



Application guide Installation, operating and maintenance manual **AIRCUBE - KSCK**



- Providing indoor climate comfort



Congratulations you have made a wise choice and we feel sure that it will meet your expectations

WARNING: Read this manual before installation, reparation o maintenance works.

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Lennox have been providing environmental solutions since 1895, our range of AIRCUBE continues to meet the standards that have made LENNOX a household name. Flexible design solutions to meet YOUR needs and uncompromising attention to detail. Engineered to last, simple to maintain and Quality that comes as standard. Information on local contacts at www.lennox europe.com.

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GENERAL DESCRIPTION

The condensing air conditioning units, range AIRCUBE cooling only are air conditioning units, of the air to air type, designed for small and medium shopping center and housing.

They are supplied to match with other type of indoor unit that customer needs.

They are designed for installation outdoors, with a wide range of options, completed-factory assembled are also available.

FURNITURE

Made of galvanized steel sheeting with epoxy painted finish, weather proofed with high resistant to corrosion. The units are provided with metal profiles, capable of withstanding the unit and able as well of installing the unit mounted on the floor.

COMPRESSORS

All units are provided with hermetically sealed compressors, scroll type, cooled by exhaust gas, with internal thermal insulation inside the engine, so no other additional protection is required. The compressor is fitted on vibration mountings both inside and outside.

From 24E to 152D models, the compressors have a screwed connection into the pipe thus they can be more easily to assembled.

FANS

The units are supplied with one and two fans axial type, of direct coupling and motor with external rotor and excellent features on sound levels.

HEAT EXCHANGERS

Made of copper tubing with aluminum corrugated swirl fins, they are designed and specially dimensioned to obtain the maximum output so as to prevent ice forming in the outer heater, extending the operating cycles to a maximum obtaining maximum output and exchange on reducing the frequency of defrosting.

COOLING CIRCUIT

Made of welded dehumidifying copper tube with plugged valves in the suction and liquid lines.

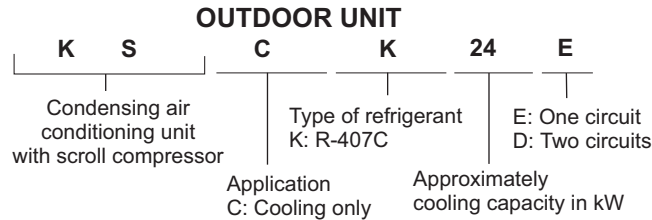
The units are supplied with high and low pressure switch, with automatic reset.

They are supplied charged with Nitrogen.

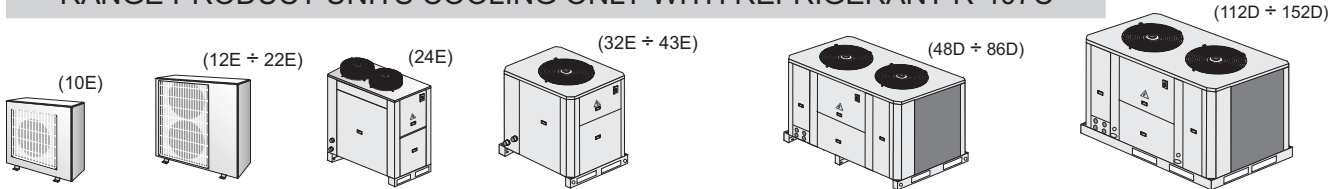
SWITCHBOARD

Designed according to EN 60204-1 normative. With protective fuses for compressors and fans. All the motors for fans and compressors include internal thermal protections, power supply contactors, 5 min. anticyclone temporizer compressor, and general alarm through voltage free contact.

DENOMINATION



RANGE PRODUCT UNITS COOLING ONLY WITH REFRIGERANT R-407C



OUTDOOR UNIT	V / Ph / 50 Hz	NOMINAL (*) CAPACITY kW	NOMINAL (*) CONSUMPTION kW
		COOLING	COOLING
KSCK 10E	230V/1Ph 230-400V-N/3Ph (**)	9.40	2.92
KSCK 12E	230-400V-N/3Ph (**)	12.00	3.46
KSCK 16E	230-400V-N/3Ph (**)	14.10	4.48
KSCK 18E	230-400V-N/3Ph (**)	16.90	5.15
KSCK 22E	230-400V-N/3Ph (**)	18.50	6.05
KSCK 24E	230-400V-N/3Ph (**)	21.10	6.39
KSCK 32E	230-400V-N/3Ph (**)	29.30	9.48
KSCK 38E	230-400V-N/3Ph (**)	36.10	11.53
KSCK 43E	230-400V-N/3Ph (**)	41.00	14.25

OUTDOOR UNIT	V / Ph / 50 Hz	NOMINAL (*) CAPACITY kW	NOMINAL (*) CONSUMPTION kW
		COOLING	COOLING
KSCK 48D	230-400V-N/3Ph (**)	41.70	13.57
KSCK 64D	230-400V-N/3Ph (**)	58.50	18.96
KSCK 76D	230-400V-N/3Ph (**)	72.20	23.07
KSCK 86D	230-400V-N/3Ph (**)	84.00	27.58
KSCK 112D	400-N/3Ph	107.00	31.20
KSCK 128D	400-N/3Ph	120.00	36.60
KSCK 152D	400-N/3Ph	146.00	45.80

(*) Evaporating temperature (dew point)= +7°C / Ambient temperature= +35°C.
 (**) The units at 230V-3Ph power supply are special. Ask for availability.

OPTIONS

OPTIONS	10E to 22E	24E to 152D	Remarks
Cond. pressure control ON/OFF	X	X	(1)
Proportional Cond. pressure control	X	X	(1)
Main switch only for 400V-III	N/A	X	only for 400V-III units.
Phase sequencer	X	X	
"Soft starter" 400V-III	N/A	X	only for 400V-III units.
Hot gas bypass	N/A	X	
Condenser coil guard	STD	X	
Precoated coil	N/A	X	
Rubber dampers	N/A	X	
Kit low noise	N/A	X	(2)
Refrigerant factory precharged	X	X	service valves included.
Service valves	X	X	
Compressor acoustic jacket	X	X	

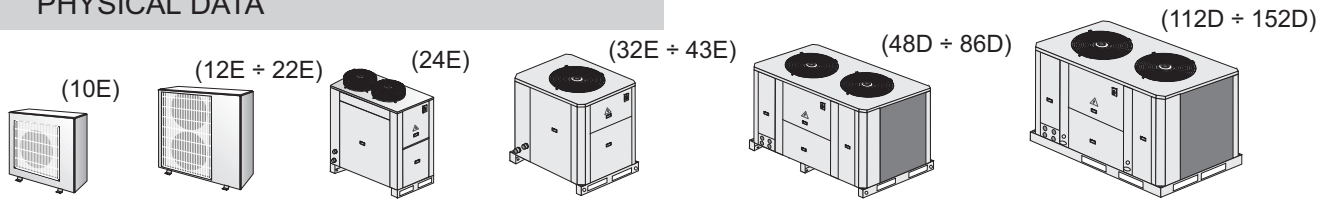
OPTIONS	10E to 22E	24E to 152D	Remarks
Kit control circuit 24VAC	X	X	
Kit High pressure 125Pa FP1		X	Only available for units 112-152D
Kit High pressure 250Pa FP2		X	Only available for units 112-152D
Square discharge plenum (FP1/FP2)		X	Only available for units 112-152D with kit high pressure FP1/FP2
Inlet plenum		X	Only available for units 112-152D with kit high pressure FP1/FP2

(1) KSCK 10E to 86D: this option includes crankcase heater.
 KSCK 112D to 152D: crankcase heater included in the unit as standard.
 KSCK 112D to 152D FP1/FP2: CPC ON/OFF and crankcase heater are included as standard for FP1/FP2 option.

