



DAS HERZ DER FRISCHE

# AIR COOLED CONDENSING UNITS

50 Hz // KP-204-2 EN

WITH SEMI-HERMETIC RECIPROCATING COMPRESSORS



COMMERCIAL  
REFRIGERATION



ECODESIGN  
CONFORM



HFO  
READY

## BITZER Innovation targets

### Products for refrigerants with low greenhouse warming potential (GWP)

- // For naturally appearing substances
- // For new refrigerants like R1234yf, R1234ze(E) and low-GWP-blends

These refrigerants reduce the direct contribution of refrigeration systems to global warming.

### Products with high efficiency in full and part load

- // Efficiency improvements of motor and mechanics
- // High system efficiency in part load operation
  - by optimised mechanical capacity regulation
  - by specially developed frequency inverters

This reduces the indirect contribution to global warming by saving energy.

### Simple handling and serviceability with advanced electronic modules

- // Electronic components for
  - Data logging
  - Capacity regulation
  - Actuation of accessories
- // Unified user software for simple configuration. Choose compressor or condensing unit and refrigerant. Ready.

This makes it simple to fully utilize the efficiency potential of our products and optimise operation.

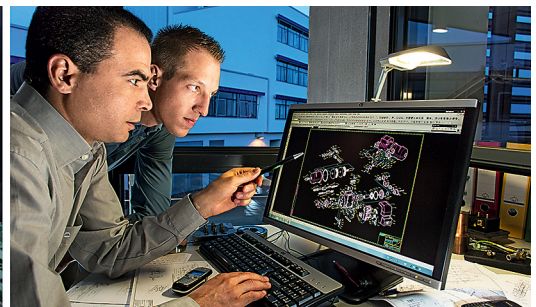
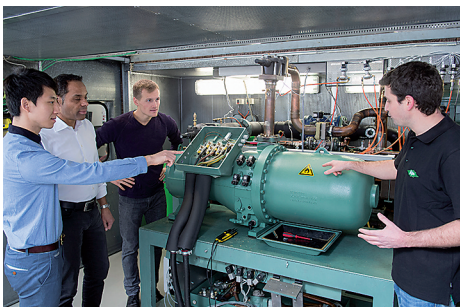
## Air cooled Condensing Units with Semi-hermetic ECOLINE Compressors

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Highly efficient and proven air cooled condensing units for low and medium temperature application and for high condensing temperatures in commercial refrigeration and all the refrigeration applications where flexible solutions with few additional components are needed.

The implementation of the ErP directive affects tougher requirements on the efficiency of fans since 2015 and of condensing units since 2016. The BITZER air cooled "LH.E" units meet the new criteria of July 2018 and convince due to optimized combination of fans and condenser.

They are available in modular construction of several extension levels with single compressors.



### Standard condensing units

- // With single compressors:  
LH32E/2KES-05(Y) to  
LH135E/6HE-28(Y)

### Accessory package

- // High and low pressure limiter (from compressor type 4NES-14(Y) with HP safety cut-out) including mounting brackets, wired to terminal strip
- // Liquid line with filter drier and sight glass

### The special highlights

- // Highly efficient ECOLINE compressors
- // Particularly efficient and low sound fans with EC motor
  - Less power consumption
  - Sound-optimized air duct
- // Minichannel condenser of approved copper/aluminium design
  - Best heat exchange
  - Lower refrigerant charge
  - Higher power density
  - Weather resistance
- // Weather protective housing
  - Simple retrofitting
  - Robust design with compact dimensions
- // Universal application range
  - Refrigerants R134a, R404A/R507A, R407A, R407C, R407F, R448A, R449A, R450A and R513A
  - "Low GWP" HFO refrigerants and HFO/HFC blends
  - High, medium and low temperature
- // Suitable for non-flammable refrigerants of safety group A2L

### Additional equipment (pre-mounted)

- // Differential oil pressure switch "Delta-PII" (for pump lubricated compressors)
- // Check valve in discharge line from LH64E/4FES-3(Y) on
- // LH32E/.. and LH33E/.. receiver with sight glass
- // LH44E/.. bis LH84E/.. receiver with 2 sight glasses and connection for pressure relief valve
- // Larger receivers for systems with a higher refrigerant charge
- // Oil separator including check valve integrated in unit

### Extent of delivery and accessories

Refer to Price List.

