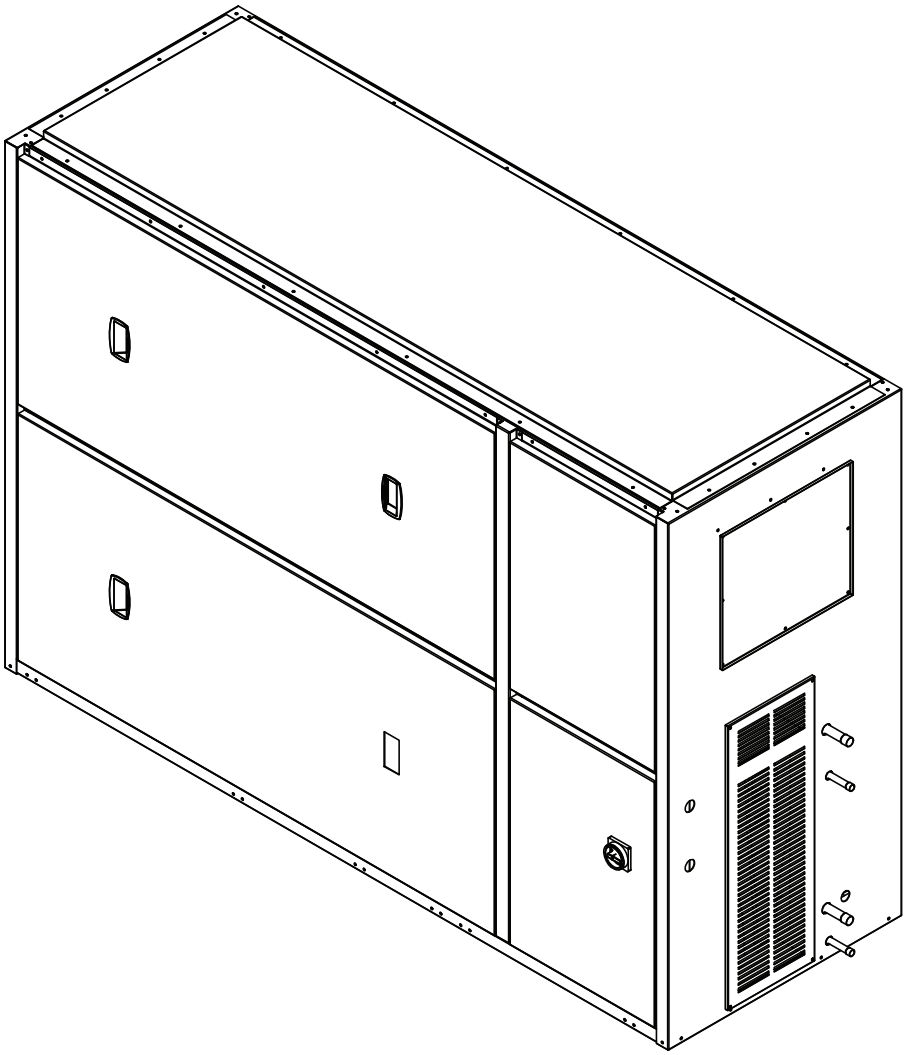
Product Data

Omnizone™ Air-Cooled Condensers

5 to 20 Nominal Tons



09XC06-24
Indoor Remote Air-cooled Condenser Units, Vertical Installation with Rear Return Air and Horizontal Air Discharge

Features/Benefits

The Omnizone 09XC air-cooled condenser units provide a practical and economical approach to comfort conditioning requirements for offices, factories, and other applications.

The 09XC air-cooled condenser units for remote applications offer:

- 6 convenient sizes
- optimum performance in all types of building applications
- high static, efficient belt drive condenser fans
- small footprint to allow for installation in tight spaces indoors
- ducted or free blow units, for greater application flexibility

Design flexibility

Carrier's 09XC units are remote air-cooled condensers with centrifugal condenser fans for high static condenser airflow applications. These units are available in nominal heat rejection capacities of 5, 7-1/2, 10, 12, 15, and 20 tons. Units are designed for vertical installation with horizontal airflow. Inlet and discharge are on the same face of the unit. Units can only be mounted indoors. Belt drive centrifugal condenser fan provides high-static capability for air inlet and discharge through louvers and extended duct runs.

Economic operation

The specially designed liquid refrigerant circuit provides subcooling for increased capacity without additional power consumption. Subcooling liquid refrigerant also expands condenser applications by permitting installation below the evaporator, without subjecting the refrigerant to flashing before the expansion valve.

Application flexibility

The unit can be placed where no other option would work because of high-static capability. Unit may be mounted indoors with duct runs, or mounted at the wall with a louver.

Mount the unit at a distance from an outside wall and duct the condenser air; due to the high static belt drive motor, static pressure losses as high as 1 in. wg may be overcome.

High quality paint process allows the unit to meet 500-hour salt spray requirements for a weather resistant cabinet that will hold up year after year.

Unit should be matched with a Carrier 50XCR unit to meet a wide range of application requirements.

Installation flexibility

Low voltage 24-v control contactor is provided in the unit control box. This results in cost savings for running control power from the compressor unit to the condenser.

Ease of service

Quick removal access panels on both sides of the unit allow for all service through the side of the unit, with easy access to controls and motor.

Belt drive motors slide on motor mounting rails for easy adjustment and replacement.

Permanently lubricated fan and motor bearings provide maximum reliability with minimal routine service.

Dependable and safe operation

Units are ETL (Engineering Testing Laboratory) listed to UL standard 1995 for safe operation and are UL listed for U.S.A. and Canada.

The management system governing the manufacture of this product is ISO 9001:2015 certified.

Special features for outstanding performance

- Space saver slab type condenser coils use Carrier's advanced heat transfer technology and provide peak heat transfer efficiency with large coil face area. Fins are mechanically bonded to nonferrous, seamless tubing for efficient leak free operation.
- Large volumes of outdoor air are moved quietly. Specially designed fan section provides superior air-handling capability at high efficiency and low sound.
- Convenient access electrical control center contains all factory pre-wired control devices.
- The weatherproof cabinets are constructed of galvanized steel and painted with Powercoat Paint System, capable of withstanding Federal Test Method Standard No. 141 (Method 6061) 500-Hour Salt Spray Test.
- The 09XC units all carry a standard limited one-year warranty on all parts.
- All motors are protected against thermal overload, and three-phase motors are protected against single-phasing conditions.
- Units are fully factory run-tested.

Table of contents

Model number nomenclature

09XC 24 A H 5 A 2 AA

09XC – Omnizone™ Remote Air-Cooled Condenser

Unit Size – Nominal Tons

06 – 5	14 – 12
08 – 7-1/2	16 – 15
12 – 10	24 – 20

Condenser Coil Option

A – No Condenser Filter, No Low Ambient Option, Low ESP
B – No Condenser Filter, No Low Ambient Option, Medium ESP
C – No Condenser Filter, No Low Ambient Option, High ESP
D – No Condenser Filter, No Low Ambient Option, Highest ESP*
F – No Condenser Filter, Low Ambient Option, Low ESP
G – No Condenser Filter, Low Ambient Option, Medium ESP
H – No Condenser Filter, Low Ambient Option, High ESP
J – No Condenser Filter, Low Ambient Option, Highest ESP*

* Highest ESP (external static pressure) not available for size 14-24.

