Filtrine
SINCE 1901

REMOTE AIR COOLED CONDENSERS

Filtrine chillers can be supplied with a separate air cooled condenser ready for remote installation outdoors

REMOTE CONDENSER SELECTION: The condenser size may vary significantly depending on the maximum ambient temperature and the specification and application of the chiller. Always consult with the factory concerning selection of the remote condenser.
NOTE: *Low noise remote condensers are available, consult factory*.

LOW AMBIENT CONTROLS: At temperatures below 50°F the condenser will be oversized, resulting in low head pressure. This in turn will cause poor expansion valve operation and unstable evaporator performance unless some means of head pressure control is used. All Filtrine remote condensers are supplied with low ambient controls for operation in ambient down to -20°F.

Multiple fan condensers have fan speed controls and fan cycling. Single fan condensers will have adjustable inlet pressure regulators and hot gas bypass.

CONDENSER INSTALLATION: The condenser is shipped separately for installation at the job site by a qualified refrigeration contractor. Refrigeration piping between the chiller and the condenser should be installed in accordance with ASHRAE guidelines.

CONDENSER ELECTRICAL CONNECTIONS: For Model KCS Condensers – Standard provisions are made to supply power to the condenser from the chiller. **For Model KCM or KCL Condensers** – Require their own power source. Control connections need to be made between the chiller and the condenser. *Double row models are also available. For other than standard configurations, consult the factory.*

MODEL NUMBER	CONDENSER CAPACITY TOTAL HEAT REJECTION R-407C MBH [1]			FAN DATA				DIMENSIONS INCHES			REFRIG CONN SIZES INCHES	SUGGESTED CHILLER LINE SIZES [2]		NET WEIGHT LBS	OPERATING CURRENT FLA			
	AMBIENT TEMPERATURE			No	HP	CFM	dBA‡	L	W	H	IN/OUT	FROM	TO		208-230/60/1	208-230/60/3	460/60/3	575/60/3
	120°F	110°F	90°F															
KCS MODELS																		
002	11.6	17.4	23.2	1	1/6	2180	55	38	25 1/8	38 3/8	5/8	5/8	1/2	127	1.1	NA	NA	NA
003	14.3	21.4	28.6	1	1/6	1950	55	38	25 1/8	38 3/8	5/8	5/8	1/2	131	1.1	NA	NA	NA
005	24.2	36.3	48.4	1	1/3	4570	60	50	25 1/8	38 3/8	7/8 5/8	7/8	5/8	150	2.1	NA	NA	NA
006	29.0	43.5	58.0	1	1/3	4080	60	50	25 1/8	38 3/8	7/8 5/8	7/8	5/8	157	2.1	NA	NA	NA
KCM MODELS																		
009	41.8	62.7	83.6	1	¾	6870	51	50	42 5/8	48 1/16	1-1/8 7/8	7/8	7/8	245	3.6	2.3	1.2	0.9
011	50.3	75.4	100.6	1	¾	6620	51	50	42 5/8	48 1/16	1-1/8 7/8	7/8	7/8	265	3.6	2.3	1.2	0.9
014	65.7	98.5	131.4	2	¾	14400	53	90	42 5/8	48 1/16	1-3/8 1-1/8	7/8	7/8	415	7.2	4.6	2.3	1.8
018	83.6	125.4	167.2	2	¾	13700	53	90	42 5/8	48 1/16	1-5/8 1-1/8	1-1/8	1-1/8	455	7.2	4.6	2.3	1.8
022	100.7	151.0	201.4	2	¾	13200	53	90	42 5/8	48 1/16	1-5/8 1-1/8	1-1/8	1-1/8	490	7.2	4.6	2.3	1.8
028	126.7	190.0	253.4	3	¾	20600	54	130	42 5/8	48 1/16	2-1/8 1-3/8	1-3/8	1-3/8	640	10.8	6.9	3.5	2.7
033	150.5	225.7	301.0	3	¾	19900	54	130	42 5/8	48 1/16	2-5/8 1-5/8	1-5/8	1-5/8	695	10.8	6.9	3.5	2.7
039	177.4	266.1	354.8	4	¾	27500	55	170	42 5/8	48 1/16	2-5/8 1-5/8	1-5/8	1-5/8	825	14.4	9.2	4.6	3.6
045	206.9	310.3	413.8	4	¾	26500	55	170	42 5/8	48 1/16	2-5/8 1-5/8	1-5/8	1-5/8	900	14.4	9.2	4.6	3.6
KCL MODELS																		
054	244.5	366.7	489.0	3	2	32000	64	175	44 5/8	54	2-5/8 2-1/8	1-5/8	1-5/8	1175	NA	19.8	9.3	7.5
064	292.8	439.2	585.6	4	2	43900	65	230	44 5/8	54	2-5/8 2-1/8	2-1/8	2-1/8	1450	NA	26.4	12.4	10.0
075	343.9	515.8	687.8	4	2	41400	65	230	44 5/8	54	2-5/8 2-1/8	2-1/8	2-1/8	1550	NA	26.4	12.2	10.0
078	358.8	538.2	717.61	5	2	54900	66	285	44 5/8	54	3-1/8 2-5/8	(3)	(3)	1800	NA	33.0	15.5	12.5
095	432.4	648.6	864.8	5	2	51800	66	285	44 5/8	54	3-1/8 2-5/8	(3)	(3)	1950	NA	33.0	15.5	12.5
110	511.2	766.8	1022.4	6	2	62100	67	340	44 5/8	54	3-1/8 2-5/8	(3)	(3)	2300	NA	39.6	18.6	15.0
130	589.4	884.1	1178.8	7	2	72500	67	395	44 5/8	54	3-1/8 2-5/8	(3)	(3)	2700	NA	46.2	21.7	17.5

‡ Sound pressure dBA at 10 feet.