### Performance data

All given performance data (Watt) are based on 50 Hz and are related to the European standard EN 13215: suction gas temperature 20°C with liquid subcooling. Performance data for individual input data see BITZER SOFTWARE.

### 60 Hz operation

See BITZER SOFTWARE.



## New refrigerants of safety group A2L

Refrigerants with low global warming potential of safety class A2L can now be used with the condensing units of the „LH.E“ series. In normal operation without failure there are no ignition sources with the “LH.E” which could ignite those refrigerants with lower flammability.

Its suitability is displayed on the name plate entry „PED Fluid Group 1 + 2“ of the liquid receiver. The end user must provide a risk assessment for the refrigerant system, its installation and operation to prove the safe use of the flammable refrigerant, and local regulations must permit its use.

Then refrigerants such as R1234yf, R454A, R454C and R455A can be used.

## Explanation of type designation

Example

**LH 44 E / 2GES-2 Y - 40S**

Condenser type

**LH 44 E / 2GES-2 Y - 40S**

Compressor type

**LH 44 E / 2GES-2 Y - 40S**

Identification letter for ester oil charge

**LH 44 E / 2GES-2 Y - 40S**

Motor code



The BITZER SOFTWARE is available in many languages as download for Windows or online version. It is compatible with all browsers and always up to date. The program is ideal for tablets and smartphones.

The BITZER SOFTWARE covers:

- // Performance data for all common refrigerants at freely selectable operating conditions
- // All relevant technical data
- // Calculation results and individually designed performance tables for compressors
- // Accessories in the selection of compound systems
- // All relevant technical documents
- // More BITZER products

[bitzer-software.com](http://bitzer-software.com)

The screenshot displays the BITZER Software interface. On the left, there are input fields for various parameters such as Condensing Units, Refrigerant (R1234yf), Compressor selection, and Operating conditions. On the right, a schematic diagram of a refrigeration system is shown with temperature points: 41.7°C, 38.7°C, 20.0°C, and -10.0°C. Below the diagram is a table of technical data for different unit types.

Unit type	LH84E/4DE-SY-40S	LH104E/4DE-JY-40S	LH84E/4E-S-Y-40S	LH114E/4E-S-Y-40S
Capacity steps	100%	100%	100%	100%
Cooling capacity	8.48 kW	8.84 kW	10.20 kW	10.90 kW
Evaporator capacity	8.48 kW	8.84 kW	10.20 kW	10.90 kW
Power input	3.49 kW	3.77 kW	4.31 kW	4.48 kW
Current (400V)	6.52 A	7.42 A	8.31 A	8.13 A
Voltage range	380-420V	390-420V	380-420V	380-420V
Mass flow	186.9 kg/h	189.9 kg/h	229 kg/h	235 kg/h
Condensing SOT	41.7 °C	38.8 °C	43.8 °C	39.2 °C
Liquid subcooling	3.00 K	2.98 K	3.00 K	3.00 K
Operating mode	Standard	Standard	Standard	Standard