NOTE(S):
1. For Fan drive package selection refer to the note for fan package from 50XCR submittal report. (Available fan drive packages: Low ESP, Medium ESP, High ESP, and Highest ESP).
2. For Motor HP selection, refer to the Fan performance section in the 50XCR submittal report.

Condenser Motor Hp Option

D – 1 Hp Motor
E – 1-1/2 Hp Motor
F – 2 Hp Motor
G – 3 Hp Motor
H – 5 Hp Motor
J – 7-1/2 Hp Motor

Voltage Options

1 – 575-3-60
5 – 208/230-3-60
6 – 460-3-60

Control Options

A – Standard Controls

Design Revision Level

0 – Original Release
2 – Design Revision 2

Factory-Installed Options Code

Reserved for future add-ons

Quality Assurance

ISO 9001:2015 Certified Processes

Physical data

UNIT 09XC	06	08	12	14	16	24
NOMINAL CAPACITY (tons)	**5**	**7.5**	**10**	**12**	**15**	**20**
BASE UNIT OPERATING WEIGHT (lb)	**883**	**1153**	**1352**	**1380**	**1645**	**2041**
CONDENSER FAN	Adjustable, Belt Drive, Centrifugal Type					
Nominal cfm	3400	4000	6000	8000	8000	10300
Condenser Fan Size	110-10R	110-10R	150-12R	150-15R	150-11R	150-11R
Number of Condenser Fans	2	2	2	2	3	3
Max. Allowable rpm	1700	1700	1700	1600	1700	1700
Std hp	1.0	1.5	2.0	2.0	3.0	5.0
Hp Range	1 - 1.5	1.5 - 2	2 - 3	2 - 3	3 - 5	5 - 7.5
Fan Shaft Size (in.)	1	1	1	1-3/16	1-7/16	1-7/16
Motor Shaft Size (in.)	0.875	0.875	0.875	0.875	1.125	1.125
Center Distance (in.)	27.1	27.1	29.8	29.8	29.8	35.1
CONDENSER COIL	3/8-in. OD, Enhanced Copper Tube, Aluminum Fins					
Quantity Rows ... Fin/in.	6…16W	6…16W	6…16W	6…16W	5...16W	5...16W
Fin Block Size (H x L) (in.)	30 x 46	30 x 46	32 x 60	34 x 80	34x80	40x80
Face Area (sq ft)	9.58	9.58	13.33	18.89	18.89	22.2
Refrigerant Gas Inlet Connection Size (in.)	5/8	5/8	7/8	7/8	1-1/8	1-1/8
Refrigerant Gas Outlet Connection Size (in.)	1/2	1/2	5/8	5/8	5/8	5/8

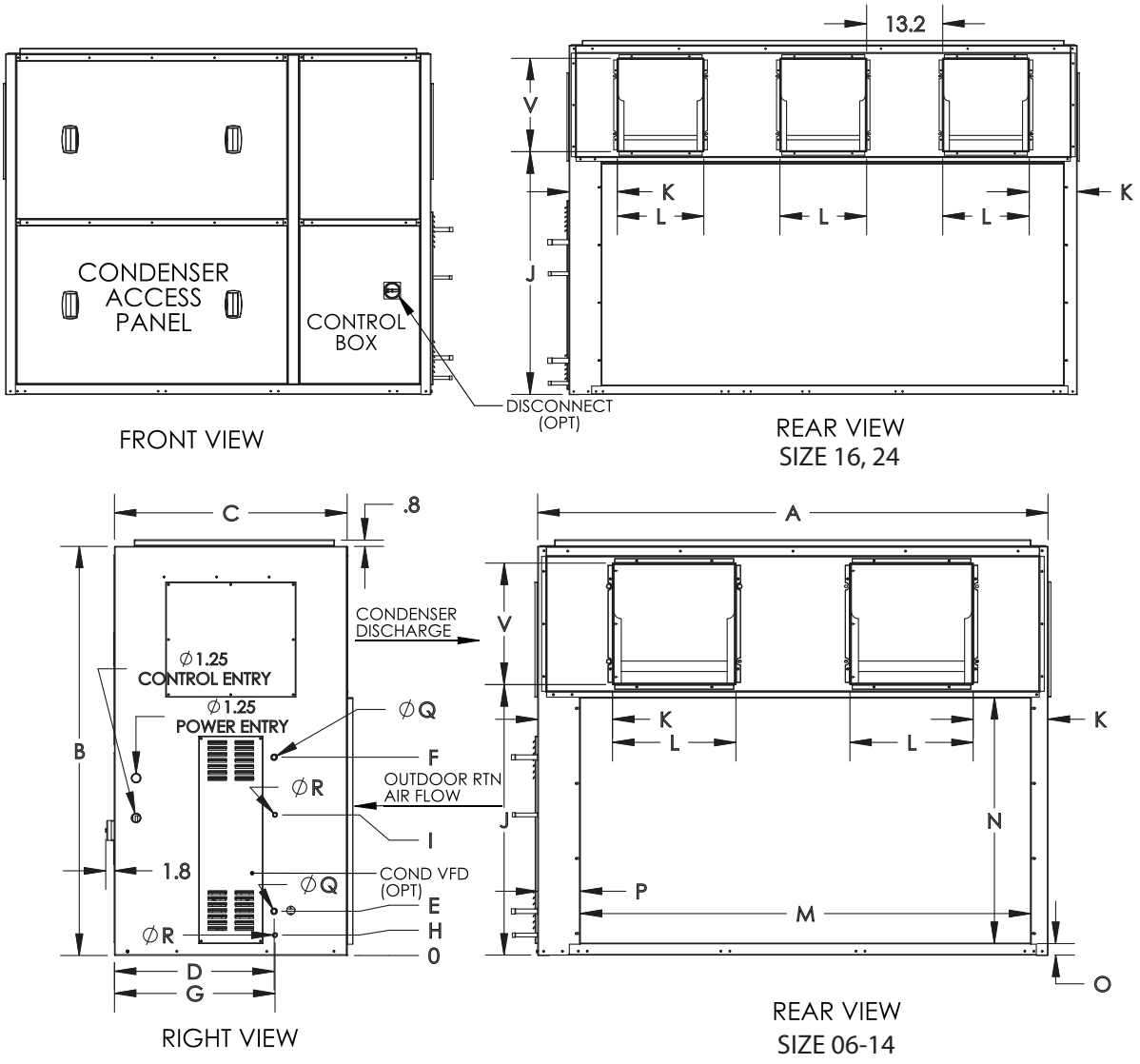
Factory-installed options

ITEM	FACTORY-INSTALLED OPTION	FIELD-INSTALLED ACCESSORY
Low Ambient Operation	X	

Factory-installed options

Low ambient option allows a refrigerant pressure controlled VFD (variable frequency drive) to adjust condenser fan speed to control head pressure. This fan speed control permits unit to operate in cooling even in winter, when outdoor air temperature is down to 0°F.

