

**LENNOX<sup>®</sup>**

INSTALLATION AND  
OPERATING MANUAL



PROVIDING **GLOBAL SYSTEM** SOLUTIONS

**Compactair**

GREAT BRITAIN ,  
IRELAND : LENNOX INDUSTRIES LTD  
tel. : + 44 1604 599400  
fax : + 44 1604 594200  
e-mail : marketing@lennoxind.com

BELGIUM : LENNOX BENELUX N.V./S.A.  
tel. : + 32 3 633 30 45  
fax : + 32 3 633 00 89  
e-mail : info.be@lennoxbenelux.com

CZECH REPUBLIC : JANKA RADOTIN AS  
tel. : + 420 2 510 88 111  
fax : + 420 2 579 10 393  
e-mail : janka@janka.cz

FRANCE : LENNOX FRANCE  
tel. : + 33 1 60 17 88 88  
fax : + 33 1 60 17 86 58  
e-mail : accueil@lennoxfrance.com

GERMANY : LENNOX DEUTSCHLAND GmbH  
tel. : + 49 69 42 09 79 0  
fax : + 49 69 42 09 79 40  
e-mail : info.de@lennoxdeutschland.com

NETHERLANDS : LENNOX BENELUX B.V.  
tel. : + 31 33 2471 800  
fax : + 31 33 2459 220  
e-mail : info@lennoxbenelux.com

POLAND : LENNOX POLSKA Sp. z o. o.  
tel. : + 48 22 832 26 61  
fax : + 48 22 832 26 62  
e-mail : lennoxpolska@inetia.pl

PORTUGAL : LENNOX CLIMATIZAÇÃO LDA.  
tel. : +351 22 999 84 60  
fax : +351 22 999 84 68  
e-mail : info@lennoxportugal.com

RUSSIA : LENNOX DISTRIBUTION MOSCOW  
tel. : + 7 095 246 07 46  
fax : + 7 502 933 29 55  
e-mail : lennox.dist.moscow@mtu-net.ru

SLOVAKIA : LENNOX SLOVAKIA  
tel. : + 421 7 44 87 19 27  
fax : + 421 7 44 88 64 72

SPAIN : LENNOX REFAC S.A.  
tel. : + 34 902 400 405  
fax : + 34 91 542 84 04  
e-mail : marketing@lennox-refac.com

UKRAINE : LENNOX DISTRIBUTION KIEV  
tel. : + 380 44 213 14 21  
fax : + 380 44 213 14 21  
e-mail : jankauk@uct.kiev.ua

OTHER EUROPEAN COUNTRIES,  
AFRICA,  
MIDDLE-EAST : LENNOX DISTRIBUTION  
tel. : + 33 4 72 23 20 14  
fax : + 33 4 72 23 20 28  
e-mail : marketing@lennoxdist.com



**LENNOX**<sup>®</sup>

www.Lennox.com

COD.: 33891110  
08-2000

---

**Congratulations you have made a wise choice with the purchase of your Lennox unit. This product has been designed, assembled and supplied in one of our world class manufacturing facilities and we feel sure that it will meet your expectations. Lennox an international organisation with world wide distribution takes pride in supplying you with this product.**

---

## TABLA OF CONTENTS

<b>CONTENTS</b>	<b>PAGE</b>
• PRODUCT RANGE	2
• SPECIFICATIONS	3-4
• ELECTRICAL DATA	5
• INDOOR UNIT FAN CHARACTERISTICS	6-7
• OUTDOOR UNIT FAN CHARACTERISTICS	8
• CAPACITY TABLE	9-10
• REFRIGERANT CONNECTIONS	11-12-13
• OPERATION LIMITS	14

**This model is prepared only and exclusively to work with refrigerant R407C**

### **CAUTION**

**Do not use any other refrigerant**

The refrigerant R407-C is a mixture of other three refrigerants that behave as pure compounds. This fact makes that the operations of installation; service and maintenance must be special, for the next operations:

#### SYSTEM EVACUATION

Evacuating the system is critical for proper operation of the unit, vacuum must be done until the absolute pressure does not rise above 0,3 mbar, since the compressor oil high hygroscopic degree can cause corrosion in some metallic materials.

#### REFRIGERANT CHARGING

To maintain the mixture composition, the refrigerant must be charged always in liquid phase. For what it is necessary to have special caution when it is little quantity of refrigerant in the bottle.

#### LEAKS

If a leak takes place in the system that has produced an important evacuation of the refrigerant charge, instead of recharging the system, it is convenient to eliminate the whole charge completely, the system must be evacuated and charged again or to introduce the charge according to an specified value.

#### COMPRESSOR OIL

With HCF refrigerant like in the case of R407-C, compressors are used that incorporate ester oil instead of the mineral oil used in compressors that work with HCFC refrigerant, like it is the case of R22.

#### OPERATION

On a system operated with refrigerant R407-C, during the evaporation phase at constant pressure the temperature increase; and during the condensation phase at constant pressure the temperature decrease a certain value. Consequently the terms "evaporation temperature" and "condensation temperature" should be redefined.

PRODUCT RANGE

COOLING ONLY

MODEL	OUTDOOR UNIT	INDOOR UNIT	V / Ph / 50 Hz	NOMINAL CAPACITY W	TOTAL POWER CONSUMPTION kW
				COOLING	COOLING
LVF 5EK	KVF 5EK	LFE 5EK	230-400V/3Ph	14500	7.5
LVF 7EK	KVF 7EK	LFE 7EK	230-400V/3Ph	18900	8.8
LVF 8EK	KVF 8EK	LFE 8EK	230-400V/3Ph	20500	11.4
LVF 10EK	KVF 10EK	LFE 10EK	230-400V/3Ph	28000	13.8
LVF 15EK	KVF 15EK	LFE 15EK	230-400V/3Ph	36000	16.9
LVF 10DK	KVF 10EK	LFE 10DK	230-400V/3Ph	29000	16.0
LVF 15DK	KVF 15EK	LFE 15DK	230-400V/3Ph	39000	18.5
LVF 17DK	KVF 17EK	LFE 17DK	230-400V/3Ph	44000	24.1
LVF 20DK	KVF 20EK	LFE 20DK	230-400V/3Ph	56500	29.5
LVF 30DK	KVF 30EK	LFE 30DK	230-400V/3Ph	72000	33.2