## Performance data

	Refrigerating capacity Q <sub>0</sub> in kW			Best efficiency			
	R134a	R448A/R449A		COP / SEPR with refrigerant			
	-10°C	-10°C	-35°C	-10°C	Refrigerant	-35°C	Refrigerant
<b>Standard design</b>							
LH32E/2KES-05Y	1.18	1.83	0.40	2.10	R407F	0.96	R407F
LH32E/2JES-07Y	1.47	2.35	0.58	2.06	R407C	1.05	R407F
LH33E/2HES-1Y	2.01	2.88	0.76	2.07	R513A	1.13	R407F
LH33E/2HES-2Y	2.01	2.88	0.76	2.04	R513A	1.08	R407A
LH33E/2GES-2Y	2.33	3.27	0.90	2.05	R513A	1.12	R407A
LH44E/2GES-2Y	2.39	3.42	0.92	2.10	R513A	1.13	R407A
LH44E/2FES-2Y	2.92	4.08	1.15	2.19	R513A	1.18	R407F
LH44E/2FES-3Y	2.90	4.09	1.15	2.04	R513A	1.18	R407F
LH44E/2EES-2Y	3.48	4.93	1.44	2.25	R513A	1.23	R448A
LH64E/2EES-3Y	3.79	5.72	1.55	2.98	R448A	1.07	R407F
LH53E/2DES-2Y	4.28	6.05	1.77	2.78	R407C	1.24	R407F
LH64E/2DES-3Y	4.47	6.50	1.83	2.93	R407C	1.12	R407F
LH64E/2CES-3Y	5.42	7.94	2.38	3.08	R513A	1.74	R404A
LH84E/2CES-4Y	5.60	8.41	2.44	3.34	R513A	1.62	R449A
LH64E/4FES-3Y	5.58	8.53	2.55	3.07	R513A	1.69	R404A
LH84E/4FES-5Y	5.80	9.10	2.62	3.36	R513A	1.60	R449A
LH64E/4EES-4Y	7.12	10.09	3.09	3.04	R134a	1.62	R448A
LH84E/4EES-6Y	7.47	10.94	3.20	3.37	R134a	1.65	R448A
LH84E/4DES-5Y	8.48	12.12	3.57	3.30	R134a	1.70	R448A
LH104E/4DES-7Y	8.84	13.02	3.69	3.22	R513A	1.72	R404A
LH84E/4CES-6Y	10.20	14.61	4.61	3.18	R450A	1.70	R449A
LH114E/4CES-9Y	10.90	16.40	4.85	3.36	R513A	1.64	R449A
LH104E/4TES-9Y	13.27	18.93	5.58	3.21	R134a	1.68	R449A
LH114E/4TES-12Y	13.27	19.63	5.66	3.30	R134a	1.71	R449A
LH114E/4PES-12Y	15.05	21.5	6.00	3.31	R134a	1.72	R448A
LH135E/4PES-15Y	15.57	23.5	6.15	3.60	R513A	1.76	R448A
LH124E/4NES-14Y	17.78	25.5	7.59	3.33	R513A	1.77	R448A
LH135E/4NES-20Y	18.38	27.5	7.88	3.52	R513A	1.84	R448A
LH135E/4JE-15Y	21.1	31.1	9.32	3.55	R513A	1.88	R449A
LH135E/4JE-22Y	20.7	30.3	8.59	3.56	R513A	1.81	R449A
LH135E/4HE-18Y	24.5	35.2	11.12	3.49	R450A	1.86	R449A
LH135E/4HE-25Y	24.1	34.6	10.55	3.43	R450A	1.79	R449A
LH135E/4GE-23Y	27.0	39.3	13.18	3.38	R450A	1.84	R448A
LH135E/6JE-25Y	29.1	42.0	13.31	3.24	R513A	1.86	R448A
LH135E/6HE-28Y	33.5	46.2	15.56	3.07	R513A	1.79	R448A