(2) KSCK 24E to 86D: this option includes Proportional CPC + Compressor jacket.
 KSCK 112D to 152D: this option includes CPC ON/OFF + Compressor jacket.

N/A: not available
 STD: as standard
 X: available option

PHYSICAL DATA



MODELS KSCK		10E	12E	16E	18E	22E	24E	32E	38E	43E	48D	64D	76D	86D	112D	128D	152D	
Compressor	Nr / Type	1/Scroll						2/Scroll						3/Scroll				
	Nr	1						2										
Capacity steps	%	0-100%						0-50-100%						0-55-100%		0-50-100%		
Net weight	Kg	73	99	109	130	131	225	250	270	300	485	490	530	590	700	880	950	
Dimensions	Height	mm	931	1235	1235	1235	1235	1375	1375	1375	1375	1375	1375	1375	1375	1675	1675	1675
	Width	mm	973	973	973	973	973	1195	980	980	980	1960	1960	1960	1960	2250	2250	2250
	Depth	mm	333	333	333	386	386	660	1195	1195	1195	1195	1195	1195	1195	1420	1420	1420
Refrigerant connections	Liquid	3/8"	3/8"	3/8"	1/2"	1/2"	5/8"	5/8"	3/4"	7/8"	2x 5/8"	2x 5/8"	2x 3/4"	2x 7/8"	2x 7/8"	2x 7/8"	2x 7/8"	
	Gas	3/4"	3/4"	3/4"	7/8"	7/8"	1 1/8"	1 1/8"	1 3/8"	1 5/8"	2x 1 1/8"	2x 1 1/8"	2x 1 3/8"	2x 1 5/8"	2x 1 5/8"	2x 1 5/8"	2x 1 5/8"	

ELECTRICAL DATA

MODELS KSCK		10E	12E	16E	18E	22E	24E	32E	38E	43E	48D	64D	76D	86D	112D	128D	152D
Voltage	V/f (50 Hz)	3-230V / 3N-400V (*)													3N-400V		
Maximum absorbed power	kW	4.22	5.02	6.10	7.05	8.05	8.9	13.8	16.4	19.9	18.74	27.6	32.8	39.8	48.7	54.8	66.0
Maximum current	A 3-230V	17.54	20.85	21.45	25.45	26.45	28.4	40.0	49.6	56.8	54.6	80	99.2	113.6	---	---	---
	A 3N-400V	8.04	10.25	13.05	15.65	16.15	17.1	24.5	29.1	33.5	34	49	58.2	67	77.6	89.4	107.2
Start up current	A 3-230V	91	98	133	172	178	167.6	227.5	282.5	333.5	196.3	267.5	332.1	390	---	---	---
	A 3N-400V	46	50	66	74	101	100.6	130.5	161.5	192.5	119	155	190.6	226	202.2	234.4	282.7

(*) The units at 230V-3Ph power supply are special. Ask for availability.

OPTION FP1/FP2 MODELS KSCK		112D FP1 / FP2	128D FP1 / FP2	152D FP1 / FP2
Voltage	V/f (50 Hz)	3N-400V		
Maximum absorbed power	kW	50.6 / 54.8	55.8 / 60.0	67.0 / 71.2
Maximum current	A 3N-400V	80.8 / 87.4	91.0 / 97.6	108.8 / 115.4
Start up current	A 3N-400V	205.4 / 212.0	236.0 / 242.6	284.3 / 290.9

ELECTRICAL CONNECTIONS

VOLTAGE OPERATING LIMITS

MODELS KSCK	VOLTAGE	LIMIT
10E / 22E	400 V-3Ph-50Hz	342-462 V -3Ph- 50Hz
	230 V-3Ph-50Hz (*)	180-242 V -3Ph- 50Hz
24E / 86D	400 V-3Ph-50Hz	342-462 V -3Ph- 50Hz
	230 V-3Ph-50Hz (*)	198-264 V -3Ph- 50Hz
112D / 152D	400 V-3Ph-50Hz	342-462 V -3Ph- 50Hz

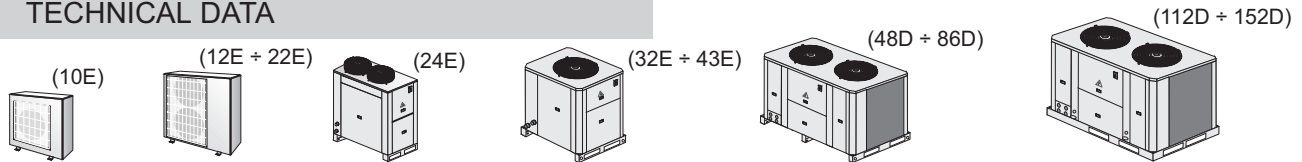
(*) The units at 230V-3Ph power supply are special. Ask for availability.

FAN PERFORMANCES

MODELS KSCK		10E	12E	16E	18E	22E	24E	32E	38E	43E	48D	64D	76D	86D	112D	128D	152D
Fan type	Type	Axial - Direct coupling															
	V	1N~230V													3~400V		
Fan number	r.p.m.	900	900+900				900		900+900		800+700		900+900				
		1	2				1		2		2						
Air flow	m ³ /h	3200	5500	5500	5200	5200	6300	11500	11000	10500	19000	23000	22000	21000	36000	40000	40000

OPTION FP1/FP2 MODELS KSCK		112D FP1 / FP2	128D FP1 / FP2	152D FP1 / FP2
Fan type	Type	Axial - Direct coupling		
	V	3~400V		
Fan number	r.p.m.	900 FP1 (Low speed) / 1450 FP2 (High speed)		
		2		
Air flow	m ³ /h	2 x 14500 / 2 x 18000		