## SPECIFICATION

MODEL			LVF 5EK	LVF 7EK	LVF 8EK	LVF 10EK	LVF 15EK	
Cooling capacity	(*)	kW	14.5	18.9	20.5	28.0	36.0	
<b>PACKAGE DIMENSIONS HxWxL mm</b>			2070x1020x810		2120x1300x920		2150x1420x920	
OUTDOOR UNIT			KVF 5EK	KVF 7EK	KVF 8EK	KVF 10EK	KVF 15EK	
<b>COMPRESSOR</b>	Number / Type		1 / Alt	1 / Alt	1 / Alt	1 / Alt	1 / Alt	
<b>OUTDOOR UNIT COIL</b>								
	Net face area	m <sup>2</sup>	0.54	0.54	0.88	0.88	0.99	
	Rows/fins per inch		4/14	6/14	4/14	6/14	6/14	
<b>FAN</b>	Air flow	m <sup>3</sup> /h	Max.	6300	6150	7550	7100	10750
			Min.	5000	5000	5600	5600	8200
	Available pressure max (1)	Pa		130	110	170	140	230
<b>WEIGHT</b>		Kg	155	165	225	250	325	
<b>DIMENSIONS</b>								
	Height	mm	1275	1275	1375	1375	1440	
	Width	mm	900	900	1195	1195	1320	
	Length	mm	650	650	745	745	745	
<b>REFRIGERANT CONNECTIONS</b>								
	Liquid line		5/8"	5/8"	5/8"	5/8"	3/4"	
	Suction gas line		7/8"	7/8"	1-1/8"	1-1/8"	1-3/8"	
INDOOR UNIT			LFE 5EK	LFE 7EK	LFE 8EK	LFE 10EK	LFE 15EK	
<b>INDOOR UNIT COIL</b>								
	Net face area	m <sup>2</sup>	0.37	0.37	0.58	0.58	0.66	
	Rows/fins per inch		3/14	4/14	3/14	4/14	4/14	
<b>FAM</b>	Air flow	m <sup>3</sup> /h.	Max.	3750	4000	5800	5800	7500
			Min.	2900	2900	4600	4600	5400
	Available pressure max (1)	Pa		110	110	190	280	260
<b>WEIGHT</b>		Kg	75	80	100	105	130	
<b>DIMENSIONS</b>								
	Height	mm	590	590	640	640	640	
	Width	mm	900	900	1195	1195	1320	
	Legth	mm	650	650	745	745	745	
<b>REFRIGERANT CONNECTIONS</b>								
	Liquid line		5/8"	5/8"	5/8"	5/8"	3/4"	
	Suction gas line		7/8"	7/8"	1-1/8"	1-1/8"	1-3/8"	

(\*) Air intake temperature to indoor interchanger: 27°C DB/19 °C WB

(\*) Air intake temperature to outdoor interchanger: 35 °C DB

DB.- Dry bulb temperature

WB.- Wet bulb temperatue

(1) With minimum admissible flow volumes

## SPECIFICATION

MODEL			LVF 10DK	LVF 15DK	LVF 17DK	LVF 20DK	LVF 30DK
Cooling capacity	(*)	kW	29.0	39.0	44.0	56.5	72.0
<b>PACKING DIMENSIONS HxWxL</b>		mm	2070x1770x810		2120x2360x920		2240x2610x920
OUTDOOR UNIT			KVF 10DK	KVF 15DK	KVF 17DK	KVF 20DK	KVF 30DK
<b>COMPRESSOR</b>	Number/ Type		2 / Alt	2 / Alt	2 / Alt	2 / Alt	2 / Alt
<b>OUTDOOR UNIT COIL</b>							
	Face area	m <sup>2</sup>	2x0.54	2x0.54	2x0.88	2x0.88	2x0.99
	Rows/fins per inch		4/14	6/14	4/14	6/14	6/14
<b>FAN</b>	Air flow	m <sup>3</sup> /h					
		Max.	12600	12300	15100	14200	21500
	Min.	10000	10000	11200	11200	16400	
	Available pressure max (1)	Pa	120	110	170	140	230
<b>WEIGHT</b>		Kg	290	320	440	475	600
<b>DIMENSIONS</b>							
	Height	mm	1280	1280	1380	1380	1445
	Width	mm	1660	1660	2250	2250	2500
	Length	mm	650	650	745	745	745
<b>REFRIGERANT CONNECTIONS</b>							
	Liquid line		2x5/8"	2x5/8"	2x5/8"	2x5/8"	2x3/4"
	Suction gas line		2x7/8"	2x7/8"	2x1-1/8"	2x1-1/8"	2x1-3/8"
INDOOR UNIT			LFE 10DK	LFE 15DK	LFE 17DK	LFE 20DK	LFE 30DK
<b>OUTDOOR UNIT COIL</b>							
	Face area	m <sup>2</sup>	2x0.37	2x0.37	2x0.58	2x0.58	2x0.66
	Rows/fins per inch		3/14	4/14	3/14	4/14	4/14
<b>FAN</b>	Air flow	m <sup>3</sup> /h					
		Max.	8000	8200	11400	13600	14800
	Min.	6000	6600	9200	9100	10100	
	Available pressure max (1)	Pa	230	200	190	290	240
<b>WEIGHT</b>		Kg	145	150	210	230	235
<b>DIMENSIONS</b>							
	Height	mm	590	590	640	640	640
	Width	mm	1660	1660	2250	2250	2500
	Length	mm	650	650	745	745	745
<b>REFRIGERANT CONNECTIONS</b>							
	Liquid line		2x5/8"	2x5/8"	2x5/8"	2x5/8"	2x3/4"
	Suction gas line		2x7/8"	2x7/8"	2x1-1/8"	2x1-1/8"	2x1-3/8"

(\*) Air intake temperature to indoor interchanger: 27°C DB/19 °C WB

(\*) Air intake temperature to outdoor interchanger: 35 °C DB

DB.- Dry bulb temperature

WB.- Wet bulb temperature

(1) With minimum admissible flow volumes

## ELECTRICAL DATA

MODEL		LVF 5EK	LVF 7EK	LVF 8EK	LVF 10EK	LVF 15EK
Power consumption	kW	7.5	8.8	11.4	13.8	16.9
Maximum current input	A	34.7 / 21.5	38.9 / 24.8	44.6 / 25.6	53.6 / 30.5	64.7 / 37.6
Starting current	A	117 / 60	135 / 67	155 / 78,5	170 / 105	208 / 130
OUTDOOR UNIT		KVF 5EK	KVF 7EK	KVF 8EK	KVF 10EK	KVF 15EK
Power supply	V/Ph(50 Hz)	230-400/ 3Ph				
Power consumption	kW	7.0	8.2	10.1	12.5	15.2
Maximum current input	A	29.2 / 16	33.4 / 19.3	37.2 / 21.3	46.2 / 26.2	57.3 / 33.3
Starting current	A	117 / 60	135 / 67	155 / 78,5	170 / 105	208 / 130
INDOOR UNIT		LFE 5EK	LFE 7EK	LFE 8EK	LFE 10EK	LFE 15EK
Power supply	V/Ph (50 Hz)	230V/ 1Ph		230V-400V/ 3Ph		
Power consumption	kW	0.5	0.6	1.3	1.3	1.7
Maximum current input	A	5.5	5.5	7.4 / 4.3	7.4 / 4.3	7.4 / 4.3

