

# Charging With Refrigerant

## Calculating R410A charge

Use the following table and formula when calculating the total R410A charge.

Condenser Model	Selected Ambient Temperature °C (°F)	Condenser Summer Charge kg (lb)	Condenser Flooded Charge in kg (lb) for Different Minimum Outdoor Ambient Temperatures				
			4°C (40°F)	-7°C (20°F)	-18°C (0°F)	-29°C (-20°F)	-40°C (-40°F)
ACCD75214	35 (95)	2.2 (4.9)	5.48 (12.1)	5.85 (12.9)	6.03 (13.3)	6.17 (13.6)	6.30 (13.9)
ACCD75214	40 (105)	2.2 (4.9)	5.48 (12.1)	5.85 (12.9)	6.03 (13.3)	6.17 (13.6)	6.30 (13.9)
ACCD75215	46 (115)	3.85 (8.5)	9.57 (21.1)	10.16 (22.4)	10.48 (23.1)	10.70 (23.6)	10.93 (24.1)
ACCD75216	35 (95)	1.36 (3)	3.08 (6.8)	3.26 (7.2)	3.36 (7.4)	3.45 (7.6)	3.49 (7.7)
ACCD75218 ACCD75220*	40 (105)	1.36 (3)	3.08 (6.8)	3.26 (7.2)	3.36 (7.4)	3.45 (7.6)	3.49 (7.7)
ACCD75217 ACCD75219	46 (115)	2.27(5)	6.12 (13.5)	6.53 (14.4)	6.71 (14.8)	6.89 (15.2)	7.03 (15.5)

\* ACCD75220 is CCC certified for use in China.

ACR Pipe Size (OD)	Type of Fitting or Valve – Equivalent Length of Pipe in m (ft)				
	Gate Valve	Standard Elbow 90 °	Reduced Coupling	Side Outlet T	Angle Valve
1/2 in.	0.18 (0.6)	0.43 (1.4)	0.43 (1.4)	0.82 (2.7)	1.83 (6.0)
5/8 in.	0.21 (0.7)	0.49 (1.6)	0.49 (1.6)	0.91 (3.0)	2.13 (7.0)

### Recommended Line Sizes

Equivalent length m (ft)	Line Type	Air-Cooled ACRD Units
15 (50)	Discharge line (horizontal)	5/8 in. OD ACR
	Discharge line (vertical)	1/2 in. OD ACR
	Liquid line	1/2 in. OD ACR
30 (100)	Discharge line (horizontal)	5/8 in. OD ACR
	Discharge line (vertical)	1/2 in. OD ACR
	Liquid line	1/2 in. OD ACR
16 (150)	Discharge line (horizontal)	5/8 in. OD ACR
	Discharge line (vertical)	1/2 in. OD ACR
	Liquid line	1/2 in. OD ACR

**NOTE:** All refrigerant pipes must be straight ACR to have 39 bar (565 psig) or above MWP. Equivalent length of 1/2 in. OD discharge line pipe should be kept less than 18 m (60 ft). Total equivalent length of the discharge line should be less than 46 m (150 ft) to prevent excessive hot gas pressure drop which can increase the discharge pressure during hot summer days. To have 61 m (200 ft) total equivalent discharge pipe length the load must be reduced by 5%.

Total charge = Equipment charge + condenser summer charge + condenser flooded charge (for minimum possible ambient temperature) + liquid R410A in liquid pipe

Equipment charge: 1.6 kg (3.5 lb)