TECHNICAL DATA



SOUND PRESSURE / SOUND POWER LEVELS FOR OUTDOOR UNIT

KSKC		Spectrum per octave band (dBA)							Sound Power Lw dB(A)	Sound pressure at 10m Lp dB(A)	
		125 Hz	250 Hz	500 Hz	1000 Hz	2000 Hz	4000 Hz	8000 Hz			
10E	(1)	69.4	67.7	66.9	65.8	64.0	62.4	52.0	71.1	43.1	
	(2)	69.4	67.7	66.8	65.7	63.6	60.6	52.0	70.7	42.7	
12E	(1)	72.4	70.7	70.1	69.3	66.9	65.0	55.0	74.2	46.2	
	(2)	72.4	70.7	69.9	68.9	66.6	63.8	55.0	73.8	45.8	
16E	(1)	72.4	70.7	70.2	69.9	67.5	64.5	55.0	74.5	46.5	
	(2)	72.4	70.7	70.0	69.2	66.8	63.2	55.0	73.9	45.9	
18E	(1)	72.4	70.7	70.2	69.8	68.4	65.2	58.0	74.9	46.9	
	(2)	72.4	70.7	69.9	69.0	66.8	63.1	57.1	73.8	45.8	
22E	(1)	72.4	70.7	70.2	70.5	69.5	66.6	58.0	75.6	47.6	
	(2)	72.4	70.7	70.0	69.7	68.1	65.0	57.1	74.6	46.6	
24E	(1)	67.6	71.1	74.9	73.2	72.5	69.6	57.0	78.6	50.6	
	(2)	67.6	70.9	73.2	71.3	70.3	66.9	55.7	76.6	48.6	
	(3)	61.8	69.9	71.9	68.8	67.6	65.3	53.6	74.6	46.6	
32E	(1)	80.3	72.4	76.7	75.9	75.4	70.2	62.3	81.0	53.0	
	(2)	80.3	72.3	75.2	74.9	73.9	68.0	61.3	79.7	51.7	
	(3)	71.6	66.6	72.4	68.4	68.4	64.3	53.9	74.6	46.6	
38E	(1)	80.3	72.6	76.1	75.8	77.6	74.2	67.3	82.5	54.5	
	(2)	80.3	72.4	74.8	74.9	75.4	71.2	64.8	80.6	52.6	
	(3)	71.8	67.0	69.7	68.2	71.5	68.4	59.4	76.0	48.0	
43E	(1)	80.3	73.5	77.1	76.3	77.2	71.4	65.0	82.1	54.1	
	(2)	80.3	72.9	75.4	75.1	75.1	68.9	63.1	80.4	52.4	
	(3)	73.7	67.7	72.1	69.7	70.7	64.8	57.2	75.8	47.8	
48D	(1)	71.9	67.9	74.1	72.5	73.8	69.5	57.0	78.7	50.7	
	(2)	71.9	67.9	72.3	69.9	69.8	66.1	56.0	75.7	47.7	
	(3)	62.0	63.0	70.4	67.4	68.6	65.0	55.0	74.0	46.0	
64D	(1)	83.3	75.4	79.7	78.9	78.4	73.2	65.3	84.0	56.0	
	(2)	83.3	75.3	78.2	77.9	76.9	71.0	64.3	82.7	54.7	
	(3)	74.6	69.6	75.4	71.4	71.4	67.3	56.9	77.6	49.6	
76D	(1)	83.3	75.6	79.1	78.8	80.6	77.2	70.3	85.5	57.5	
	(2)	83.3	75.4	77.8	77.9	78.4	74.2	67.8	83.6	55.6	
	(3)	74.8	70.0	72.7	71.2	74.5	71.4	62.4	79.0	51.0	
86D	(1)	83.3	76.5	80.1	79.3	80.2	74.4	68.0	85.1	57.1	
	(2)	83.3	75.9	78.4	78.1	78.1	71.9	66.1	83.4	55.4	
	(3)	76.7	70.7	75.1	72.7	73.7	67.8	60.2	78.8	50.8	
112D	(1)	81.9	78.9	81.7	83.0	80.8	75.3	67.7	86.9	58.9	
	(2)	81.9	78.6	80.1	82.4	79.0	73.0	66.1	85.7	57.7	
	(3)	73.3	72.0	77.3	77.3	75.6	70.9	62.8	81.7	53.7	
128D	(1)	84.2	80.8	82.1	85.6	83.4	77.0	69.3	89.2	61.2	
	(2)	84.2	80.7	81.0	84.6	81.3	74.7	68.0	87.7	59.7	
	(3)	75.0	73.1	77.2	79.8	77.6	72.2	63.8	83.5	55.5	
152D	(1)	84.2	80.8	82.1	85.4	84.6	78.6	70.9	89.7	61.7	
	(2)	84.2	80.7	80.9	84.6	82.2	76.0	69.0	88.1	60.1	
	(3)	75.0	73.3	76.9	80.0	79.4	74.3	66.1	84.4	56.4	
OPTION FP1	112D	(1)	84.2	80.9	82.6	84.6	82.0	76.1	68.9	88.2	60.2
		(2)	84.2	80.7	81.3	84.2	80.7	74.2	67.7	87.3	59.3
	128D	(1)	84.2	80.8	82.1	85.6	83.4	77.0	69.3	89.2	61.2
(2)		84.2	80.7	81.0	84.6	81.3	74.7	68.0	87.7	59.7	
152D	(1)	84.2	80.8	82.1	85.4	84.6	78.6	70.9	89.7	61.7	
	(2)	84.2	80.7	80.9	84.6	82.2	76.0	69.0	88.1	60.1	
OPTION FP2	112D	(1)	96.4	93.6	91.8	93.1	89.5	86.4	81.9	97.0	69.0
		(2)	96.4	93.6	91.6	93.0	89.3	86.3	81.8	96.9	68.9
	128D	(1)	96.4	93.6	91.7	93.3	89.8	86.5	81.9	97.2	69.2
		(2)	96.4	93.6	91.6	93.1	89.4	86.3	81.8	96.9	68.9
	152D	(1)	96.4	93.6	91.7	93.2	90.1	86.7	82.0	97.2	69.2
		(2)	96.4	93.6	91.6	93.1	89.5	86.4	81.9	97.0	69.0

(1) The above data shows noise levels **WITHOUT** isolation for compressor (standard unit)

(2) The above data shows noise levels **WITH** isolation for compressor (optional)

(3) The above data shows noise levels **WITH** Kit "low noise" (optional)

- Global sound power level measured in compliance with ISO standard 3744 and under Eurovent certification program.

- Sound pressure in dB(A) calculated at 10 m, in a free field on a reflecting surface, is given as a guide only and with a directivity of +/- 3 dBA.

- Only the sound power spectrum and the global sound power value are used in determining pressure characteristics on site.

- The above data shows noise levels of standard unit and unit with compressor isolation when unit's fan is working at maximum speed.

- The above data shows noise levels of unit with Kit "low noise" when unit is working with outdoor temperatures of 35°C.

Remark for FP1/FP2 option:

Total Lw, is global sound power level radiated for the fan motor AT FREE DISCHARGE. Sound pressure level (Lp) has to be calculated according the pressure drop introduce in the installation considering the type of the air duct, isolation class, duct length, etc ...