MODEL		LVF 10DK	LVF 15DK	LVF 17DK	LVF 20DK	LVF 30DK
Power consumption	kW	16.0	18.5	24.1	29.5	33.2
Maximum current input	A	65.8 / 36.3	74.2 / 42.9	86.4 / 49.6	104.4 / 59.4	126.6 / 73.6
Starting current	A	146 / 76	168 / 86	192/100	216 / 131	265 / 166
OUTDOOR UNIT		KVF 10DK	KVF 15DK	KVF 17DK	KVF 20DK	KVF 30DK
Power supply	V/Ph (50 Hz)	230-400/ 3Ph				
Power consumption	kW	14.3	16.9	21.7	26.1	29.8
Maximum current input	A	58.4 / 32	66.8 / 38.6	74.4 / 42.6	92.4 / 52.4	114.6 / 66.6
Starting current	A	146 / 76	168 / 86	192 / 100	216 / 131	265 / 166
INDOOR UNIT		LFE 10DK	LFE 15DK	LFE 17DK	LFE 20DK	LFE 30DK
Power supply	V/Ph (50 Hz)	230V-400V/ 3Ph				
Power consumption	kW	1.7	1.6	2.4	3.4	3.4
Maximum current input	A	7.4 / 4.3	7.4 / 4.3	12.0 / 7.0	12.0 / 7.0	12.0 / 7.0

## INDOOR UNIT FAN CHARACTERISTICS

		LFE 5EK				LFE 7EK			
AIR FLOW	<b>m<sup>3</sup>/h</b>	2900	3200	3500	3750	2900	3175	3450	4000
AVAILABLE PRESSURE	<b>Pa</b>	110	90	60	0	110	85	62	0
$\Delta p$ HOT WATER HEATER (Pressure drop Pa)		24	28	32	36	24	28	32	40


		LFE 8EK				
AIR FLOW	<b>m<sup>3</sup>/h</b>	4600	4950	5300	5700	
PULLEY POSITION	PULLEY CLOSED	890 R.P.M.	190*	170*	150*	120*
	1 TURN	840 R.P.M.	170*	140*	120*	90*
	2 TURNS	790 R.P.M.	140*	110*	80*	50*
	3 TURNS	740 R.P.M.	110*	85*	60*	30*
$\Delta p$ HOT WATER HEATER (Pressure drop Pa)		24	27	30	32	

		LFE 10EK				LFE 15EK				
AIR FLOW	<b>m<sup>3</sup>/h</b>	4600	5000	6050	6800	5400	6100	6800	7500	
PULLEY POSITION	PULLEY CLOSED	1010 R.P.M.	280*	250*	100*	●	260*	220*	180*	●
	1 TURN	955 R.P.M.	260*	230*	130*	●	230*	190*	150*	●
	2 TURNS	900 R.P.M.	230*	190*	140*	60*	190*	160*	110*	80*
	3 TURNS	845 R.P.M.	200*	160*	100*	20*	160*	130*	90*	30*
$\Delta p$ HOT WATER HEATER (Pressure drop Pa)		24	30	35	40	24	30	35	40	

**NOTE: Pulley factory setting 2 turns open.**

< Wrong position on account of motor power limit.

\* Static pressure available Pa

 Nominal air flow




## INDOOR UNIT FAN CHARACTERISTICS

AIR FLOW		m <sup>3</sup> /h		LFE 10DK				LFE 15DK			
				6000	6650	7300	8000	6600	7125	7650	8200
PULLEY POSITION	PULLEY CLOSED	1140	R.P.M.	230*	210*	190*	150*	200*	180*	160*	●
	1 TURN	1080	R.P.M.	200*	175*	150*	110*	165*	145*	115*	85*
	2 TURNS	1020	R.P.M.	160*	130*	110*	75*	120*	100*	70*	40*
	3 TURNS	960	R.P.M.	130*	105*	75*	37*	95*	75*	45*	15*
Δp HOT WATER HEATER (Pressure drop Pa)				25	28	33	39	28	32	36	40

AIR FLOW		m <sup>3</sup> /h		LFE 17DK			
				9200	9900	10600	11400
PULLEY POSITION	PULLEY CLOSED	890	R.P.M.	190*	170*	150*	120*
	1 TURN	840	R.P.M.	170*	140*	120*	90*
	2 TURNS	790	R.P.M.	140*	110*	80*	50*
	3 TURNS	740	R.P.M.	110*	85*	60*	30*
Δp HOT WATER HEATER (Pressure drop Pa)				24	27	30	32

AIR FLOW		m <sup>3</sup> /h		LFE 20DK				LFE 30DK			
				9100	10600	12100	13600	10100	11700	13300	14800
PULLEY POSITION	PULLEY CLOSED	1010	R.P.M.	290*	250*	190*	●	240*	200*	140*	●
	1 TURN	955	R.P.M.	270*	230*	170*	●	210*	170*	110*	●
	2 TURNS	900	R.P.M.	240*	190*	140*	60*	170*	140*	80*	20*
	3 TURNS	845	R.P.M.	210*	160*	100*	20*	150*	120*	50*	0*
Δp HOT WATER HEATER (Pressure drop Pa)				24	30	35	40	22	28	33	39

**NOTE: Pulley factory setting 2 turns open.**

 Nominal air flow

◁ Wrong position on account of motor power limit  
\* Static pressure available Pa

## OUTDOOR UNIT FAN CHARACTERISTICS

		KVF 5EK				KVF 7EK			
AIR FLOW	<b>m<sup>3</sup>/h</b>	5000	5400	5800	6300	5000	5325	5650	6150
AVAILABLE PRESSURE	<b>Pa</b>	130	90	50	0	110	75	50	0

		KVF 8EK				KVF 10EK			
AIR FLOW	<b>m<sup>3</sup>/h</b>	5600	6325	7050	7550	5600	6125	6650	7100
AVAILABLE PRESSURE	<b>Pa</b>	170	120	50	0	140	90	50	0