Dimensions — 09XC06-24

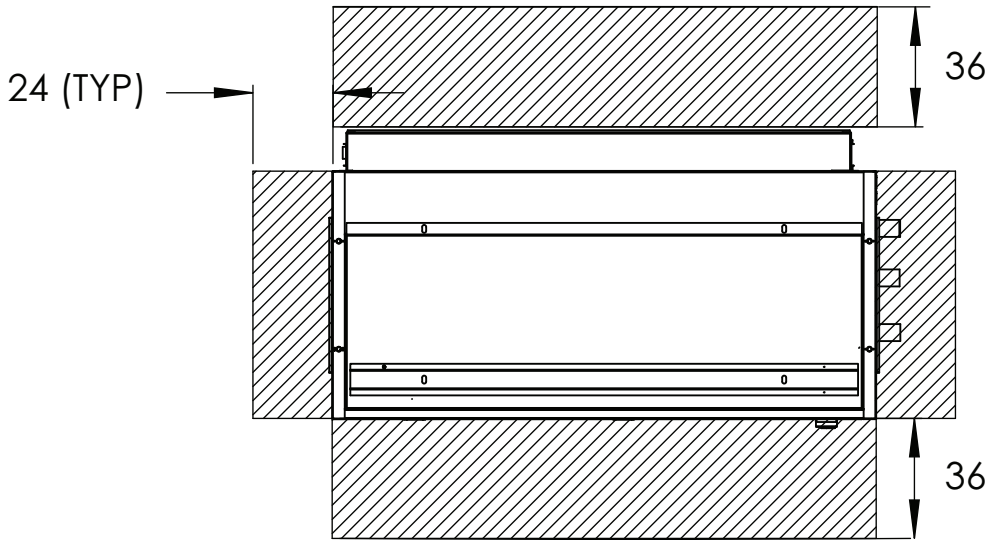


UNIT 09XC	WIDTH	HEIGHT	DEPTH	CONDENSER INLET			LIQUID OUTLET			CONDENSER DISCHARGE DUCT (BLOWER OPENING)				COND RETURN DUCT				COND INLET DIAMETER (OD)	LIQUID OUTLET DIAMETER (OD)
	A	B	C	D	E	F	G	H	I	J	K	L	V	M	N	O	P	Q	R
06	53.1	46.6	29.0	16.9	5.9	—	16.8	2.7	—	32.1	7.6	13.4	12.8	46.0	29.5	0.8	4.8	0.625	0.500
08	53.1	46.6	29.0	16.9	5.9	—	16.8	2.7	—	32.1	7.6	13.4	12.8	46.0	29.5	0.8	4.8	0.625	0.500
12	68.0	54.5	31.2	21.3	—	26.4	21.4	—	18.7	36.0	10.0	16.4	16.2	60.0	32.8	1.5	5.7	0.875	0.625
14	88.0	54.5	31.2	21.4	—	26.4	21.4	—	18.7	36.0	16.2	18.9	16.2	80.0	34.3	1.5	5.7	0.875	0.625
16	88.0	54.5	31.2	21.4	—	31.0	21.4	—	22.6	36.0	8.3	15.0	16.2	80.0	34.3	1.5	5.7	1.125	0.625
24	88.0	60.5	31.2	20.9	—	31.7	21.3	—	20.9	42.0	8.3	15.0	16.2	80.0	38.8	1.5	5.7	1.125	0.625

NOTE: Dimensions are in inches.

Dimensions (cont)

Unit Clearances



NOTE: Dimensions are in inches.

Selection procedure

Use Carrier's performance and selection software to perform unit selections at a variety of actual operating conditions. Performance at typical operating conditions are incorporated in the following performance tables.

Condenser Usage

UNIT 50XCR	09XC CONDENSER QUANTITY					
	06	08	12	14	16	24
06	1					
08		1				
12			1			
14				1		
16					1	
24						1

NOTE: Where there are no quantities of condensers listed, the combination is not recommended. See Application Data literature for more information on condenser combinations.

Performance data

Condenser Fan Performance — 09XC06 Units[a,b,c,d,e]

cfm	ESP (in. wg)																			
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2100	***466***	***0.21***	***548***	***0.30***	***623***	***0.40***	692	0.51	757	0.63	818	0.76	876	0.90	931	1.05	984	1.20	1035	1.37
2200	***488***	***0.24***	***567***	***0.34***	***639***	***0.44***	706	0.55	769	0.68	829	0.81	885	0.95	940	1.10	992	1.26	1042	1.42
2300	***511***	***0.28***	***586***	***0.37***	656	0.48	721	0.60	782	0.72	840	0.86	896	1.00	949	1.15	1000	1.31	—	—
2400	***533***	***0.31***	***605***	***0.41***	673	0.53	736	0.64	796	0.77	852	0.91	907	1.06	959	1.21	1009	1.37	—	—
2500	***555***	***0.36***	***625***	***0.46***	690	0.57	751	0.70	810	0.83	865	0.97	918	1.12	969	1.27	—	—	—	—
2600	***577***	***0.40***	***644***	***0.51***	708	0.62	767	0.75	824	0.89	878	1.03	930	1.18	980	1.34	—	—	—	—
2700	***599***	***0.45***	664	0.56	725	0.68	783	0.81	839	0.95	892	1.09	943	1.25	992	1.41	—	—	—	—
2800	***621***	***0.50***	684	0.61	744	0.74	800	0.87	854	1.01	906	1.16	956	1.32	—	—	—	—	—	—
2900	***644***	***0.56***	704	0.67	762	0.80	817	0.94	870	1.08	920	1.23	969	1.39	—	—	—	—	—	—
3000	666	0.61	725	0.74	781	0.87	834	1.01	886	1.15	935	1.31	—	—	—	—	—	—	—	—
3100	688	0.68	745	0.80	799	0.94	852	1.08	902	1.23	950	1.39	—	—	—	—	—	—	—	—
3200	710	0.75	766	0.88	818	1.01	869	1.16	918	1.31	—	—	—	—	—	—	—	—	—	—
3300	732	0.82	786	0.95	838	1.09	887	1.24	935	1.40	—	—	—	—	—	—	—	—	—	—
3400	755	0.89	807	1.03	857	1.18	905	1.33	—	—	—	—	—	—	—	—	—	—	—	—
3500	777	0.98	828	1.12	876	1.27	924	1.42	—	—	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicates field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Performance data (cont)