COOLING CAPACITIES

R-407C

MODEL KSCK 10E

MODEL KSCK 12E

EVAPORATING TEMPERATURE (DEW POINT)	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
		0°C	Total Capacity	8.36	7.85	7.32	6.78	6.21	10.62	10.00	9.36
	Power input	2.24	2.49	2.76	3.06	3.39	2.78	3.04	3.34	3.67	4.04
5°C	Total Capacity	9.96	9.37	8.76	8.12	7.45	12.63	11.93	11.19	10.43	9.63
	Power input	2.34	2.59	2.87	3.18	3.51	2.84	3.12	3.42	3.77	4.16
7°C	Total Capacity	10.63	10.02	9.40	8.69	7.97	13.51	12.76	12.00	11.17	10.32
	Power input	2.38	2.64	2.92	3.23	3.56	2.87	3.15	3.46	3.81	4.21
10°C	Total Capacity	12.40	11.70	10.95	10.16	---	15.84	14.99	14.09	13.15	12.16
	Power input	2.50	2.76	3.05	3.36	---	2.93	3.22	3.55	3.92	4.34
15°C	Total Capacity	13.51	12.74	11.94	11.09	---	17.36	16.43	15.46	14.45	---
	Power input	2.58	2.84	3.13	3.45	---	2.97	3.27	3.61	3.99	---

MODEL KSCK 16E

MODEL KSCK 18E

EVAPORATING TEMPERATURE (DEW POINT)	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
		0°C	Total Capacity	12.53	11.76	10.99	10.22	9.45	15.12	14.21	13.30
	Power input	3.48	3.81	4.17	4.55	4.96	4.03	4.41	4.84	5.31	5.83
5°C	Total Capacity	14.99	14.10	13.20	12.28	11.35	17.92	16.87	15.83	14.80	13.77
	Power input	3.68	4.02	4.39	4.79	5.22	4.22	4.62	5.06	5.54	6.08
7°C	Total Capacity	16.03	15.10	14.10	13.16	12.17	19.12	18.01	16.90	15.83	14.74
	Power input	3.76	4.10	4.48	4.89	5.33	4.31	4.71	5.15	5.64	6.19
10°C	Total Capacity	18.80	17.74	16.64	15.51	---	22.32	21.06	19.80	18.55	---
	Power input	3.98	4.34	4.73	5.15	---	4.55	4.96	5.41	5.91	---
15°C	Total Capacity	20.56	19.42	18.24	17.01	---	24.38	23.01	21.66	20.32	---
	Power input	4.12	4.49	4.89	5.32	---	4.71	5.12	5.58	6.09	---

MODEL KSCK 22E

MODEL KSCK 24E

EVAPORATING TEMPERATURE (DEW POINT)	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
		0°C	Total Capacity	16.45	15.42	14.36	13.26	12.11	18.77	17.64	16.51
	Power input	4.62	5.08	5.61	6.20	6.87	5.03	5.51	6.04	6.60	7.19
5°C	Total Capacity	19.66	18.48	17.25	15.97	14.63	22.30	20.99	19.68	18.38	17.08
	Power input	4.91	5.38	5.91	6.51	7.17	5.24	5.74	6.28	6.87	7.49
7°C	Total Capacity	21.04	19.78	18.50	17.12	15.71	23.83	22.44	21.10	19.67	18.30
	Power input	5.05	5.52	6.05	6.64	7.30	5.33	5.84	6.39	6.98	7.62
10°C	Total Capacity	24.72	23.27	21.77	20.21	---	27.96	26.36	24.76	23.18	---
	Power input	5.43	5.91	6.44	7.03	---	5.59	6.11	6.68	7.30	---
15°C	Total Capacity	27.08	25.51	23.90	22.22	---	30.64	28.91	27.20	25.49	---
	Power input	5.70	6.18	6.71	7.30	---	5.76	6.29	6.88	7.51	---

MODEL KSCK 32E

MODEL KSCK 38E

EVAPORATING TEMPERATURE (DEW POINT)	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
		0°C	Total Capacity	26.11	24.53	22.99	21.48	20.00	32.42	30.42	28.41
	Power input	7.43	8.14	8.91	9.75	10.65	8.99	9.82	10.71	11.65	12.60
5°C	Total Capacity	30.97	29.16	27.36	25.59	23.84	38.36	36.06	33.76	31.48	29.20
	Power input	7.76	8.50	9.31	10.18	11.12	9.49	10.35	11.28	12.27	13.28
7°C	Total Capacity	33.06	31.15	29.30	27.37	25.51	40.92	38.50	36.10	33.67	31.28
	Power input	7.91	8.66	9.48	10.37	11.33	9.72	10.59	11.53	12.53	13.57
10°C	Total Capacity	38.66	36.49	34.33	32.18	---	47.87	45.11	42.36	39.62	---
	Power input	8.33	9.11	9.96	10.88	---	10.35	11.25	12.23	13.27	---
15°C	Total Capacity	42.28	39.95	37.64	35.33	---	52.40	49.44	46.49	43.57	---
	Power input	8.61	9.41	10.28	11.23	---	10.79	11.71	12.71	13.78	---

MODEL KSCK 43E

MODEL KSCK 48D

EVAPORATING TEMPERATURE (DEW POINT)	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
		0°C	Total Capacity	37.05	34.72	32.38	30.05	27.72	37.27	35.00	32.75
	Power input	11.02	12.03	13.10	14.20	15.32	10.81	11.78	12.83	13.95	15.14
5°C	Total Capacity	46.64	40.98	38.32	35.67	---	44.23	41.61	39.01	36.42	33.84
	Power input	11.73	12.78	13.90	15.06	---	11.25	12.25	13.34	14.52	15.77
7°C	Total Capacity	46.47	43.67	41.00	38.09	---	47.24	44.47	41.70	38.97	36.24
	Power input	12.04	13.11	14.25	15.44	---	11.44	12.46	13.57	14.76	16.04
10°C	Total Capacity	54.09	50.92	47.76	---	---	55.36	52.18	49.02	45.87	---
	Power input	12.92	14.03	15.21	---	---	11.98	13.03	14.18	15.43	---
15°C	Total Capacity	59.04	55.66	52.29	---	---	60.63	57.20	53.80	50.41	---
	Power input	13.52	14.66	15.88	---	---	12.34	13.42	14.60	15.88	---

COOLING CAPACITIES

R-407C

MODEL KSCK 64D

MODEL KSCK 76D

EVAPORATING TEMPERATURE (DEW POINT)	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
0°C	Total Capacity	52.22	49.07	45.98	42.96	39.99	64.84	60.84	56.83	52.82	48.82
	Power input	14.86	16.28	17.83	19.50	21.30	17.97	19.94	21.43	23.29	25.20
5°C	Total Capacity	61.94	58.31	54.73	51.19	47.68	76.71	72.12	67.53	62.95	58.40
	Power input	15.53	17.01	18.62	20.36	22.24	18.99	20.71	22.57	24.53	26.57
7°C	Total Capacity	66.12	62.29	58.50	54.75	51.03	81.85	76.99	72.20	67.24	62.55
	Power input	15.83	17.33	18.96	20.74	22.65	19.44	21.18	23.07	25.07	27.15
10°C	Total Capacity	77.32	72.98	68.66	64.35	---	95.73	90.21	84.72	79.25	---
	Power input	16.65	18.21	19.91	21.76	---	20.71	22.51	24.46	26.55	---
15°C	Total Capacity	84.55	79.91	75.28	70.67	---	104.79	98.87	92.99	87.15	---
	Power input	17.22	18.81	20.56	22.45	---	21.58	23.41	25.41	27.55	---