COP

SEPR

Tentative data



## Technical data

Condensing unit type	Compressor		Fans <sup>②</sup>			Standard type	Receiver Maximum refrigerant charge <sup>③</sup>			Option larger receiver	Weight (Stand.) kg
	Motor connection ①	Max. operating current  A	Current consumption  A	Power consumption  Watt	Air flow condenser  m <sup>3</sup> /h		R134a  kg	R404A R507A  kg	R22  kg		
LH32E/2KES-05(Y)	220 .. 240V Δ / 380 .. 420V Y / 3 / 50 Hz 265 .. 290V Δ / 440 .. 480V Y / 3 / 60 Hz	4.9/2.8	1.4	160	1650	FS36	3.3	2.9	3.3	FS56	71
LH32E/2JES-07(Y)		6.4/3.7	1.4	160	1650	FS36	3.3	2.9	3.3	FS56	71
LH33E/2HES-1(Y)		6.7/3.8	1.4	160	1650	FS36	3.3	2.9	3.3	FS56	70
LH33E/2HES-2(Y)		7.8/4.5	1.4	160	1650	FS36	3.3	2.9	3.3	FS56	72
LH33E/2GES-2(Y)		8.7/5.0	1.4	160	1650	FS36	3.3	2.9	3.3	FS56	72
LH44E/2GES-2(Y)		8.7/5.0	1.4	160	2000	FS56	6.2	5.4	6.1	FS76	78
LH44E/2FES-2(Y)		9.2/5.3	1.4	160	2000	FS56	6.2	5.4	6.1	FS76	77
LH44E/2FES-3(Y)		10.7/6.1	1.4	160	2000	FS56	6.2	5.4	6.1	FS76	78
LH44E/2EES-2(Y)		10.4/6.0	1.4	160	2000	FS56	6.2	5.4	6.1	FS76	96
LH64E/2EES-3(Y)		13.4/7.5	1.5	315	4300	FS76	8.6	7.5	8.5	FS126	121
LH53E/2DES-2(Y)		13.4/7.5	1.5	330	2600	FS56	6.2	5.4	6.1	FS76	109
LH64E/2DES-3(Y)		15.0/8.6	1.5	315	4300	FS76	8.6	7.5	8.5	FS126	121
LH64E/2CES-3(Y)		15.8/9.1	1.5	315	4300	FS76	8.6	7.5	8.5	FS126	119
LH84E/2CES-4(Y)		17.4/10.0	1.5	330	4600	FS126	14.3	12.5	14.2	FS202	123
LH64E/4FES-3(Y)		16.5/9.5	1.5	315	4300	FS76	8.6	7.5	8.5	FS126	131
LH84E/4FES-5(Y)		18.8/10.8	1.5	330	4600	FS126	14.3	12.5	14.2	FS202	140
LH64E/4EES-4(Y)		21.2/12.2	1.5	315	4300	FS76	8.6	7.5	8.5	FS126	133
LH84E/4EES-6(Y)		23.7/13.6	1.5	330	4600	FS126	14.3	12.5	14.2	FS202	140
LH84E/4DES-5(Y)		25.2/14.5	1.5	330	4600	FS126	14.3	12.5	14.2	FS202	143
LH104E/4DES-7(Y)		28.7/16.5	2 x 1.5	2 x 330	8000	F152H	16.6	14.4	16.3	F302H	188
LH84E/4CES-6(Y)		30.8/17.7	1.5	330	4600	FS126	14.3	12.5	14.2	FS202	147
LH114E/4CES-9(Y)	35.1/20.2	2 x 1.5	2 x 330	8400	F152H	16.6	14.4	16.3	F302H	199	

## Technical data

Condensing unit type	Compressor		Fans <sup>②</sup>			Standard type	Receiver			Option larger receiver	Weight (Stand.) kg
	Motor connection ①	Max. operating current  A	Current consumption  A	Power consumption  Watt	Air flow condenser  m <sup>3</sup> /h		Maximum refrigerant charge <sup>③</sup>				
							R134a kg	R404A R507A kg	R22 kg		
LH104E/4TES-9(Y)	PW 380 .. 420V YY / 3 / 50 Hz 440 .. 480V YY / 3 / 60 Hz	19.9	2 x 1.5	2 x 330	8000	F152H	16.6	14.4	16.3	F302H	235
LH114E/4TES-12(Y)		25.1	2 x 1.5	2 x 330	8400	F152H	16.6	14.4	16.3	F302H	251
LH114E/4PES-12(Y)		22.7	2 x 1.5	2 x 330	8400	F152H	16.6	14.4	16.3	F302H	249
LH135E/4PES-15(Y)		28.2	2 x 1.6	2 x 315	10400	F302H	33.1	28.8	32.7		303
LH124E/4NES-14(Y)		26.6	2 x 1.5	2 x 330	9800	F302H	33.1	28.8	32.7		284
LH135E/4NES-20(Y)		33.2	2 x 1.6	2 x 315	10400	F302H	33.1	28.8	32.7		306
LH135E/4JE-15(Y)		30.8	2 x 1.6	2 x 315	10400	F302H	33.1	28.8	32.7		343
LH135E/4JE-22(Y)		37.2	2 x 1.6	2 x 315	10400	F302H	33.1	28.8	32.7		343
LH135E/4HE-18(Y)		36.7	2 x 1.6	2 x 315	10400	F302H	33.1	28.8	32.7		352
LH135E/4HE-25(Y)		44.0	2 x 1.6	2 x 315	10400	F302H	33.1	28.8	32.7		356
LH135E/4GE-23(Y)		43.9	2 x 1.6	2 x 315	10400	F302H	33.1	28.8	32.7		345
LH135E/6JE-25(Y)		46.4	2 x 1.6	2 x 315	10400	F302H	33.1	28.8	32.7		381
LH135E/6HE-28(Y)		53.2	2 x 1.6	2 x 315	10400	F302H	33.1	28.8	32.7		381