		KVF 15EK					
AIR FLOW	<b>m<sup>3</sup>/h</b>	8200	9050	9900	10750		
PULLEY POSITION	PULLEY CLOSED	890 R.P.M.		230*	200*	140*	<
	1 TURN	840 R.P.M.		180*	160*	100*	<
	2 TURNS	790 R.P.M.		150*	110*	60*	20*
	3 TURNS	740 R.P.M.		100*	60*	30*	—

		KVF 10DK				KVF 15DK			
AIR FLOW	<b>m<sup>3</sup>/h</b>	10000	10800	11600	12600	10000	10650	11300	12300
AVAILABLE PRESSURE	<b>Pa</b>	130	90	50	0	110	75	50	0

		KVF 17DK				KVF 20DK			
AIR FLOW	<b>m<sup>3</sup>/h</b>	11200	12650	14100	15100	11200	12250	13300	14200
AVAILABLE PRESSURE	<b>Pa</b>	170	120	50	0	140	90	50	0

		KVF 30DK					
AIR FLOW	<b>m<sup>3</sup>/h</b>	16400	18100	19800	21500		
PULLEY POSITION	PULLEY CLOSED	890 R.P.M.		230*	200*	140*	<
	1 TURN	840 R.P.M.		180*	160*	100*	<
	2 TURNS	790 R.P.M.		150*	110*	60*	20*
	3 TURNS	740 R.P.M.		100*	60*	30*	—

**NOTE: Pulley factory setting 2 turns open.**

 Nominal air flow

< Wrong position on account of motor power limit.  
\* Static pressure available Pa

## CAPACITY TABLE

### COOLING CAPACITY IN KW

			LVF 5EK					LVF 7EK				
AIR INLET TEMPERATURE INDOOR UNIT		CAPACITY IN KW	AIR INLET TEMPERATURE OUTDOOR UNIT °C DRY BULB					AIR INLET TEMPERATURE OUTDOOR UNIT °C DRY BULB				
			25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C	DB	TOTAL	13.48	13.00	12.52	12.03	11.54	17.74	17.09	16.44	15.78	15.11
15°C	WB	SENSIBLE	10.33	10.09	9.86	9.63	9.39	12.96	12.64	12.31	11.99	11.66
24°C	DB	TOTAL	14.51	13.99	13.48	12.96	12.43	19.03	18.34	17.64	16.93	16.21
17°C	WB	SENSIBLE	11.08	10.84	10.61	10.37	10.14	13.82	13.49	13.16	12.83	12.50
27°C	DB	TOTAL	15.60	15.05	14.50	13.94	13.38	20.39	19.65	18.90	18.14	17.37
19°C	WB	SENSIBLE	11.80	11.56	11.33	11.09	10.86	14.63	14.30	13.96	13.63	13.30
29°C	DB	TOTAL	16.76	16.18	15.59	14.99	---	21.84	21.05	20.24	19.43	---
21°C	WB	SENSIBLE	11.79	11.56	11.32	11.08	---	14.60	14.26	13.93	13.59	---
32°C	DB	TOTAL	17.99	17.37	16.74	16.10	---	23.36	22.51	21.65	20.77	---
23°C	WB	SENSIBLE	12.47	12.24	12.00	11.76	---	15.35	15.02	14.68	14.34	---

			LVF 8EK					LVF 10EK				
AIR INLET TEMPERATURE INDOOR UNIT		CAPACITY IN KW	AIR INLET TEMPERATURE OUTDOOR UNIT °C DRY BULB					AIR INLET TEMPERATURE OUTDOOR UNIT °C DRY BULB				
			25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C	DB	TOTAL	19.42	18.51	17.61	16.74	15.89	26.60	25.44	24.28	23.12	21.96
15°C	WB	SENSIBLE	15.66	15.23	14.81	14.41	14.02	20.68	20.12	19.57	19.02	18.48
24°C	DB	TOTAL	20.90	19.95	19.02	18.10	17.20	28.54	27.32	26.09	24.86	23.64
17°C	WB	SENSIBLE	16.88	16.46	16.05	15.65	15.26	22.18	21.62	21.07	20.53	19.99
27°C	DB	TOTAL	22.49	21.48	20.50	19.53	18.58	30.59	29.30	28.00	26.71	25.41
19°C	WB	SENSIBLE	18.06	17.64	17.24	16.84	16.46	23.61	23.06	22.52	21.98	21.44
29°C	DB	TOTAL	24.17	23.12	22.08	21.06	---	32.76	31.40	30.03	28.66	---
21°C	WB	SENSIBLE	18.04	17.62	17.23	16.83	---	23.55	23.00	22.46	21.92	---
32°C	DB	TOTAL	25.93	24.83	23.75	13.48	---	35.04	33.60	32.16	30.71	---
23°C	WB	SENSIBLE	19.15	18.74	18.35	17.96	---	24.89	24.35	23.82	23.29	---

			LVF 15EK					LVF 10DK				
AIR INLET TEMPERATURE INDOOR UNIT		CAPACITY IN KW	AIR INLET TEMPERATURE OUTDOOR UNIT °C DRY BULB					AIR INLET TEMPERATURE OUTDOOR UNIT °C DRY BULB				
			25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C	DB	TOTAL	34.05	32.62	31.15	29.62	28.03	26.96	25.96	24.95	23.93	22.90
15°C	WB	SENSIBLE	26.81	26.13	25.43	24.72	23.98	21.29	20.81	20.33	19.85	19.38
24°C	DB	TOTAL	36.61	35.08	33.50	31.87	30.16	29.06	27.99	26.91	25.83	24.74
17°C	WB	SENSIBLE	28.82	28.14	27.43	26.71	25.97	22.93	22.44	21.96	21.48	21.01
27°C	DB	TOTAL	39.33	37.69	36.00	34.24	32.41	31.30	30.16	29.00	27.84	26.68
19°C	WB	SENSIBLE	30.76	30.07	29.36	28.63	27.88	24.50	24.02	23.54	23.05	22.57
29°C	DB	TOTAL	42.22	40.46	38.64	36.75	---	33.69	32.46	31.23	29.99	---
21°C	WB	SENSIBLE	30.71	30.01	29.29	28.56	---	24.49	24.01	23.53	23.04	---
32°C	DB	TOTAL	45.26	43.37	41.41	39.38	---	36.20	34.90	33.58	32.25	---
23°C	WB	SENSIBLE	32.53	31.83	31.11	30.37	---	25.98	25.50	25.01	24.53	---