Condenser Fan Performance — 09XC08 Units[a,b,c,d,e]

cfm	ESP (in. wg)															
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2500	***555***	***0.36***	***625***	***0.46***	690	0.57	751	0.70	810	0.83	865	0.97	918	1.12	969	1.27
2650	***588***	***0.42***	***654***	***0.53***	716	0.65	775	0.78	831	0.92	885	1.06	936	1.21	986	1.37
2800	***621***	***0.50***	***684***	***0.61***	744	0.74	800	0.87	854	1.01	906	1.16	956	1.32	1004	1.48
2950	***655***	***0.58***	714	0.71	771	0.83	826	0.97	878	1.12	928	1.27	976	1.43	1023	1.60
3100	***688***	***0.68***	745	0.80	799	0.94	852	1.08	902	1.23	950	1.39	997	1.55	1042	1.72
3250	721	0.78	776	0.91	828	1.05	878	1.20	927	1.36	973	1.52	1019	1.69	1063	1.86
3400	755	0.89	807	1.03	857	1.18	905	1.33	952	1.49	997	1.66	1041	1.83	—	—
3550	788	1.02	838	1.16	886	1.31	933	1.47	978	1.64	1022	1.81	—	—	—	—
3700	821	1.15	869	1.30	916	1.46	961	1.62	1005	1.79	—	—	—	—	—	—
3850	855	1.30	901	1.45	946	1.62	989	1.78	—	—	—	—	—	—	—	—
4000	888	1.46	932	1.62	976	1.79	—	—	—	—	—	—	—	—	—	—
4150	921	1.63	964	1.79	—	—	—	—	—	—	—	—	—	—	—	—
4300	954	1.81	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4450	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

cfm	ESP (in. wg)													
	0.80		0.90		1.00		1.10		1.20		1.30		1.40	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2500	1018	1.43	1066	1.60	1112	1.78	—	—	—	—	—	—	—	—
2650	1034	1.54	1080	1.71	1125	1.89	—	—	—	—	—	—	—	—
2800	1050	1.65	1095	1.83	—	—	—	—	—	—	—	—	—	—
2950	1068	1.77	—	—	—	—	—	—	—	—	—	—	—	—
3100	1086	1.90	—	—	—	—	—	—	—	—	—	—	—	—
3250	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3400	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3550	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3700	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3850	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4000	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4150	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4300	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4450	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicates field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Performance data (cont)

Condenser Fan Performance — 09XC12 Units[a,b,c,d,e]

cfm	ESP (in. wg)															
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
4100	***389***	***0.41***	***451***	***0.53***	506	0.66	557	0.80	605	0.94	651	1.10	695	1.26	—	—
4300	***408***	***0.47***	***467***	***0.60***	520	0.73	569	0.87	616	1.02	661	1.18	704	1.35	745	1.53
4500	***427***	***0.54***	***484***	***0.67***	535	0.81	583	0.96	628	1.11	672	1.28	714	1.45	754	1.63
4700	***446***	***0.62***	501	0.76	550	0.90	596	1.05	641	1.21	683	1.37	724	1.55	763	1.73
4900	***465***	***0.70***	518	0.84	566	0.99	611	1.15	653	1.31	694	1.48	734	1.66	773	1.85
5100	***484***	***0.79***	535	0.94	581	1.09	625	1.25	666	1.42	706	1.59	745	1.78	783	1.97
5300	503	0.88	552	1.04	597	1.20	640	1.37	680	1.54	719	1.72	757	1.90	793	2.10
5500	522	0.99	569	1.15	613	1.32	654	1.49	694	1.66	732	1.85	769	2.04	804	2.23
5700	541	1.10	587	1.27	629	1.44	670	1.62	708	1.80	745	1.98	781	2.18	816	2.38
5900	560	1.22	604	1.39	646	1.57	685	1.75	722	1.94	758	2.13	794	2.33	828	2.53
6100	578	1.35	622	1.53	662	1.71	700	1.90	737	2.09	772	2.29	807	2.49	840	2.70
6300	597	1.48	639	1.67	679	1.86	716	2.05	752	2.25	786	2.45	820	2.66	—	—
6500	616	1.63	657	1.82	696	2.02	732	2.21	767	2.42	801	2.62	833	2.83	—	—
6700	635	1.78	675	1.98	712	2.18	748	2.39	782	2.59	815	2.81	—	—	—	—
6900	654	1.95	693	2.15	729	2.36	764	2.57	798	2.78	830	3.00	—	—	—	—

cfm	ESP (in. wg)													
	0.80		0.90		1.00		1.10		1.20		1.30		1.40	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2500	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2650	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2800	793	1.81	—	—	—	—	—	—	—	—	—	—	—	—
2950	801	1.92	838	2.12	—	—	—	—	—	—	—	—	—	—
3100	810	2.04	846	2.24	—	—	—	—	—	—	—	—	—	—
3250	819	2.16	855	2.37	889	2.58	—	—	—	—	—	—	—	—
3400	829	2.30	864	2.51	898	2.72	—	—	—	—	—	—	—	—
3550	839	2.44	874	2.65	—	—	—	—	—	—	—	—	—	—
3700	850	2.59	884	2.80	—	—	—	—	—	—	—	—	—	—
3850	861	2.74	894	2.96	—	—	—	—	—	—	—	—	—	—
4000	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4150	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4300	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4450	—	—	—	—	—	—	—	—	—	—	—	—	—	—
4600	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicates field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND
bhp — Brake Horsepower
ESP — External Static Pressure

Performance data (cont)

Condenser Fan Performance — 09XC14 Units[a,b,c,d,e]

cfm	ESP (in. wg)															
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6000	496	1.03	533	1.17	570	1.36	608	1.58	646	1.82	683	2.06	719	2.31	755	2.56
6250	517	1.17	552	1.31	588	1.50	624	1.72	660	1.97	696	2.22	732	2.48	766	2.74
6500	537	1.31	571	1.46	605	1.65	640	1.88	675	2.13	710	2.39	744	2.66	—	—
6750	558	1.47	590	1.62	623	1.81	657	2.05	691	2.30	724	2.57	757	2.85	—	—
7000	579	1.64	610	1.79	642	1.99	674	2.23	707	2.49	739	2.76	—	—	—	—
7250	599	1.82	629	1.98	660	2.18	691	2.42	723	2.68	—	—	—	—	—	—
7500	620	2.02	649	2.18	679	2.38	709	2.62	—	—	—	—	—	—	—	—
7750	641	2.23	669	2.39	697	2.59	726	2.84	—	—	—	—	—	—	—	—
8000	661	2.45	688	2.61	716	2.82	—	—	—	—	—	—	—	—	—	—
8250	682	2.69	708	2.85	—	—	—	—	—	—	—	—	—	—	—	—
8500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

cfm	ESP (in. wg)									
	0.80		0.90		1.00		1.10		1.20	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6000	789	2.81	—	—	—	—	—	—	—	—
6250	—	—	—	—	—	—	—	—	—	—
6500	—	—	—	—	—	—	—	—	—	—
6750	—	—	—	—	—	—	—	—	—	—
7000	—	—	—	—	—	—	—	—	—	—
7250	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—
7750	—	—	—	—	—	—	—	—	—	—
8000	—	—	—	—	—	—	—	—	—	—
8250	—	—	—	—	—	—	—	—	—	—
8500	—	—	—	—	—	—	—	—	—	—
8750	—	—	—	—	—	—	—	—	—	—
9000	—	—	—	—	—	—	—	—	—	—
9250	—	—	—	—	—	—	—	—	—	—
9500	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicates field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Performance data (cont)