MODEL KSCK 86D

MODEL KSCK 112D

EVAPORATING TEMPERATURE (DEW POINT)	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
0°C	Total Capacity	75.70	70.99	66.27	61.56	56.86	95.19	89.72	84.19	78.62	72.99
	Power input	21.38	23.37	25.49	27.70	29.95	24.38	26.83	29.55	32.53	35.73
5°C	Total Capacity	89.40	84.00	78.62	73.25	67.91	112.76	106.50	100.17	93.75	87.27
	Power input	22.66	24.73	26.94	29.27	31.67	25.36	27.85	30.67	33.79	37.20
7°C	Total Capacity	95.31	89.62	84.00	78.30	---	120.31	113.71	107.00	100.27	93.43
	Power input	23.23	25.33	27.58	29.95	---	25.83	28.32	31.19	34.33	37.81
10°C	Total Capacity	111.26	104.81	98.37	91.97	---	140.48	133.01	125.44	117.77	---
	Power input	24.84	27.00	29.34	31.82	---	27.23	29.71	32.59	35.84	---
15°C	Total Capacity	121.65	114.74	107.87	---	---	153.44	145.45	137.35	129.17	---
	Power input	25.94	28.15	30.54	---	---	28.24	30.71	33.60	36.88	---

MODEL KSCK 128D

MODEL KSCK 152D

EVAPORATING TEMPERATURE (DEW POINT)	kW	AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C					AIR ENTRY TEMPERATURE INTO THE OUTDOOR UNIT °C				
		25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
0°C	Total Capacity	107.58	101.22	94.76	88.18	81.47	131.49	123.25	114.96	106.60	98.16
	Power input	28.55	31.25	34.24	37.55	41.20	35.57	38.92	42.72	47.01	51.81
5°C	Total Capacity	127.37	120.13	112.76	105.25	97.59	155.54	146.17	136.70	127.14	117.48
	Power input	29.86	32.69	35.82	39.27	43.07	37.50	40.93	44.83	49.23	54.15
7°C	Total Capacity	135.86	128.23	120.00	112.58	104.54	165.81	155.95	146.00	135.94	125.78
	Power input	30.45	33.33	36.58	40.02	43.88	38.36	41.83	45.77	50.21	55.17
10°C	Total Capacity	158.53	149.93	141.18	132.26	---	193.14	182.03	170.80	159.44	---
	Power input	32.10	35.11	38.44	42.10	---	40.80	44.35	48.38	52.92	---
15°C	Total Capacity	173.08	163.89	154.55	154.06	---	210.60	198.74	186.78	174.70	---
	Power input	33.22	36.32	39.74	43.50	---	42.46	46.06	50.16	54.77	---

CORRECTION FACTORS

UNITS WITH HIGH PRESSURE FANS

Units with fan pressure up to 125Pa (FP1)

	112D/128D/152D - FP1				
	0	50	75	100	125
Available static pressure Pa					
Maximum ambient temperature °C (3)	45	42	41	40.5	40
Correction Coefficient Capacity	1	0.98	0.97	0.96	0.94
Correction Coefficient Consumption (1)	1	1.02	1.04	1.06	1.09

(1) After to apply correction coefficient consumption is needed to add the following power input to get total power consumption:

MODELS	Extra power consumption
112D-FP1	2.4 kW
128D/152D-FP1	1.6 kW

(3) The maximum temperature is with an evaporating temperature of +7°C (dew point).

Units with fan pressure up to 250Pa (FP2)

	112D/128D/152D - FP2		
	150	200	250
Available static pressure Pa			
Maximum ambient temperature °C (3)	46	45	42
Correction Coefficient Capacity	1.01	1	0.98
Correction Coefficient Consumption (2)	0.97	1	1.01

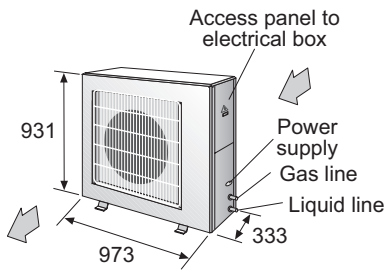
(2) After to apply correction coefficient consumption is needed to add the following power input to get total power consumption:

MODELS	Extra power consumption
112D-FP2	6.6 kW
128D/152D-FP2	5.8 kW

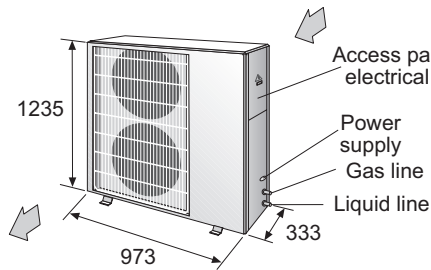
(3) The maximum temperature is with an evaporating temperature of +7°C (dew point).