DB - Dry Bulb  
WB - Wet Bulb

## CAPACITY TABLE

### COOLING CAPACITY IN kW

AIR INLET TEMPERATURE INDOOR UNIT		CAPACITY IN kW	LVF 15DK					LVF 17DK				
			AIR INLET TEMPERATURE OUTDOOR UNIT °C DRY BULB					AIR INLET TEMPERATURE OUTDOOR UNIT °C DRY BULB				
			25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C DB	TOTAL	36.65	35.27	33.87	32.46	31.03	41.76	39.86	38.00	36.18	34.40	
15°C WB	SENSIBLE	27.36	26.68	26.00	25.31	24.63	34.23	33.34	32.48	31.65	30.84	
24°C DB	TOTAL	39.34	37.86	36.37	34.86	33.32	44.86	42.87	40.92	39.00	37.11	
17°C WB	SENSIBLE	29.24	28.55	27.86	27.17	26.47	36.91	36.03	35.18	34.35	33.55	
27°C DB	TOTAL	42.18	40.60	39.00	37.38	35.73	48.14	46.06	44.00	41.98	39.99	
19°C WB	SENSIBLE	31.04	30.34	29.64	28.94	28.24	39.49	38.63	37.79	36.97	36.17	
29°C DB	TOTAL	45.20	43.50	41.78	40.04	---	51.63	49.44	47.28	45.15	---	
21°C WB	SENSIBLE	30.97	30.27	29.56	28.86	---	39.39	38.54	37.71	36.90	---	
32°C DB	TOTAL	48.36	46.54	44.69	42.81	---	55.30	53.00	50.72	48.47	---	
23°C WB	SENSIBLE	32.63	31.93	31.22	30.52	---	41.82	40.99	40.18	39.38	---	

AIR INLET TEMPERATURE INDOOR UNIT		CAPACITY IN kW	LVF 20DK					LVF 30DK				
			AIR INLET TEMPERATURE OUTDOOR UNIT °C DRY BULB					AIR INLET TEMPERATURE OUTDOOR UNIT °C DRY BULB				
			25°C	30°C	35°C	40°C	45°C	25°C	30°C	35°C	40°C	45°C
21°C DB	TOTAL	53.85	51.46	49.08	46.70	44.31	68.08	65.27	62.35	59.33	56.18	
15°C WB	SENSIBLE	44.35	43.23	42.13	41.04	39.36	52.93	51.58	50.19	48.77	47.30	
24°C DB	TOTAL	57.73	55.20	52.69	50.18	47.66	73.18	70.16	67.04	63.80	60.43	
17°C WB	SENSIBLE	47.78	46.68	45.58	44.50	43.43	56.84	55.47	54.06	52.62	51.15	
27°C DB	TOTAL	61.81	59.15	56.50	53.84	51.19	78.60	75.35	72.00	68.52	64.91	
19°C WB	SENSIBLE	51.08	49.99	48.91	47.84	46.78	60.59	59.20	57.79	56.34	54.84	
29°C DB	TOTAL	66.12	63.33	60.53	57.73	---	84.36	80.87	77.27	73.53	---	
21°C WB	SENSIBLE	50.89	49.81	48.74	47.68	---	60.48	59.09	57.66	56.20	---	
32°C DB	TOTAL	70.64	67.69	64.74	61.79	---	90.41	86.66	82.78	78.77	---	
23°C WB	SENSIBLE	54.00	52.93	51.88	50.84	---	64.00	62.60	61.17	59.70	---	

DB - Dry Bulb  
WB - Wet Bulb

### COOLING CAPACITY CALCULATION REGARDING AIRFLOW

APPLY THE FOLLOWING CORRECTION FACTORS TO CALCULATE THE COOLING CAPACITY FOR INDOOR AIRFLOW			
Airflow	minimum	nominal	maximum
Cooling capacity	x0.96	x1.00	x1.02
Working capacity	x0.93	x1.00	x1.03

APPLY THE FOLLOWING CORRECTION FACTORS TO CALCULATE THE COOLING CAPACITY FOR OUTDOOR AIRFLOW			
Airflow	minimum	nominal	maximum
Cooling capacity	x0.98	x1.00	x1.01
Working capacity	x0.98	x1.00	x1.01

## REFRIGERANT CONNECTIONS

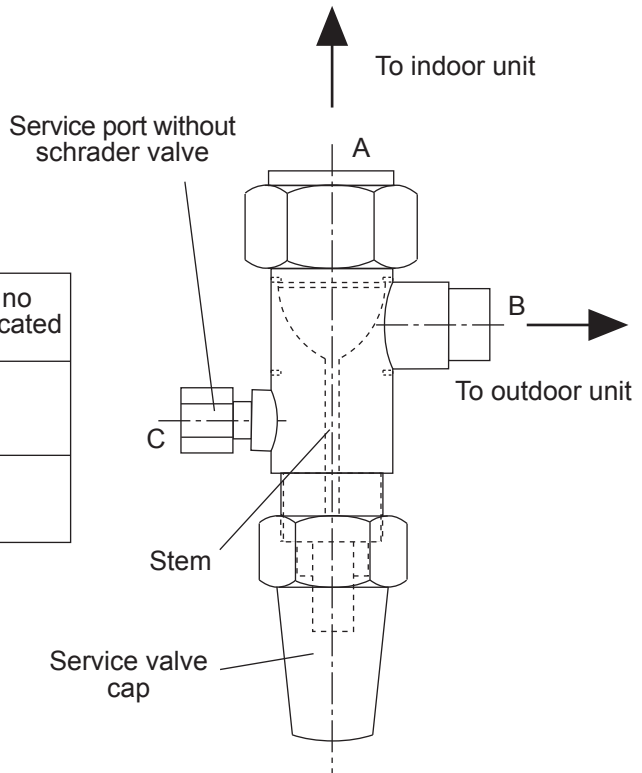
### LIQUID & VAPOR LINE SERVICE VALVES

The liquid line and vapor line service valves and service ports are accessible inside of the outdoor unit. With these valves the refrigerant circuit can be isolated, the indoor unit from the outdoor unit.

To open/close liquid or vapor line service valves:

- Remove cap.
- Use an adjustable wrench, to open it turn stem out counterclockwise, to close it turn stem clockwise.
- Service valve operation:

Service valve position	Stem position	Circuit communicated	Circuit no communicated
Closed	Inside service valve	B-C	A-B
Opened	Out service valve	A-B	B-C



### PLUMBING COMPACT UNITS

Compact units LVF/BLV are connected inside with refrigerant piping through the service valves.