Condenser Fan Performance — 09XC16 Units[a,b,c,d,e]

cfm	ESP (in. wg)																			
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70		0.80		0.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6250	474	1.16	524	1.37	570	1.58	612	1.79	653	2.01	691	2.23	727	2.45	762	2.67	795	2.90	827	3.13
6500	493	1.28	541	1.49	585	1.70	627	1.92	666	2.14	704	2.37	739	2.59	773	2.82	806	3.05	838	3.28
6750	512	1.41	558	1.62	601	1.84	642	2.06	680	2.28	717	2.51	752	2.74	785	2.97	817	3.20	849	3.44
7000	531	1.54	576	1.76	618	1.98	657	2.20	695	2.43	730	2.66	764	2.89	797	3.13	829	3.36	860	3.60
7250	550	1.68	593	1.90	634	2.13	672	2.36	709	2.59	744	2.82	778	3.06	810	3.29	841	3.53	871	3.77
7500	569	1.83	611	2.06	650	2.28	688	2.52	724	2.75	758	2.99	791	3.22	823	3.46	853	3.71	883	3.95
7750	588	1.99	629	2.22	667	2.45	704	2.68	739	2.92	772	3.16	804	3.40	836	3.64	866	3.89	895	4.14
8000	607	2.15	646	2.38	684	2.62	720	2.86	754	3.10	787	3.34	818	3.59	849	3.83	878	4.08	907	4.33
8250	626	2.32	664	2.56	701	2.80	736	3.04	769	3.28	801	3.53	832	3.78	862	4.03	891	4.28	920	4.53
8500	645	2.50	682	2.74	718	2.98	752	3.23	784	3.48	816	3.73	846	3.98	876	4.23	905	4.48	933	4.74
8750	664	2.69	700	2.93	735	3.18	768	3.43	800	3.68	831	3.93	861	4.18	890	4.44	918	4.70	—	—
9000	683	2.88	718	3.13	752	3.38	784	3.63	816	3.89	846	4.14	875	4.40	904	4.66	—	—	—	—
9250	702	3.09	736	3.34	769	3.59	801	3.85	832	4.10	861	4.36	890	4.62	—	—	—	—	—	—
9500	721	3.30	754	3.56	787	3.81	818	4.07	848	4.33	877	4.59	—	—	—	—	—	—	—	—
9750	740	3.52	772	3.78	804	4.04	834	4.30	864	4.56	—	—	—	—	—	—	—	—	—	—

cfm	ESP (in. wg)																			
	1.00		1.10		1.20		1.30		1.40		1.50		1.60		1.70		1.80		1.90	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
6250	858	3.37	888	3.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6500	868	3.52	898	3.76	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6750	879	3.68	908	3.92	936	4.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7000	889	3.84	918	4.09	946	4.33	973	4.58	—	—	—	—	—	—	—	—	—	—	—	—
7250	900	4.02	929	4.26	956	4.51	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	912	4.20	940	4.45	967	4.70	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7750	923	4.39	951	4.64	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8000	935	4.58	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
8750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9250	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
9750	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicates field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Performance data (cont)

Condenser Fan Performance — 09XC24 Units[a,b,c,d,e]

cfm	ESP (in. wg)															
	0.00		0.10		0.20		0.30		0.40		0.50		0.60		0.70	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
8,500	613	2.20	657	2.54	698	2.87	737	3.22	773	3.56	808	3.91	841	4.27	873	4.63
8,800	634	2.45	677	2.79	717	3.14	755	3.49	790	3.85	824	4.21	857	4.58	889	4.95
9,100	656	2.70	697	3.06	736	3.42	773	3.78	808	4.15	841	4.53	873	4.91	904	5.29
9,400	678	2.98	718	3.35	756	3.72	791	4.09	826	4.47	858	4.86	890	5.25	920	5.64
9,700	699	3.28	738	3.65	775	4.04	810	4.42	844	4.81	876	5.21	907	5.61	936	6.02
10,000	721	3.59	759	3.98	795	4.37	829	4.77	862	5.17	893	5.58	923	5.99	953	6.41
10,300	742	3.92	779	4.32	814	4.73	848	5.14	880	5.55	911	5.97	940	6.39	969	6.82
10,600	764	4.27	800	4.69	834	5.10	867	5.53	898	5.95	928	6.38	958	6.81	—	—
10,900	786	4.65	821	5.07	854	5.50	886	5.93	917	6.37	946	6.81	—	—	—	—
11,200	807	5.04	841	5.48	874	5.92	905	6.36	935	6.81	—	—	—	—	—	—
11,500	829	5.46	862	5.91	894	6.36	925	6.81	954	7.27	—	—	—	—	—	—
11,800	850	5.90	883	6.36	914	6.82	944	7.29	—	—	—	—	—	—	—	—
12,100	872	6.36	904	6.83	934	7.30	—	—	—	—	—	—	—	—	—	—
12,400	894	6.84	925	7.32	—	—	—	—	—	—	—	—	—	—	—	—
12,700	915	7.35	—	—	—	—	—	—	—	—	—	—	—	—	—	—

cfm	ESP (in. wg)													
	0.80		0.90		1.00		1.10		1.20		1.30		1.40	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
8,500	904	5.00	933	5.37	962	5.75	990	6.13	1017	6.52	1043	6.91	—	—
8,800	919	5.33	948	5.71	976	6.10	1004	6.49	1030	6.89	—	—	—	—
9,100	934	5.68	963	6.07	991	6.47	1018	6.87	—	—	—	—	—	—
9,400	949	6.04	978	6.44	1005	6.85	—	—	—	—	—	—	—	—
9,700	965	6.42	993	6.84	—	—	—	—	—	—	—	—	—	—
10,000	981	6.83	—	—	—	—	—	—	—	—	—	—	—	—
10,300	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10,600	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10,900	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11,200	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11,500	—	—	—	—	—	—	—	—	—	—	—	—	—	—
11,800	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12,100	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12,400	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12,700	—	—	—	—	—	—	—	—	—	—	—	—	—	—

NOTE(S):

a. Units are available with several motor hp and drive package combinations.
b. Bold italics indicates field-supplied drive required.
c. Static pressure losses for any options or accessories must be applied to external static pressure before entering the fan performance table.
d. Interpolation is permitted; extrapolation is not.
e. Fan performance is based on 1 in. standard throwaway filter, unit casing, and wet DX (direct expansion) coil losses at sea level.