[1] Total heat rejection equals chiller capacity plus 30%.

[2] For up to 50 ft. of equivalent length. For longer lengths, consult factory.

[3] For multiple compressor models, consult factory.

NOTE: Condenser capacities are based on R-407c refrigerant. For other refrigerants, consult factory.

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FILTRINE IS ISO 9001:2015 CERTIFIED
PRODUCT LINE APPROVED CE MARK AVAILABLE

664K-R407C [EB]
REV. 11.30.20

INSTALLATION — REFRIGERANT PIPING

GENERAL

The importance of correct refrigerant pipe sizing and layout cannot be over-emphasized. Failure to observe proper refrigerant piping practices can result in equipment failure which may not be covered under warranty.

Filtrine air cooled condensers are supplied complete with headers and refrigerant connections sized for connection to standard refrigeration tubing.

DISCHARGE LINES

The proper design of discharge lines involves two objectives: [1] minimize refrigerant pressure drop, since high pressure losses increase the required compressor horsepower per ton of refrigeration, and [2] to maintain sufficiently high gas velocity to carry oil through to the condenser coil and receiver at all loading conditions.

Discharge lines must be pitched away from the compressor to ensure proper drainage of oil being carried in the line. A trap at the bottom of a vertical riser will prevent oil [and liquid refrigerant] from draining back to the compressor during the off-cycle. When the vertical lift exceeds 9 meters (30 feet), insert close-coupled traps in the riser at 9 meter [30 foot] intervals.

When an air cooled condenser is installed in a system utilizing capacity control, the discharge gas velocity must be sufficient at the lowest capacity to lift the oil to the condenser. If the gas velocity is less than 7.6 meters/sec. (1500 feet/min.), it is recommended that a double riser system be used to overcome oil problems. Riser "9A" in Figure 3 is sized for the lowest capacity. Riser "9B" is sized for the full load capacity less the lowest system capacity. At full load, both risers will carry the oil. A trap should be installed at the bottom of riser "9B" so that, when operating at minimum capacity, oil will trap and force the flow of hot gas through riser "9A" at the required velocity. An alternate method of handling the oil problem would be the addition of an oil separator at the bottom of the trap in Figure 2.

A reverse trap should be installed at the top of all vertical risers. The top of the reverse trap should be the highest point in the discharge line and should have a purge valve installed to allow the release of non-combustibles from the system.

Pulsation of the hot gas in the discharge line is an inherent characteristic of systems utilizing reciprocating compressors. The discharge line must be rigidly supported along its entire length to prevent transmission of vibration and movement of the line.

CONDENSATE LINES

Condensate line piping is not as critical as discharge line piping. However, the condensate line must be designed to allow free drainage of refrigerant from the condenser coil to the receiver. The liquid velocity should be relatively low to allow any gas to pass back through the condensate line to the condenser coil.

Typical system piping diagrams are illustrated below.

TYPICAL PIPING SYSTEM DIAGRAMS and CONDENSER FOOTPRINT

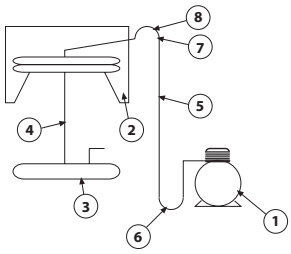

FIG. 2 SINGLE CIRCUIT

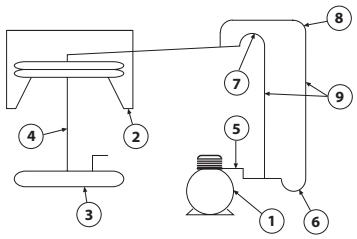

FIG. 3 SINGLE CIRCUIT
With double discharge riser
[may be required with capacity control]

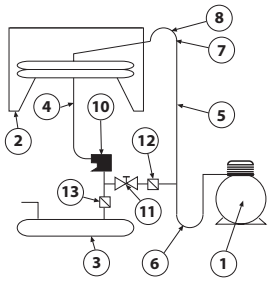

FIG. 4 SINGLE CIRCUIT
Limitrol head
pressure control

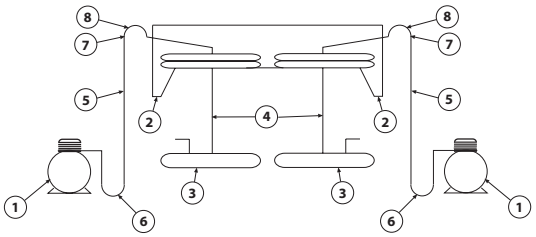

FIG. 5 MULTIPLE CIRCUIT

LEGEND

1	Compressor
2	Modular Air Cooler Condenser
3	Receiver
4	Condensate Line
5	Discharge Line
6	Trap - Min. 18" [457 mm]
7	Reverse Trap Min. 6" [152 mm]
8	Purge Valve
9	Double Discharge Riser
10	Limitrol Valve
11	Receiver Pressure Regulator Valve
12	Check Valve "A"
13	Check valve "B"

WIRING

Model KCS condensers: The power supply for KCS condensers (see selection table) is supplied through the chiller. The nameplate amperage on the chiller will include the fan motor amps. Customer needs to run power lines from the chiller to he control box on the remote condenser.

Model KCM or KCL condensers: The power supply for KCM or KCL condensers (see selection table) is supplied directly to the condenser. Please use the amperage ratings shown in the selection table to calculate the wire sizes and disconnect switch, if required. Customer also needs to run control wires from our chiller to the remote condenser so that the fans run only when the compressor is on. Customer has the option of either taking the control power from the chiller or from the condenser. Provisions are made for both.