① Other voltages and electrical supplies upon request

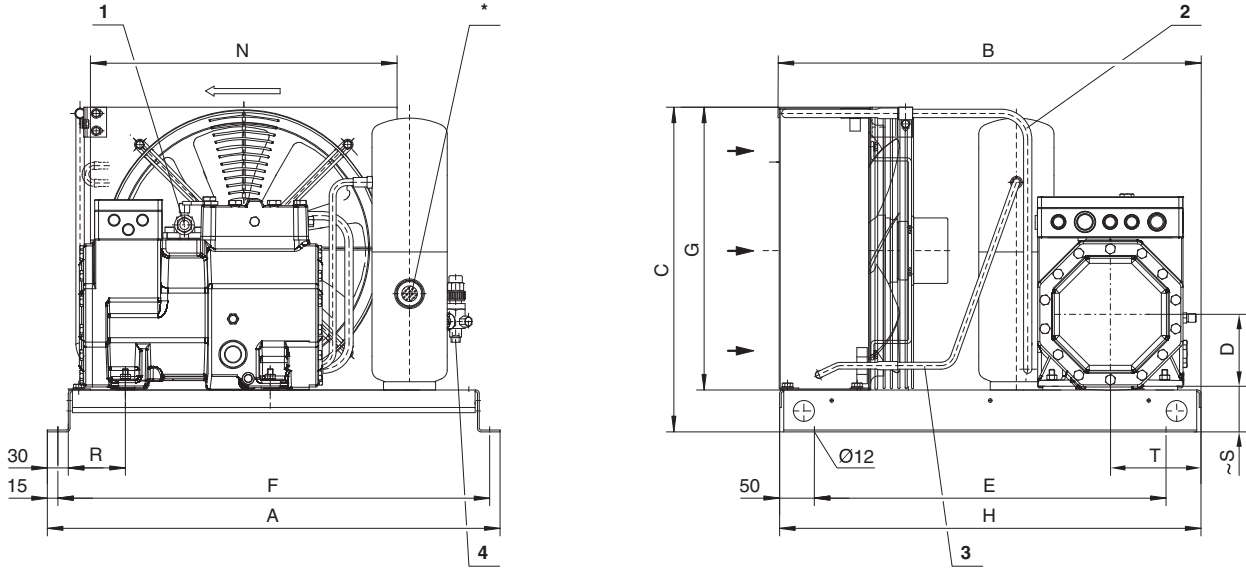
② LH32E/.. to LH135E/...: 230V/1/50Hz ±10%