UNIT DIMENSIONS

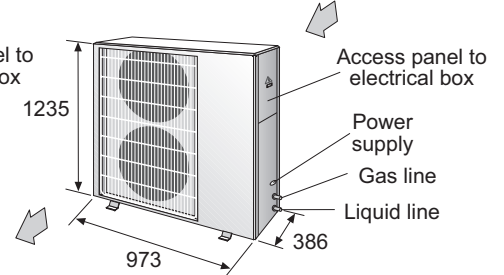
MODEL KSCK 10E



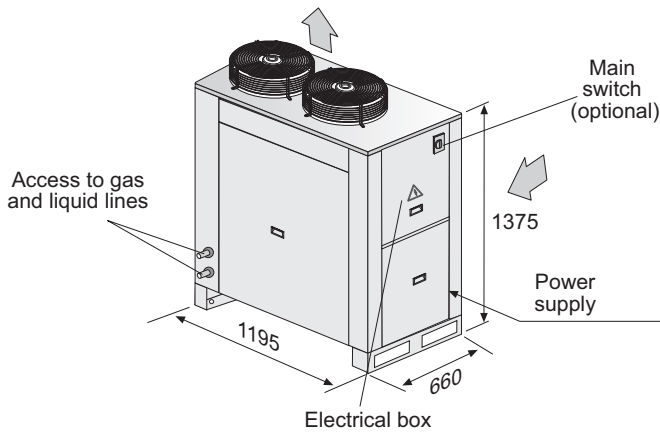
MODELS KSCK 12E-16E



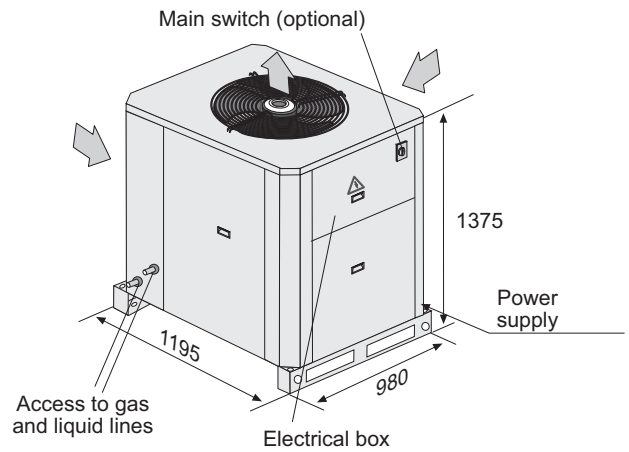
MODELS KSCK 18E-22E



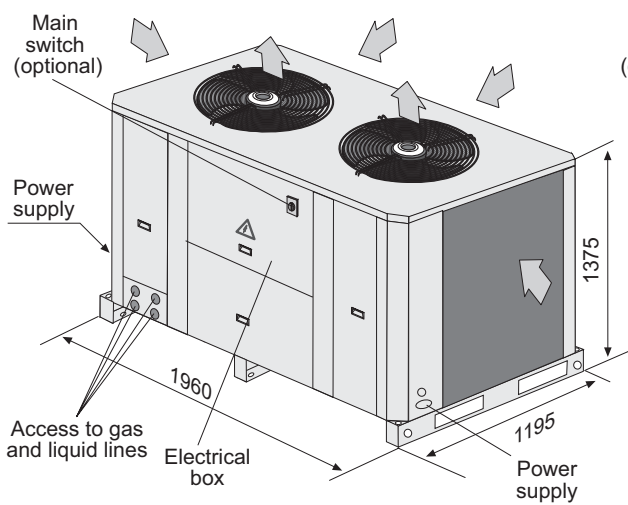
MODEL KSCK 24E



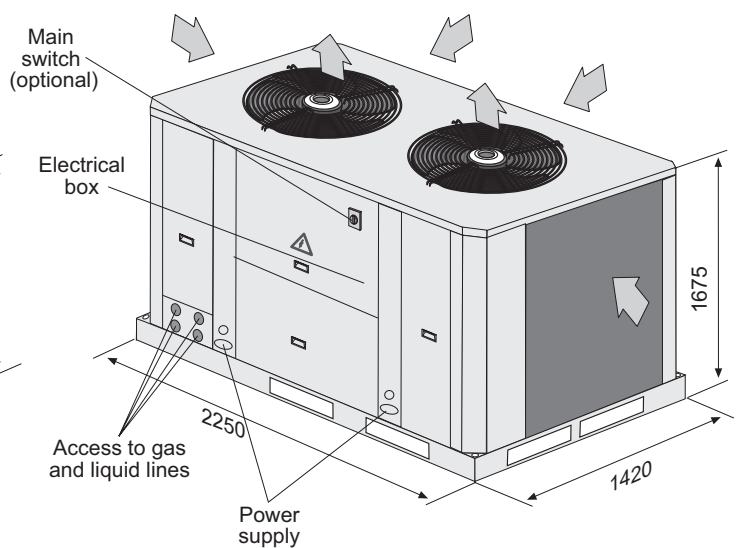
MODELS KSCK 32E-38E-43E



MODELS KSCK 48D-64D-76D-86D



MODELS KSCK 112D-128D-152D

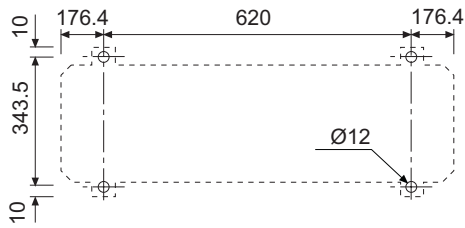


NOTE: As an option, service valves are available for liquid and gas lines with flare connection for models 10E to 22E, and welded connection for 24E to 152D.

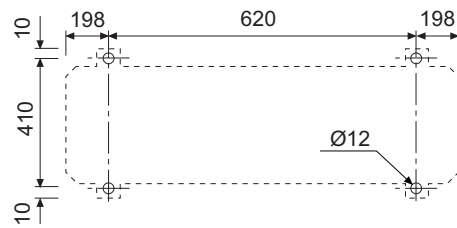
UNIT INSTALLATION

MOUNTING PLATES

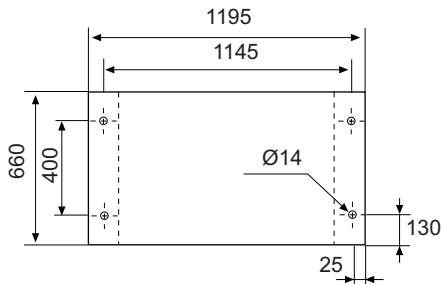
MODELS 10E-12E-16E



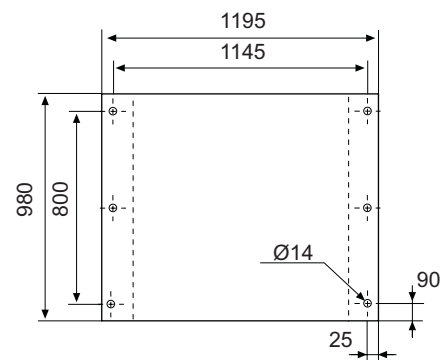
MODELS 18E-22E



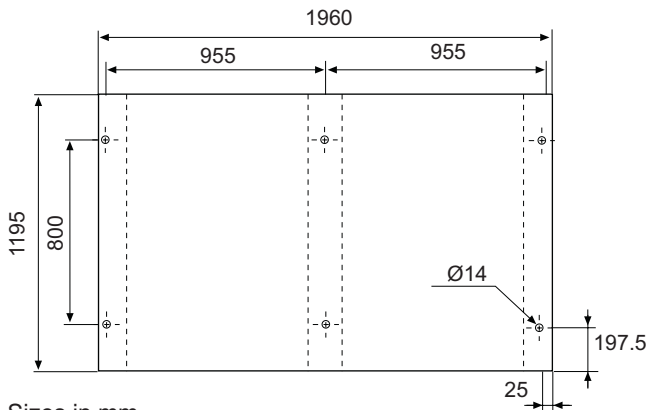
MODEL 24E



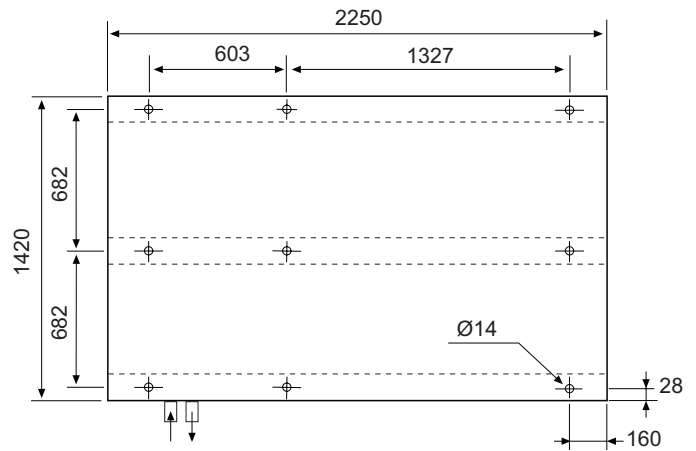
MODELS 32E-38E-43E



MODELS 48D-64D-76D-86D



MODELS 112D-128D-152D



Sizes in mm

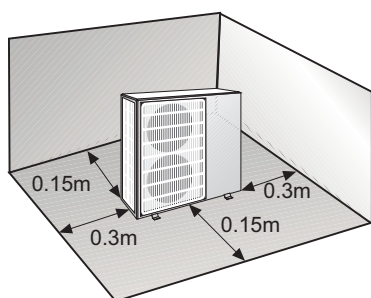
INSTALLATION CLEARANCES

Clearance around the unit for service and maintenance.