LEGEND

bhp — Brake Horsepower
ESP — External Static Pressure

Electrical data

Fan Electrical Data

MOTOR CODE	HP	V-PH-Hz	VOLTAGE RANGE		FLA	MCA	MOPD	DISC
			Min	Max				
D	1.00	208/230-3-60	187	253	3.2/3.2	4.0/4.0	15/15	30
		460-3-60	414	506	1.6	2.0	15	30
		575-3-60	518	632	1.1	1.4	15	30
E	1.50	208/230-3-60	187	253	4.6/4.8	5.8/6.0	15/15	30
		460-3-60	414	506	2.4	3.0	15	30
		575-3-60	518	632	1.6	1.9	15	30
F	2.00	208/230-3-60	187	253	6.0/5.8	7.5/7.2	15/15	30
		460-3-60	414	506	2.9	3.6	15	30
		575-3-60	518	632	2.1	2.6	15	30
G	3.00	208/230-3-60	187	253	9.2/8.6	11.5/10.8	20/15	30
		460-3-60	414	506	4.3	5.4	15	30
		575-3-60	518	632	3.4	4.2	15	30
H	5.00	208/230-3-60	187	253	14.5/13.6	18.1/17.0	30/30	30
		460-3-60	414	506	6.8	8.5	15	30
		575-3-60	518	632	5.4	6.8	15	30
J	7.50	208/230-3-60	187	253	21.5/19.4	26.9/24.2	45/40	30
		460-3-60	414	506	9.7	12.1	20	30
		575-3-60	518	632	7.5	9.4	15	30

LEGEND

FLA — Full Load Amps
DISC — Disconnect
MCA — Minimum Circuit Amps
MOPD — Minimum Overcurrent Protection Device
NEC — National Electrical Code
RLA — Rated Load Amps

NOTES:
1. In compliance with NEC requirements for multimotor and combination load equipment (NEC Articles 430 and 440), the overcurrent. protective device for the unit shall be fuse or HACR circuit breaker. Canadian units may be fuse or circuit breaker.
2. Wire sizing amps are a sum of 125% of the compressor RLA plus 100% of indoor fan motor FLA.
3. Motors are protected against primary single phasing condition.
4. Indoor-fan motors are 3-phase motors of same voltage as unit.

Operating sequence

The 09XC condensing unit may be used with different types of compressor and evaporator combinations. The sequence of operation is dependent on the compressor and indoor unit that the condenser is used with. In general, whenever there is a call for cooling the condenser fan starts with the compressor and runs as long as there is a call for cooling. Fans are activated on the call for first stage and run with the lead compressor.

When matched with the 50XCR units, the 09XC sequence of operation is as follows:

On a call for cooling, the thermostat closes and energizes terminal Y1 in the 50XCR unit low voltage terminal strip. The outdoor fan relay (OFR) is energized with 24v through terminals T1 and C, thus energizing the outdoor fan contactor (OFC). The fan will continue to run until the thermostat is satisfied. At that time, the thermostat will open Y1, and the fan will stop immediately.

If the condenser-fan motor overheats due to motor overload or lack of cooling air, the OFR overload function will break control power to the OFC and the fan will stop. If a safety control in the unit opens, the 09XC condenser fan will not be affected, and then fan will continue to run as long as the thermostat is closed.

Operating sequence with accessories

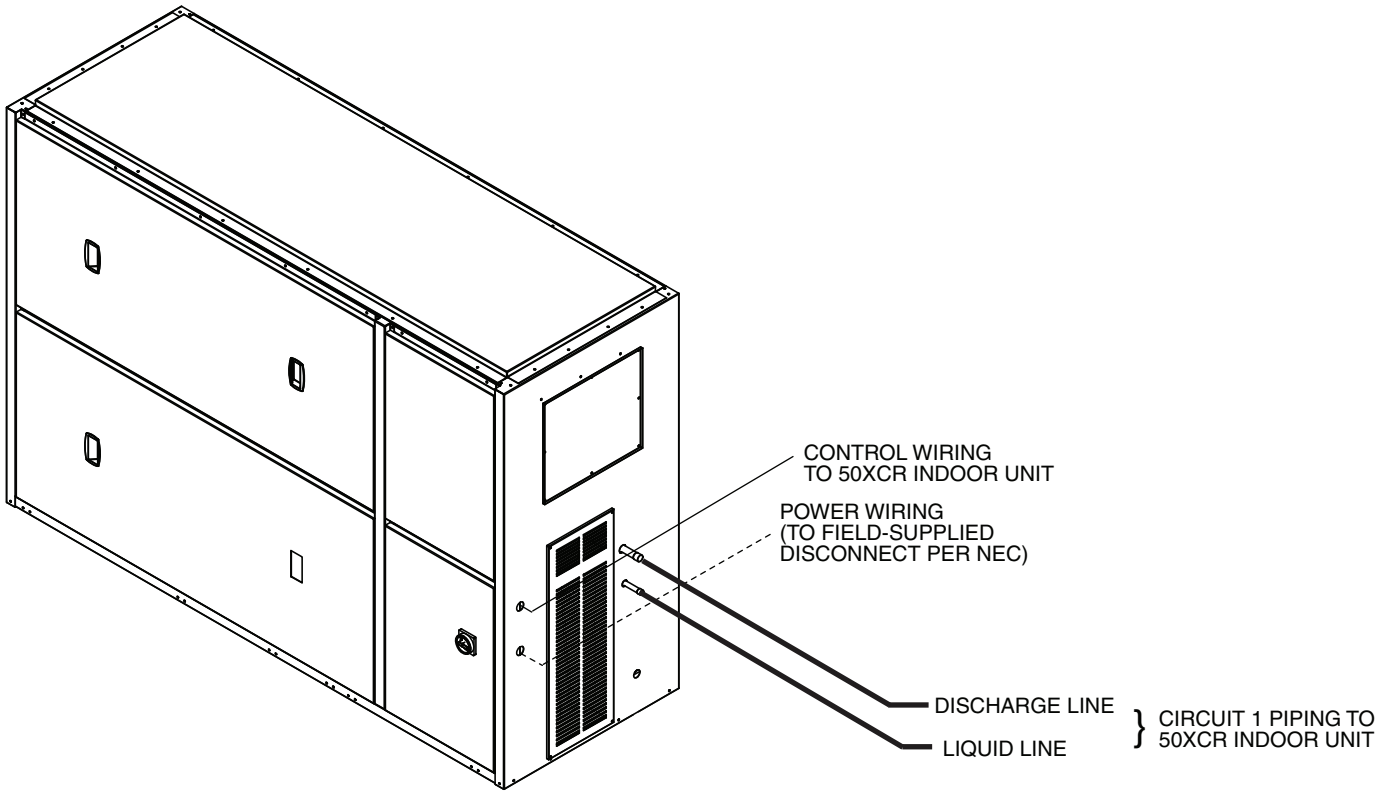
If the condenser is equipped with low ambient control, the option controls condenser fan airflow in response to the saturated condensing temperature. Accessory winter start control should be used with low ambient temperatures to bypass the low-pressure switch for 90 seconds on compressor start-up. This allows system pressures to stabilize.

A field-supplied solenoid valve (locate at indoor unit), wired in parallel with the compressor contactor coil, shuts off the liquid line to prevent the refrigerant migration back to the compressor during the off cycle. This valve is recommended for installations with piping length over 75 ft (22.9 m).

Low ambient control on 09XC units is accomplished with a VFD (variable frequency drive) on the condenser fan. Low ambient operation does not affect operating sequence.

Typical piping and wiring

09XC Unit Matched with 50XCR Indoor Unit



LEGEND
NEC — National Electrical Code

Application data

Location

For best results unit must be properly located and installed. Locate condenser where an adequate supply of inlet outdoor air is available. Do not locate unit where the possibility of air recirculation exists. Locate condenser in an area free from airborne dirt or other foreign material which could clog condenser coils. Selected location should not be adjacent to an acoustically sensitive space, for example a conference room or executive office. The best location is in mechanical rooms or garages near areas like elevators, restrooms, stairways or similar spaces. The mechanical room should use construction methods which will help to isolate the transmission of acoustical energy.

