate at 0° ambient, using a 15° T.D., and R-22 refrigerant?

From Table E, find the standard operating charge for ACC-46, which is 30.8 lbs. The charge for winter operation using flooded controls is equal to the standard operating charge of 30.8 pounds (Table E), plus the additional charge at 0° ambient of 134.9 lbs. (Table E), times the Flooded Charge T.D. Factor (Table F) of 1.10 for a 15 T.D.

Flooded Condenser Charge = 30.8 + 134.9 x 1.1 = 182.3 lbs.

Utilizing Fan Cycling in addition to Condenser Flooding will reduce condenser refrigerant charges. For assistance in designing a Flooded Condenser/Fan Cycling unit, or if you have any questions on flooding multi-circuited systems, call LRC's Application Engineers at 562-944-1969, and we'll be happy to provide you with the information you need.

Flooded Refrigerant Charges (Table E)

Model Number	Std. Charge Lbs.	Add'l Charge (lbs.) for Flooded Condenser for 20° F T.D.					# of Circuits	Std. Chg. /Circuit Lbs.	Flooded Chg./Cir. 0°
		60°	40°	20°	0°	-20°			
Single Wide Units									
ACC-5	3.4	6.6	14.6	17.9	20.0	21.0	3	1.1	6.7
ACC-6	3.4	6.6	14.6	17.9	20.0	21.0	3	1.1	6.7
ACC-7	5.1	9.9	21.9	26.8	30.0	31.5	3	1.7	10.0
ACC-8	6.9	9.9	21.9	26.8	30.0	31.5	4	1.7	7.5
ACC-9	6.9	13.2	29.2	35.8	40.0	42.0	4	1.7	10.0
ACC-11	6.4	12.4	27.4	33.5	37.5	39.4	5	1.3	7.5
ACC-13	9.6	18.6	41.1	50.3	56.2	59.1	7	1.4	8.0
ACC-15	9.6	18.6	41.1	50.3	56.2	59.1	7	1.4	8.0
ACC-16	12.7	18.6	41.1	50.3	56.2	59.1	7	1.8	8.0
ACC-17	12.7	24.7	54.7	67.0	75.0	78.7	8	1.6	9.4
ACC-19	16.0	24.7	54.7	67.0	75.0	78.7	8	2.0	9.4
ACC-21	17.2	30.9	68.4	83.8	93.7	98.4	10	1.7	9.4
ACC-23	18.6	27.2	60.2	73.7	82.5	86.6	10	1.9	8.2
ACC-24	18.6	27.2	60.2	73.7	82.5	86.6	11	1.7	7.5
ACC-28	23.3	36.3	80.3	98.3	110.0	115.5	13	1.8	8.5
ACC-30	18.4	35.9	79.4	97.2	108.7	114.1	13	1.4	8.4
ACC-37	24.6	47.8	105.8	129.6	144.9	152.2	16	1.5	9.1
ACC-40	30.8	47.8	105.8	129.6	144.9	152.2	17	1.8	8.5
ACC-46	30.8	44.5	98.5	120.6	134.9	141.7	18	1.7	7.5
ACC-50	38.5	59.4	131.3	160.8	179.9	188.9	21	1.8	8.6
Double Wide Units									
ACC-25	12.7	24.7	54.7	67.0	75.0	78.7	5	2.5	15.0
ACC-31	19.1	37.1	82.1	100.6	112.5	118.1	7	2.7	16.1
ACC-35	31.9	37.1	82.1	100.6	112.5	118.1	7	4.6	16.1
ACC-44	28.1	54.4	120.4	147.5	165.0	173.2	10	2.8	16.5
ACC-51	37.4	54.4	120.4	147.5	165.0	173.2	11	3.4	15.0
ACC-57	46.7	72.6	160.6	196.6	219.9	230.9	13	3.6	16.9
ACC-61	36.9	71.7	158.7	194.4	217.4	228.3	13	2.8	16.7
ACC-75	49.3	95.7	211.6	259.2	289.9	304.4	16	3.1	18.1
ACC-80	61.6	95.7	211.6	259.2	289.9	304.4	17	3.6	17.1
ACC-93	61.6	89.1	197.0	241.3	269.9	283.4	18	3.4	15.0
ACC-100	77.1	118.7	262.7	321.7	359.8	377.8	21	3.7	17.1

R-22 Refrigerant Charges shown. For R-134A, multiply charge by 0.99.
For R-404A, multiply charge by 0.91. For R-502A, multiply charge by 1.04.

Flooded Charge T.D. Factor (Table F)

Ambient °F	Design T.D.				
	30°	25°	20°	15°	10°
+40	0.85	0.92	1.00	1.08	1.18
+20	0.85	0.92	1.00	1.09	1.19
0	0.84	0.91	1.00	1.10	1.21
-20	0.82	0.91	1.00	1.11	1.23