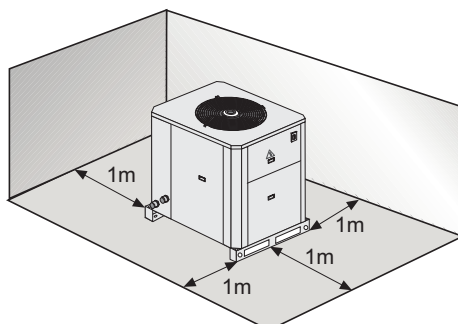
SERVICE SPACE

Space should be left free for access and servicing, and for intake and discharge air flow as well.

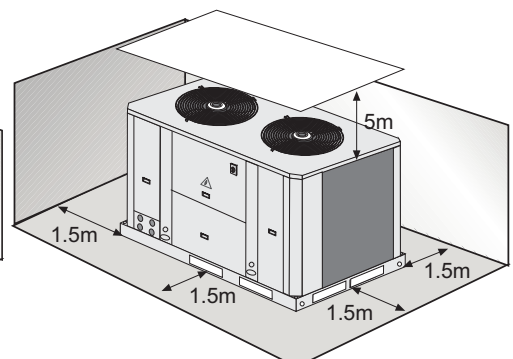
MODELS
10E-12E-16E-18E-22E



MODELS
24E-32E-38E-43E-48D-64D-76D-86D



MODELS
112D-128D-152D



PIPE CONNECTIONS

REFRIGERANT CONNECTIONS



The units are factory pre-charged with Nitrogen (N₂). The installer should remove this gas and charge the units with refrigerant R-407C.

Refrigerant connections on outdoor unit

NOTE: The unit is supplied with welded connections.

As an option, service valves are available for liquid and gas lines with flare connection for models 10E to 22E, and welded connection for 24E to 152D.

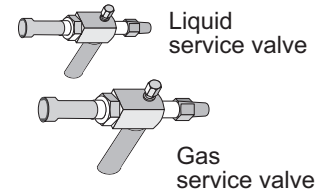
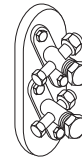
As an option, refrigerant factory precharged kit is available (this option includes service valves).

SEE OPTION SECTION ON THIS MANUAL

SERVICE VALVES

MODELS
10E to 22E

MODELS
24E to 152D



Piping connection lines

For calculating piping connection lines between outdoor and indoor units, distance and drop between lines are very important aspects.

To achieve the best features for the units, take special care about:

- The gas line must be always insulated.
- The horizontal lines must be typed at least 2% toward the outdoor unit .
- The minimum speed suction must not be below 6 m/s on the vertical line of the gas line, and siphons must be installed every few meters upward to assure the oil returns to the compressor properly.
- The maximum speed inside lines should not be higher than 15m/s.

Amount of refrigerant charge R-407C for the installation

The amount of refrigerant R-407C for the system will depend on the size of connecting line between indoor and outdoor unit and on the expansion system of the indoor unit. Prior to charge the unit, a proper vacuum must be done.

Finally, it is necessary to adjust the expansion system, with the unit already charged, to achieve the best features for the units, such as evaporating temperature, condensing temperature, discharge, etc.



PRECAUTIONS TO BE TAKEN IN THE USE OF R-407C Refrigerant:

R-407C Refrigerant is used in the unit; therefore, the following precautions characteristic of this gas should be taken:

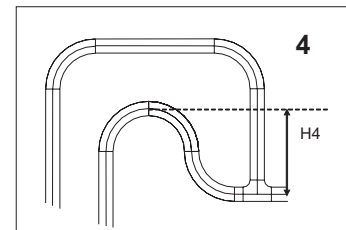
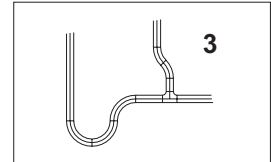
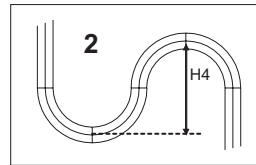
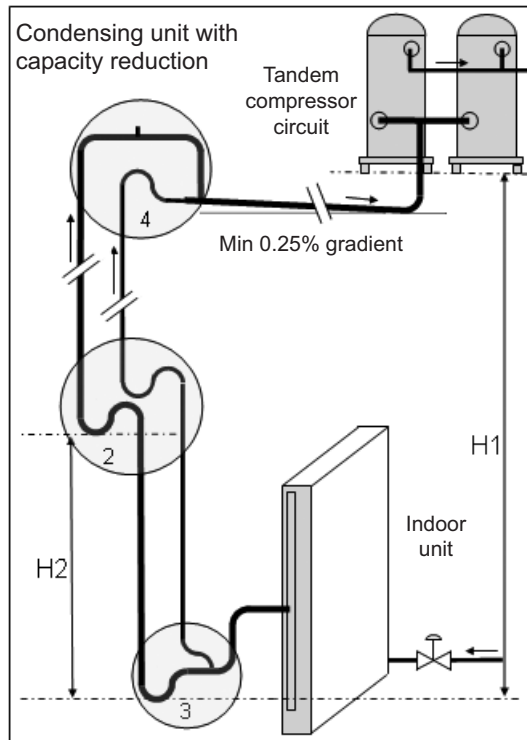
- The Vacuum Pump must have a Check Valve or Solenoid Valve.
- Pressure Gauges and Hoses for the exclusive use with R-407C Refrigerant should be used.
- The charge should be carried out in the Liquid Phase.
- Always use scales to weight-in charge
- Use the Leak Detector exclusive for R-407C Refrigerant.
- Do not use mineral oil, only synthetic oil to ream, expand or make connections.
- Keep pipes wrapped before using them and be very thorough about any possible dirt (dust, filings, burrs, etc.).
- When there is a leak, gather what is left of the charge, create a vacuum in the unit and completely recharge with new R-407C Refrigerant.
- Brazing should always be carried out in a nitrogen atmosphere.
- Reamers should always be well sharpened.

PIPE CONNECTIONS

ADDITIONAL CAPACITY STEP

112D to 152D units with 3 compressors can be work using three capacity steps. (They can use the last one as an additional step).

See the picture below for the installation if an additional capacity step is used for units with tandem compressor circuit. An additional gas line has to be used to assure the correct operation of the system.



H1: 15m Max
H2: 5m Max
H4: 0,15m Min

2 - Coupled trap.
3 - Lower trap with double tubes.
4 - Higher trap with double tubes.