The compact unit is supplied with the service valves closed and the charge of refrigerant on the outdoor unit.

#### IMPORTANT

The liquid and vapor service valves should be opened before unit start up.

### PLUMBING SPLIT UNITS

If the unit is supplied as compact, follow the next steps to transform into split unit (indoor and outdoor unit):

#### Collect the refrigerant charge in the outdoor unit.

The unit is supplied with the refrigerant charge in the outdoor unit, if for any cause it was not this way, follow the next steps:

- Close liquid service valve.
  - Connect low pressure gauge to compressor service port.
  - Open vapour service valve.
  - Place a jumping cable on the low pressure switch.
  - Start up the unit (in cooling only cycle).
  - Keep working until the low pressure gauge indicate 0 bar. Then close the vapour service valve and stop the unit.
- On this way the refrigerant charge will be collected in the outdoor unit.

NOTE: Do not forget to remove the jumping cable on the low pressure switch.

## REFRIGERANT CONNECTIONS

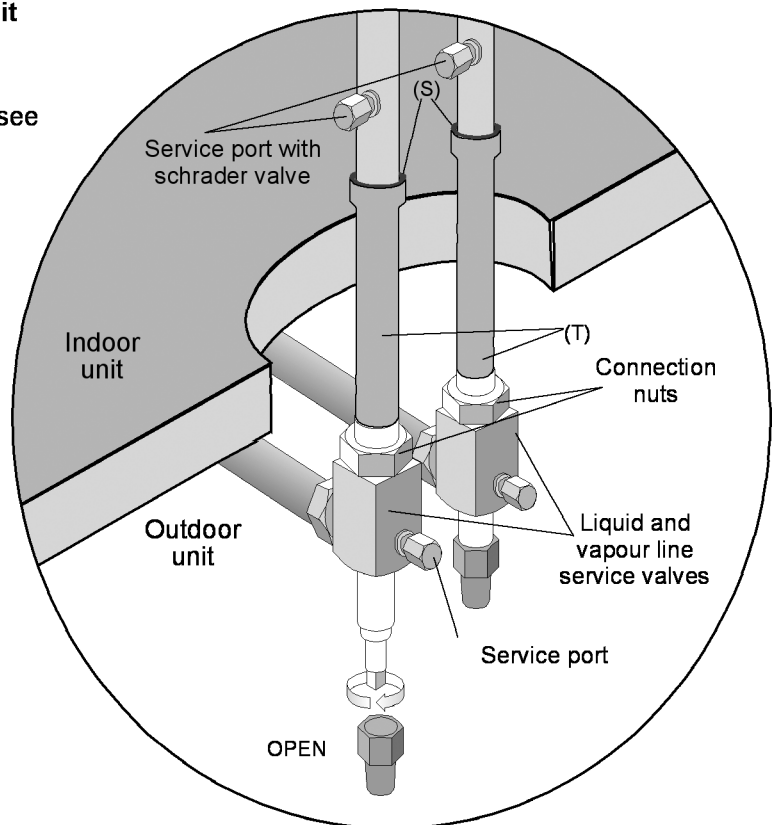
### Refrigerant parting of indoor and outdoor unit

- Release connection nuts from service valves.
- Desolder pipes (T) of units interconnection (S), see drawing.

On this way indoor and outdoor unit refrigerant connections get separated.

### Indoor and outdoor unit refrigerant connections

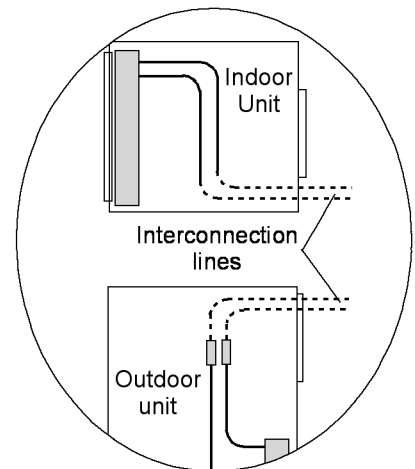
- The indoor unit can be plumbed through the rear part of the unit removing the access cover, or from the bottom panel that was used to connect it with the outdoor unit in the compact version. Use the cover to close the no used access.
- The outdoor unit will be plumbed through the rear part of the unit, or from the top panel using the hole provided to connect it with the outdoor unit in the compact version.



Braze the pipes to the liquid and vapor connection to the indoor unit, and connect to the couplings on outdoor service valves. Place service ports on pipes, where can be easily accessed.

Brazing connections:

1. - The ends of the refrigerant pipes must have clean ends, without bents, burrs or damaged surface.
2. - Torch flame must have blue colour with violet colour on the end. Introduce nitrogen inside of the pipe to avoid pipe oxidising and descaling. First the inside of the pipe must be warmed up with short pass in right angle and carry on with the outside. Move the flame along the coupling and place the welding rod on the joining point. Place the welding rod first on top, carry on with both sides and finish with the bottom. With the right temperature the alloy will flow along the coupling.
3. - Wrap a wet cloth around the liquid and vapor valve body to protect from heat damage during brazing.



The connection nuts should be well sealed with LOCTITE, with the teflon joint in position and the nuts well tightened.

### Leak testing

After the refrigerant pipes has been connected to the indoor and outdoor unit, the line set connections and indoor unit must be checked for leaks.

1. - Liquid and vapor lines must be closed.
2. - Connect a cylinder of nitrogen with a pressure regulating valve to a service port.
3. - Apply soapy water in all joints for leak testing.

## REFRIGERANT CONNECTIONS

### Evacuation and refrigerant charge

1. - Remove the pressure cap from service port on indoor unit.
2. - Connect the manometers to the service port and the vacuum pump.
3. - Open the manometers valves to communicate service port and the vacuum pump.
4. - Evacuate until to an absolute pressure of 0.3 mmHg; close the vacuum pump valve and check the absolute pressure after 20 minutes. Disconnect the vacuum pump and connect a bottle of refrigerant.
5. - Use a metering to charge R-407C to the corresponding load (see charge table), and check for leaks.
6. - Remove manometers and replace the pressure cap.
7. - Open the two sectioning valves on the outdoor unit, which are placed inside of the unit, and replace their caps.

### CHARGE OF REFRIGERANT TO BE ADDED BY EVERY METER OF LINE LENGTH

MODEL		5EK	7EK	8EK	10EK	15E	10DK	15DK	17DK	20DK	30DK
LVF-K	(gr.)	219	219	224	224	339	2x219	2x219	2x224	2x224	2x339

The compact unit LVF-K is factory charged with the amount of R407C indicated on the unit rating plate. If the compact unit is separated, add the amount of refrigerant indicated on the table.