③ 20°C liquid temperature,  
90% receiver volume, standard type

## Dimensional drawings

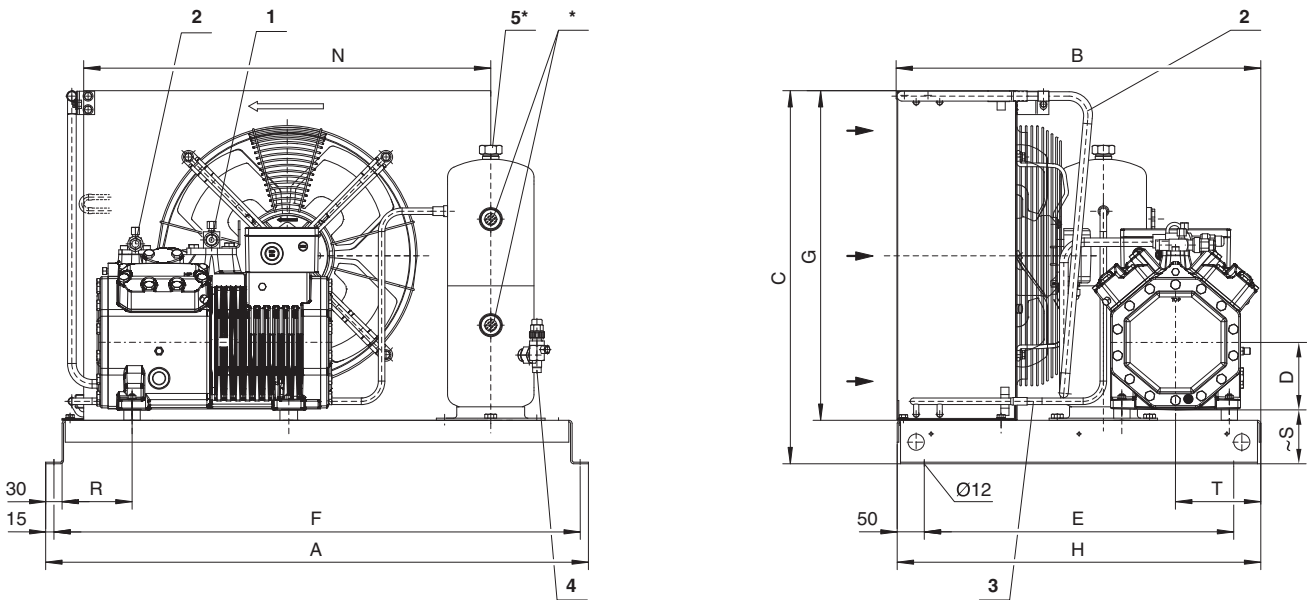
### Standard unit

LH32E/2KES-05(Y) .. LH84E/2CES-4(Y)



### Standard unit

LH64E/4FES-3(Y) .. LH84E/4DES-5(Y) / LH84E/4CES-6(Y)



### Connection positions

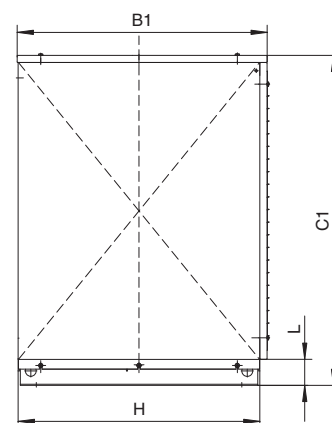
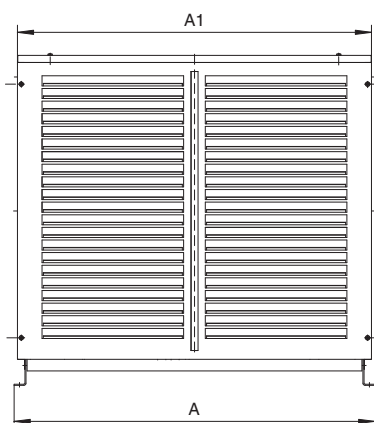
- 1 Suction valve
- 2 Discharge line
- 3 Condensate line
- 4 Refrigerant outlet
- 5 Connection for pressure relief valve  
internal thread:  $\frac{3}{8}$ -18 NPTF  
external thread:  $1\frac{1}{4}$ -12 UNF
- \* Option set