OPTIONS

ON/OFF CONDENSATION PRESSURE CONTROL

The condensation pressure control consists of one or two pressure switches, which starts and stops the outdoor fan, regulating the condensation temperature; thus the unit will be able to operate in the cooling cycle when the outdoor temperature is below 19°C (until 0°C). It includes crankcase heater for units 10E to 86D. For units 112D to 152D crankcase heater is included with the unit as standard. The purpose of the heater is to keep the oil in the compressor at the correct temperature while the compressor is stopped, so that it can be properly lubricated when starts again. When the unit is operating at low outdoor temperatures (below 19°C), it is advisable to fit a crankcase heater. It is included as standard with FP1/FP2 option.

PROPORTIONAL CONDENSING PRESSURE CONTROL

It is an element which regulates outdoor fan speed, in order to control condensation temperature. Thus, the unit will be able to operate when the outdoor temperature is below 19°C (until -10°C). This kit also includes crankcase heater for units 10E to 86D. For units 112D to 152D crankcase heater is included with the unit as standard.

MAIN SWITCH (only for models 24E to 152D)

The main switch is located on the access panel to the electrical box. It is equipped with a clutch gadget, which allows opening the panel of the electrical box, when it is on OFF position.

PHASE SEQUENCER

The phase sequencer is located in the electrical box in the outdoor section, thus assuring that the unit will not begin operation while the phase connection of the compressor is not correct. Should this occur, then just switch two phase connections.

COMPRESSOR STARTING CURRENT CONSTRAINED ("SOFT STARTER") 400V-III (only for models 24Eto152D)

It is an electronic element, which reduces the peak compressor starting current up to 40% (see pages of electrical data without soft starter).

HOT GAS BYPASS VALVE (only for models 24E to 152D)

The purpose of the BYPASS valve is to let the unit operate at low outdoor temperatures (until -10°C).

It regulates the capacity of the compressor by injecting hot gas from the compressor discharge side to the coil.

OPTIONS

CONDENSER COIL GUARD (as standard in models 10E to 22E)

The condenser coil protection grill prevents light damage to the coil when shipping and when installed. It cannot protect against very heavy impacts.

PRECOATED COIL (only for models 24E to 152D)

Special protection of the aluminum condenser coil fins, to protect it from aggressive external environmental conditions.

RUBBER DAMPERS (only for models 24E to 152D)

To install under the unit to avoid transmission of vibrations to the floor where the unit is installed, while it is operating.

KIT LOW NOISE (only for models 24E to 152D)

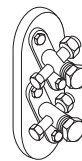
This kit includes Proportional CPC + Compressor jacket for units 24E to 86D, and CPC ON/OFF + Compressor jacket for units 112D to 152D. With this kit, each compressor is fitted with a compressor acoustic jacket and also includes a pressure control which decreases the fan speed, and provides attenuation of sound level. Kit applied for cooling only units with ambient temperatures no higher than 35°C. See page 4 for Noise levels features.

SERVICE VALVES

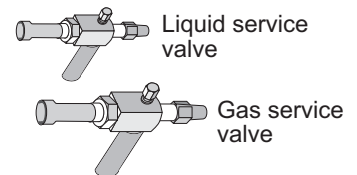
As an option, the unit is fitted with gas and liquid service valves in order to make easier installation and maintenance operations.

- Valves for gas and liquid lines outside the units with flare connection for 10E to 22E unit models.
- Valves for gas and liquid lines inside the units with welded connection for 24E to 152D.

MODELS 10E to 22E



MODELS 24E to 152D



R-407C REFRIGERANT FACTORY PRECHARGED

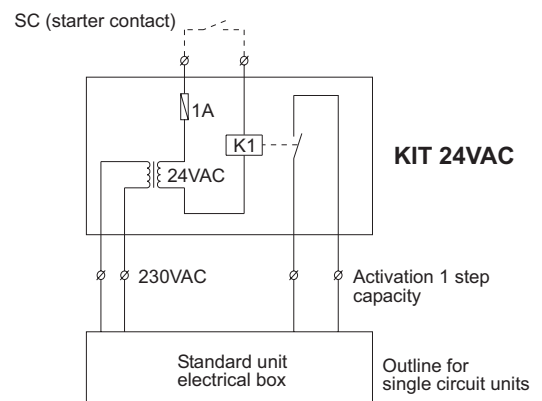
This option includes service valves and R-407C refrigerant charged in outdoor unit (for 0 meters of connection lines).

COMPRESSOR ACOUSTIC JACKET

Each compressor is fitted with a compressor acoustic jacket this provides attenuation of the compressor noise that radiates from the unit when in operation.

KIT CONTROL CIRCUIT 24VAC

It allows to activate the capacity steps of the unit, through a voltage free contact by 24VAC power supply (0.5A).



KIT HIGH PRESSURE 125Pa FP1

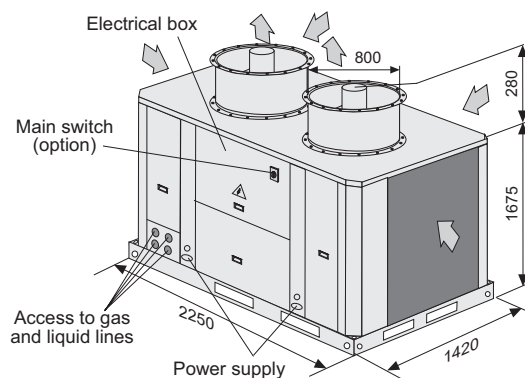
(Only available for units 112D to 152D)

Units with high pressure fans.
Available static pressure up to 125Pa.

KIT HIGH PRESSURE 250Pa FP2

(Only available for units 112D to 152D)

Units with high pressure fans.
Available static pressure up to 250Pa.

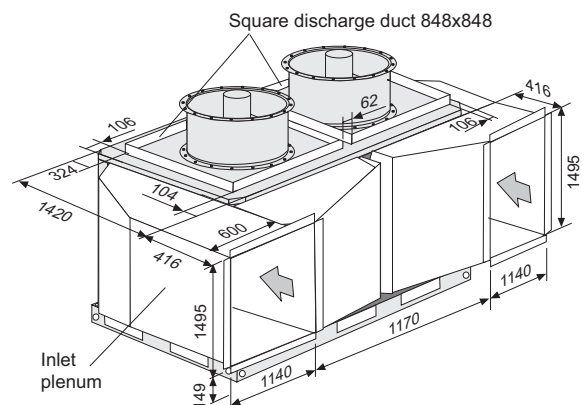


INLET PLENUM (FP1 and FP2 unit versions only)

It is a accessory for adapting the condenser air intake to accept a duct.

SQUARE DISCHARGE DUCT (FP1 and FP2 unit versions only)

It is formed by 1 or 2 square frames, for adapting discharge air from the unit to a square duct.



NOTES

NOTES

NOTES



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SLOVAKIA
www.lennox distribution.com

SPAIN
www.lennoxspain.com

UKRAINE
www.lennoxukraine.com

UNITED KINGDOM AND IRELAND
www.lennoxuk.com

OTHER COUNTRIES
www.lennox distribution.com

Due to Lennox's ongoing commitment to quality, the Specifications, Ratings and Dimensions are subject to change without notice and without incurring liability.

Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.

Installation and service must be performed by a qualified installer and servicing agency.



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