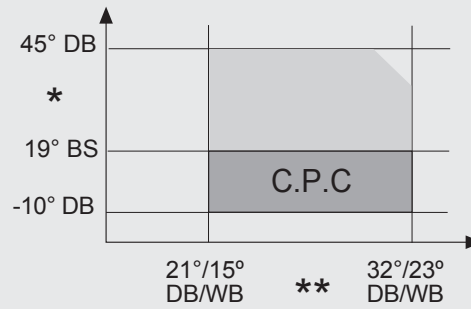
Factory supplied split units are shipped with a charge of nitrogen (N<sub>2</sub>) in the indoor unit; while the outdoor unit hold the charge of refrigerant R407C indicated on the unit rating plate.

## OPERATION LIMITS

### OPERATING LIMITS UNITS LVF-K (COOLING ONLY)

\* Air intake temperature into the outdoor unit °C

\*\* Air intake temperature into the indoor unit °C



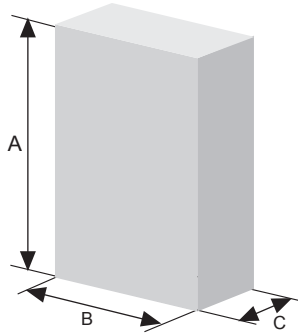
DB.- Dry Bulb  
WH.- Wet Bulb

THE LOW AMBIENT CONTROL (C.P.C.) IS OPTIONAL

**ELECTRIC WIRING DIAGRAM**  
For electrical connection refer to wiring diagram  
in the unit.



# DIMENSIONS

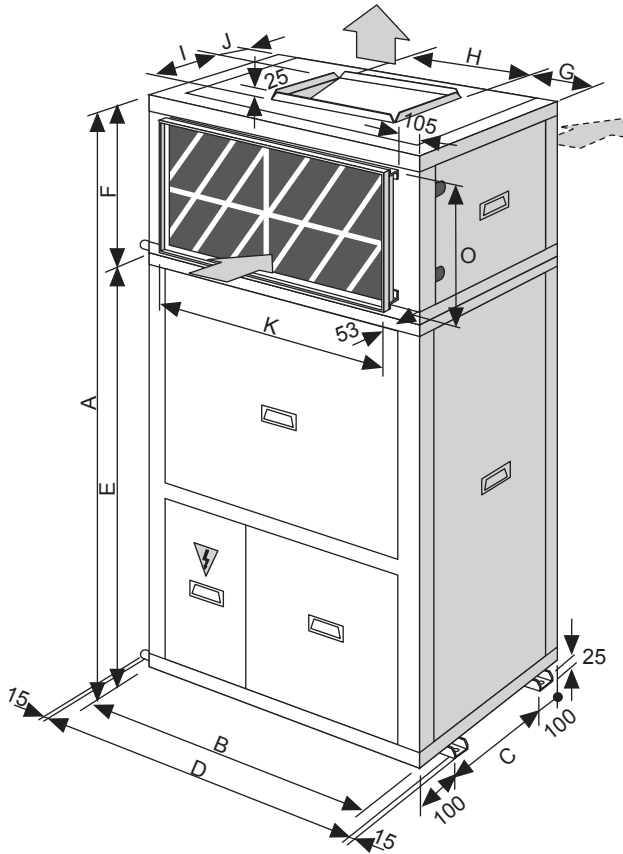
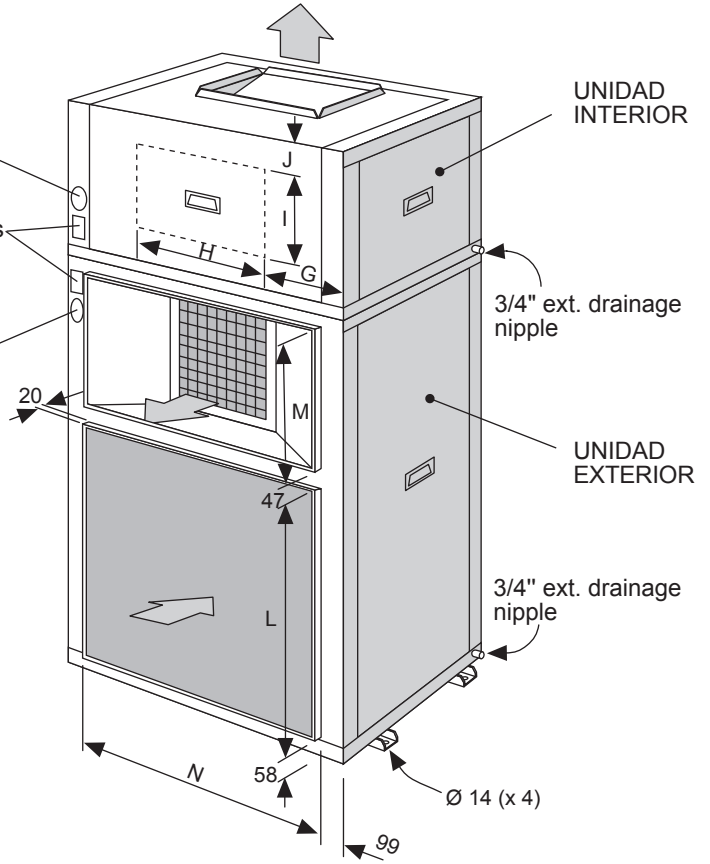


Maximum dimensions (Shown with grey shading in the table).