Since these units are typically used indoors and require large quantities of ducted condenser air, select a location with the best access to outside window or wall to accommodate condenser air louver. Locate the unit as close to the wall opening as possible but allow space for access to the condenser coil for cleaning. Units on the same floor should have a minimum of 6 ft between units to prevent recirculation of condenser air. Units should have a minimum of 10 ft between units to prevent recirculation.

Units should not be located with several units pulling condenser air which may be recirculated from a small space between buildings. Recirculation of condenser air will result in increased head pressure which may cause units to trip on high pressure.

Unit mounting

When units are mounted to use an existing window height, a field-fabricated steel mounting stand is recommended. The stand should be built rigid enough to support the weight of the unit and braced to prevent any side to side movement of the stand. A mounting height higher than the window sill height is recommended which will allow the condenser duct to be pitched back to the louver in the window for rain elimination and drainage.

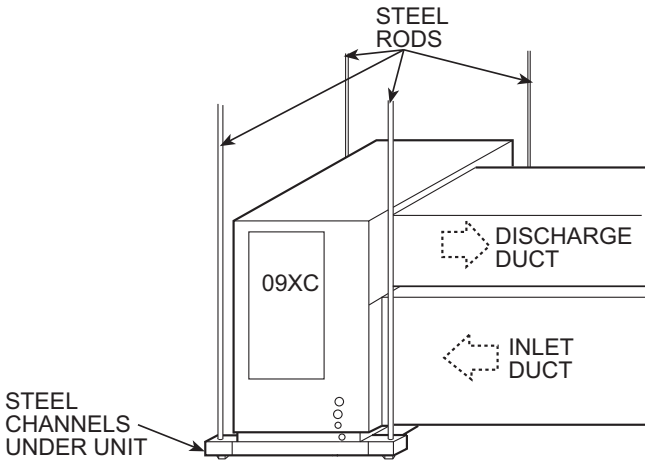
Make sure units are installed level to ensure proper drainage of liquid refrigerant and oil. When unit is in proper location, use mounting holes in legs for securing unit to supporting structure.

Unit may also be suspended from above. Support unit with steel channels under unit and attach to ceiling structure by steel rods. Be sure all supports can sustain unit weight.

Unit isolation

If vibration isolation is desired, rubber-in shear pads or spring isolators with 1-in. deflection are recommended under the four corners of the unit. All duct connections to the unit should be made with flexible connections to prevent any transmission of vibration to the ductwork.

Suspended Unit on Inside Wall



Condenser ductwork

Condenser supply and discharge air ducts should be as short and straight as possible. Cross-sectional area of the inlet and discharge should be the same as the face area of the unit openings. When bends must be made, they should be as gradual as space limitations will allow. If the unit will be operated in cold outdoor weather or if dampers are not provided at the louver, then the condenser ducts and unit should be insulated to prevent condensation.

Design of the field-supplied and installed louver used for the inlet and discharge of the condenser airflow is critical to preventing recirculating of air and high pressure trips. The louver blades must be heavy enough to prevent unit airflow from drawing them together. Louver blades should be a minimum of 18 gauge and widths over 30 in. should have stiffeners. The inlet louver should not have a flange and the discharge louver should have a flange which directs the air away from the inlet. The use of a field-supplied deflector in conjunction with the condenser air discharge is also recommended.

Operational limits

Condenser air temperature

Maximum: 115°F

Minimum without low ambient: 55°F

Minimum with low ambient: 0°F

Application data (cont)

Liquid lift and subcooler circuit

Amount of liquid lift available before refrigerant flashing occurs depends on amount of liquid subcooling in the system. All 09XC condensers have positive subcooling when applied with optimum charge. With subcooling, it is possible to overcome an appreciable pressure drop and/or static head pressure (due to elevation of the liquid metering device above the condenser when condenser is below evaporator coil). However subcooling will decrease the total heat rejection capability of the condenser. This is because subcooling results from a portion of the condenser tubes being filled with liquid refrigerant, decreasing the area for condensing to occur.

When 09XC condensers are applied with minimum charge, they do not provide positive subcooling. If subcooling is required, it must be obtained by external means such as a liquid suction interchanger. It is recommended that the evaporator be either at the same level as the condenser or lower than the condenser when minimum charge is used.

Refrigerant line sizing

Sizing depends on length of lines between various sections of the refrigerant system. Consider the amount of liquid lift and drop in the system as well as proper compressor oil return.

Use the following guideline for refrigerant piping:

Discharge lines

1. Base line size on a 2°F change in saturated condensing temperature.
2. Lines must be sized and routed so that oil is carried through the system. When the condenser is located at a higher level than the compressor, take special precautions that oil will return at reduced capacity. A double hot gas riser may be required with high lift and a large degree of unloading. Be sure to trap the connections between both risers.
3. Protect the compressor from liquid refrigerant or oil draining back during compressor off cycles by ensuring the following:
   a. The highest point in the discharge line should be above the highest point in the condenser coil. A purge valve should be applied at this point.
   b. The hot gas line should loop to the floor if the condenser is located above the compressor, especially if the hot gas riser is long.
   c. If the condenser is located where the ambient temperature could be higher than the ambient at the compressor location, a check valve should be installed in the hot gas line.

Liquid lines

1. Liquid line can generally be sized for a 1° to 2°F degree change in saturation temperature.
2. A receiver, if used in the system, should be located below the condenser. The condenser to receiver liquid line must be sized to allow free drainage. This line should be sized so the velocity does not exceed 100 fpm.
3. Generous sizing of this liquid (condensate) line is especially important if the receiver is exposed at any time to a warmer ambient temperature than the condenser. It must be large enough for the liquid to flow to the receiver and at the same time allow flow or refrigerant vapor in the opposite direction back to the condenser. The receiver will become vapor locked under these conditions if re-evaporated gas is not allowed to flow back to the condenser for re-condensation.
4. Liquid lines should be free of any traps or loops.

Piping should be routed to avoid excessive strain on system components or the piping itself. Discharge lines must be supported with rigid pipe supports to prevent transmission of vibration and movement of the line. The discharge line should be well supported near the condenser hot gas connection. Use offsets in interconnecting lines between two condensers and provide isolation where pipes pass through building walls or floors.

Setting condenser fan speed

The 09XC condenser has a centrifugal blower and a variable pitch drive which allow adjusting the condenser airflow to match the static from the louvers, ductwork, filters and sound traps (if used). It is best to adjust the fan to the nominal airflow and the rpm which will achieve this performance. Excess airflow and rpm will make units noisier.