## Dimensions

Condensing unit type	Dimensions in mm																Connections			
																	Suction valve		Refrigerant outlet	
	A	A <sub>1</sub>	B	B <sub>1</sub>	C	C <sub>1</sub>	D	E	F	G	H	L	N	R	S	T	mm	Inch	mm	Inch
LH32E/2KES-05(Y)	650	630	607	645	466	574	102	505	620	406	605	62	440	82	66	133	12	1/2	10	3/8
LH32E/2JES-07(Y)	650	630	607	645	466	574	102	505	620	406	605	62	440	82	66	133	12	1/2	10	3/8
LH33E/2HES-1(Y)	650	630	607	645	466	574	102	505	620	406	605	62	440	82	66	133	16	5/8	10	3/8
LH33E/2HES-2(Y)	650	630	607	645	466	574	102	505	620	406	605	62	440	82	66	133	16	5/8	10	3/8
LH33E/2GES-2(Y)	650	630	607	645	466	574	102	505	620	406	605	62	440	82	66	133	16	5/8	10	3/8
LH44E/2GES-2(Y)	650	630	607	645	516	574	102	505	620	456	605	62	490	82	66	133	16	5/8	10	3/8
LH44E/2FES-2(Y)	650	630	607	645	516	574	102	505	620	456	605	62	490	82	66	133	16	5/8	10	3/8
LH44E/2FES-3(Y)	650	630	607	645	516	574	102	505	620	456	605	62	490	82	66	133	16	5/8	10	3/8
LH44E/2EES-2(Y)	650	630	702	740	516	574	121	600	620	456	700	62	490	146	82	174	22	7/8	10	3/8
LH64E/2EES-3(Y)	1000	982	672	693	687	915	121	570	970	607	670	72	750	160	102	157	22	7/8	12	1/2
LH53E/2DES-2(Y)	1000	982	671	693	536	915	121	570	970	456	670	72	750	160	102	157	22	7/8	10	3/8
LH64E/2DES-3(Y)	1000	982	672	693	687	915	121	570	970	607	670	72	750	160	102	157	22	7/8	12	1/2
LH64E/2CES-3(Y)	1000	982	672	693	687	915	121	570	970	607	670	72	750	160	102	157	22	7/8	12	1/2
LH84E/2CES-4(Y)	1000	982	672	693	837	915	121	570	970	757	670	72	850	160	102	157	22	7/8	12	1/2
LH64E/4FES-3(Y)	1000	982	672	693	687	915	125	570	970	607	670	72	750	129	99	157	22	7/8	12	1/2
LH84E/4FES-5(Y)	1000	982	672	693	837	915	125	570	970	757	670	72	850	129	99	157	22	7/8	12	1/2
LH64E/4EES-4(Y)	1000	982	672	693	687	915	125	570	970	607	670	72	750	129	99	157	28	1 1/8	12	1/2
LH84E/4EES-6(Y)	1000	982	672	693	837	915	125	570	970	757	670	72	850	129	99	157	28	1 1/8	12	1/2
LH84E/4DES-5(Y)	1000	982	672	693	837	915	125	570	970	757	670	72	850	129	99	157	28	1 1/8	12	1/2
LH84E/4CES-6(Y)	1000	982	672	693	837	915	125	570	970	757	670	72	850	129	99	157	28	1 1/8	12	1/2