Alimentación eléctrica ventiladores y resistencia eléctrica (opcional)

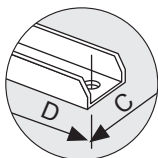
Conexiones frigoríficas unidad partida

Alimentación eléctrica a la unidad

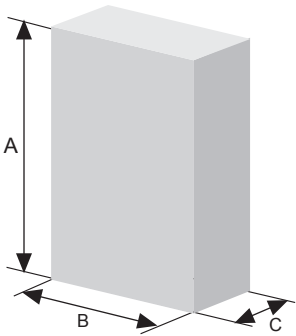


	LVF/BLV 5E-7E	LVF/BLV 8E-10E	LVF/BLV 15E
A	1.865	2.015	2.080
B	900	1.195	1.320
C	450	550	550
D	960	1.255	1.380
E	1.275	1.375	1.440
F	590	640	640
G	291	449	471
H	338	316	398
I	294	347	343
J	160	190	191
K	710	1.005	1.130
L	788	888	888
M	348	398	413
N	683	978	1.103
O	550	600	600
<b>A</b>	1.890	2.040	2.105
<b>B</b>	990	1.285	1.410
<b>C</b>	703	803	803

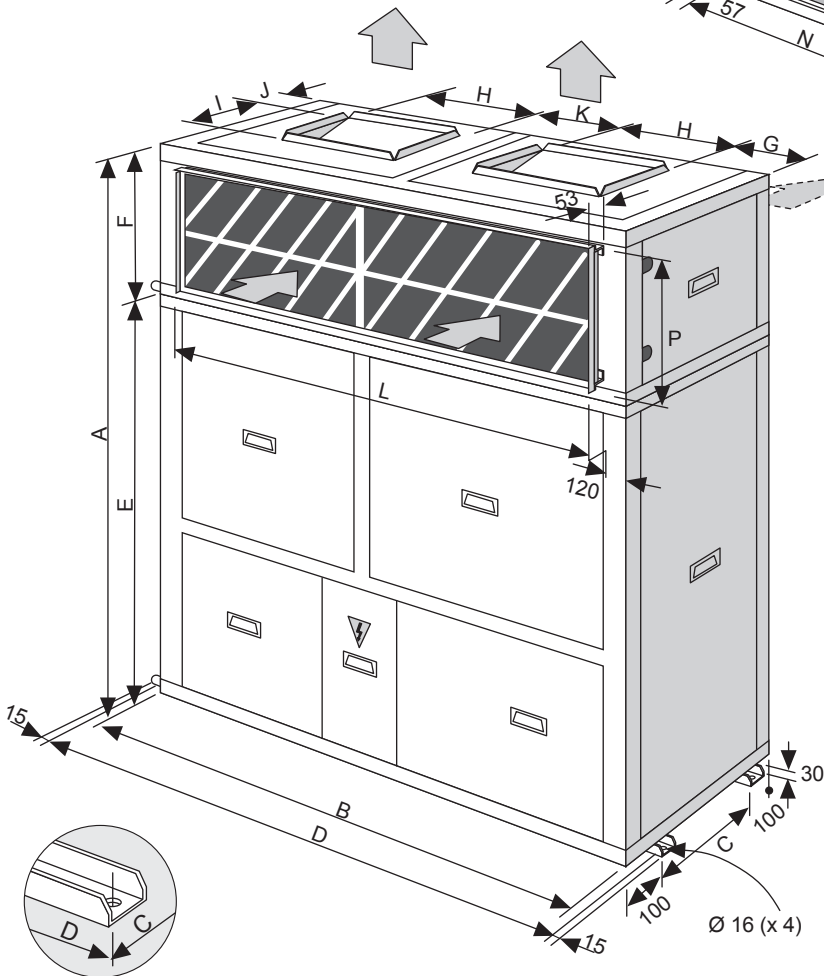
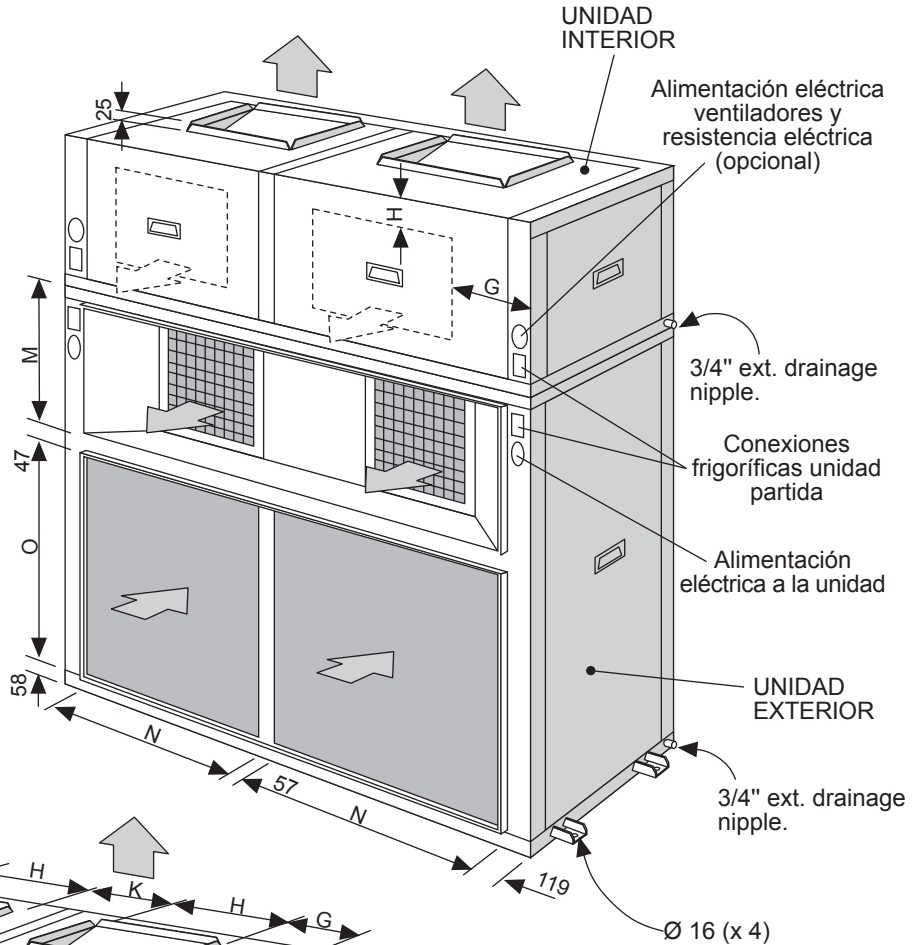
The dimensions D and C to the centre of the drill holes for the supports.



# DIMENSIONS



Maximum dimensions (Shown with grey shading in the table).



	LVF/BLV 10D-15D	LVF/BLV 17D-20D	LVF/BLV 30D
A	1.870	2.020	2.085
B	1.660	2.250	2.500
C	450	550	550
D	1.720	2.310	2.560
E	1.280	1.380	1.445
F	590	640	640
G	365	692	691
H	334	313	398
I	290	343	344
J	169	192	192
K	261	240	321
L	1.420	2.010	2.260
M	348	398	413
N	683	978	1.103
O	788	888	888
P	550	600	600
Maximum dimensions	A 1.895 B 1.750 C 703	2.045 2.340 803	2.190 2.590 803

The dimensions D and C to the centre of the drill holes for the supports.