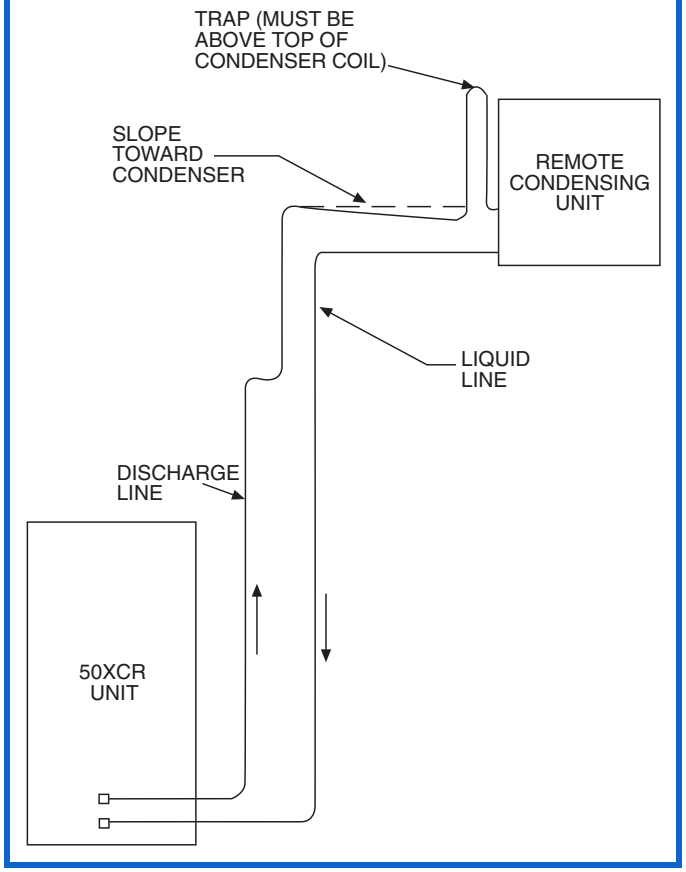
Sound considerations

When unit is installed in or near areas requiring additional sound attenuation:

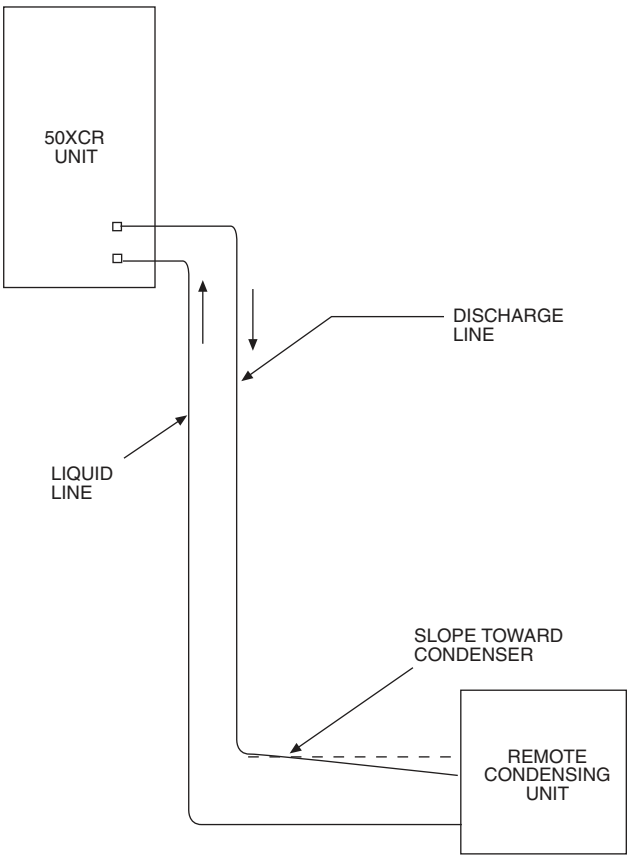
- Locate unit in equipment room or closet
- Use acoustic lining in ductwork
- Provide square duct elbows with acoustic lining and turning vanes

Application data (cont)

System with Condenser Above Evaporator



System with Evaporator Above Condenser



Guide specifications

Remote Air-Cooled Condenser Unit

HVAC Guide Specifications

Size Range: **5 to 20 Tons**

Carrier Model Number: **09XC**

Part 1 — General

1.01 SYSTEM DESCRIPTION

Indoor mounted, air-cooled condenser with belt drive centrifugal fan. Air shall discharge horizontally with inlet and outlet on the same face of the unit.

1.02 QUALITY ASSURANCE

A. Units shall be rated using refrigerant R-410A. Ratings shall be listed at a minimum (5°F subcooling) and optimum (15°F subcooling) refrigerant charge and in accordance with AHRI (Air-Conditioning, Heating, and Refrigeration Institute) Standard 340/360, latest edition.

B. Unit shall be designed to conform to ANSI/ASHRAE (American National Standards Institute/American Society for Heating, Refrigerating and Air-Conditioning Engineers) 15, latest revision safety code, and UL (Underwriters Laboratories) Standard 1995, and shall be UL listed under both American and Canadian Standards.

C. Coils shall be leak tested at 420 psig and unit operation shall be tested at the factory.

D. The management system governing the manufacture of this product is ISO 9001:2015 certified.

1.03 DELIVERY, STORAGE, AND HANDLING

Units shall be stored and handled according to manufacturer's recommendations.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Indoor mounted, packaged, air-cooled remote condenser unit. Factory-assembled unit shall consist of condenser coil, fan with motor and drive, factory wiring, piping and electrical controls, and a charge of dry nitrogen.

B. Cabinet:

Cabinet shall be steel frame construction with removable access panels for control box and motor drive adjustment. Panels shall be of zinc-coated bonderized steel finish with baked enamel paint. Unit cabinet shall be capable of withstanding Federal Test Method Standard No. 141 (method 6061) 500-Hour Salt Spray Test.

C. Fans:

1. Fans shall be double inlet, centrifugal wheel with forward-curved blades, designed for continuous operation. Fan wheel and scroll shall be constructed of steel with corrosion resistant finish, and statically and dynamically balanced.
2. Fan shall be belt drive with an adjustable pitch motor pulley, with permanently lubricated, ball-bearing type bearings.
3. Discharge side of condenser fan shall be protected by corrosion proof fan guards.

D. Coils:

Coils shall use seamless copper tube, aluminum plate fins and galvanized steel tube sheets. Fins shall be bonded to tubes by mechanical expansion. Hot gas and liquid connections shall be made at the same end of the coil. Units shall be circuited for one or two circuits with each circuit having an integral subcooling circuit. Multiple circuit coils shall be capable of being field connected to single circuit.

E. Motor:

Motors shall be ODP (Open Drip Proof). Motors are externally protected. Motors shall be 3 phase.

F. Controls:

Unit shall be provided with a contactor to control the condenser fan motor. Contactor shall be controlled by 24 volt power.

G. Operating Characteristics:

Units shall be capable of rejecting the required heat at the nominal cfm. Unit shall be capable of adjustment to allow operation with ductwork and field-supplied inlet and discharge louvers as shown on the contract drawings. Units shall be capable of operation at 55 to 115°F ambient temperatures as standard.

H. Electrical Characteristics:

Units shall be capable of operating on 3 phase. Electrical characteristics as specified in the equipment schedule. Control voltage shall be 24 volts from external source.

I. Special Features:

Low Ambient Operation:

Units shall provide refrigerant pressure controlled VFD (variable frequency drive) to adjust condenser fan speed to control head pressure as a factory-installed option. This fan speed control permits unit to operate in cooling even in winter, when outdoor air temperature is down to 0°F.

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