### Weather protective housing for LH32E/2KES-05(Y) .. LH84E/4CES-6(Y)

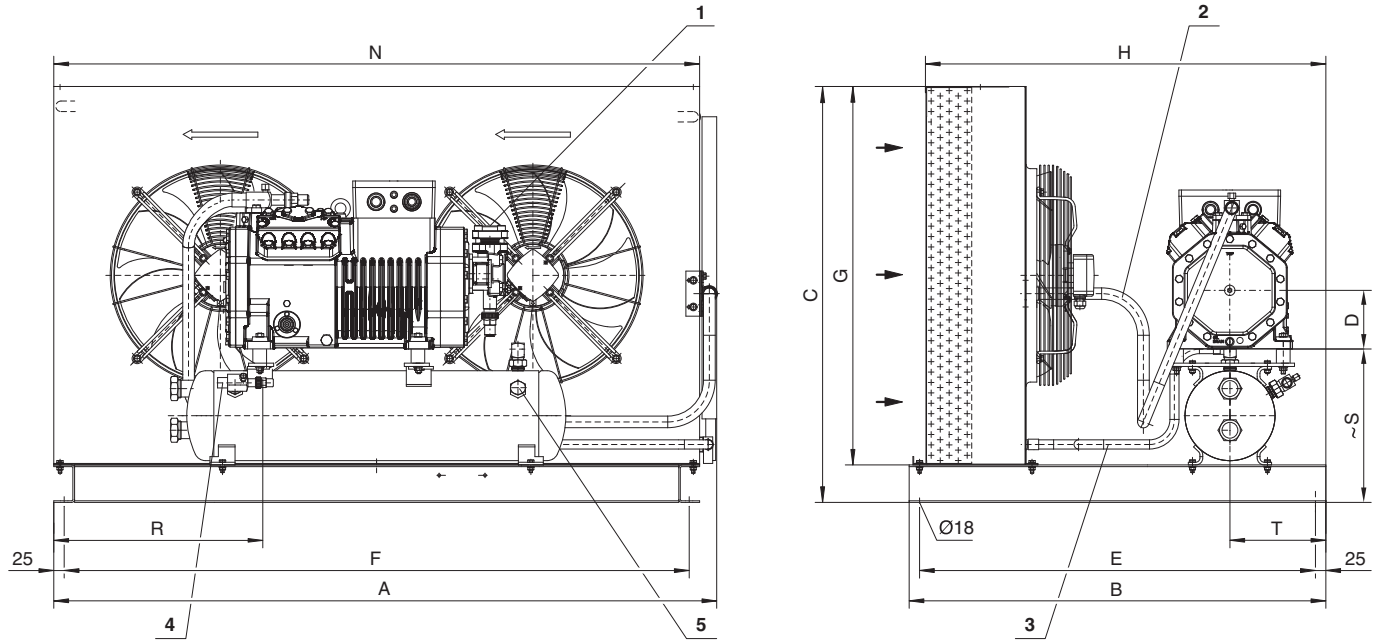


A1, B1, C1: Dimensions of the appropriate weather protective housing

## Dimensional drawings

### Standard unit

LH104E/4DES-7(Y) .. LH135E/6HE-28(Y)



### Connection positions

- 1 Suction valve
- 2 Discharge line
- 3 Condensate line
- 4 Refrigerant outlet
- 5 Connection for pressure relief valve  
internal thread:  $\frac{3}{8}$ -18 NPTF  
external thread: 1  $\frac{1}{4}$ -12 UNF
- \* Option set

## Dimensions

Condensing unit type	Dimensions in mm															Connections			
																Suction valve		Refrigerant outlet	
	A	A <sub>1</sub>	B	B <sub>1</sub>	C	C <sub>1</sub>	D	E	F	G	H	N	R	S	T	mm	Inch	mm	Inch
LH104E/4DES-7(Y)	1140	1280	920	1060	723	795	125	870	1060	658	886	1100	326	282	215	28	1 1/8	16	5/8
LH114E/4CES-9(Y)	1356	1480	920	1060	773	845	125	870	1270	708	886	1310	431	282	215	28	1 1/8	16	5/8
LH104E/4TES-9(Y)	1140	1280	920	1060	723	795	142	870	1060	658	886	1100	289	297	215	35	1 3/8	16	5/8
LH114E/4TES-12(Y)	1356	1480	920	1060	773	845	142	870	1270	708	886	1310	394	297	215	35	1 3/8	16	5/8
LH114E/4PES-12(Y)	1356	1480	920	1060	773	845	142	870	1270	708	886	1310	394	297	215	35	1 3/8	16	5/8
LH135E/4PES-15(Y)	1591	1720	1000	1140	998	1070	142	950	1500	908	961	1550	502	368	230	42	1 5/8	22	7/8
LH124E/4NES-14(Y)	1591	1720	1000	1140	848	920	142	950	1500	758	961	1550	502	368	230	35	1 3/8	22	7/8
LH135E/4NES-20(Y)	1591	1720	1000	1140	998	1070	142	950	1500	908	961	1550	502	368	230	42	1 5/8	22	7/8
LH135E/4JE-15(Y)	1591	1720	1000	1140	998	1070	158	950	1500	908	961	1550	495	373	230	42	1 5/8	22	7/8
LH135E/4JE-22(Y)	1591	1720	1000	1140	998	1070	158	950	1500	908	961	1550	495	373	230	42	1 5/8	22	7/8
LH135E/4HE-18(Y)	1591	1720	1000	1140	998	1070	158	950	1500	908	961	1550	495	373	230	42	1 5/8	22	7/8
LH135E/4HE-25(Y)	1591	1720	1000	1140	998	1070	158	950	1500	908	961	1550	495	373	230	54	2 1/8	22	7/8
LH135E/4GE-23(Y)	1591	1720	1000	1140	998	1070	158	950	1500	908	961	1550	495	373	230	54	2 1/8	22	7/8
LH135E/6JE-25(Y)	1591	1720	1000	1140	998	1070	158	950	1500	908	961	1550	495	373	230	54	2 1/8	22	7/8
LH135E/6HE-28(Y)	1591	1720	1000	1140	998	1070	158	950	1500	908	961	1550	495	373	230	54	2 1/8	22	7/8

A1, B1, C1: Dimensions of the appropriate weather protective housing  
 Design related to figure on bottom of page 9



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Subject to change // 80112301 // 09.2018