



Condensing units



CONDENCIAT CD

Quiet operation
Low speed fans
All year round operation



Cooling only



Cooling capacity : 25 to 165 kW

USE

The **CONDENCIAT CD** offers a solution to both heating and cooling applications encountered in the public, tertiary or industrial process fields.

Its distinguishing feature is its **remarkable acoustic characteristics**. Streamlined fan blades, low speed, compressors mounted outside the air flow, on anti-vibration mounts as standard.

All the components are mounted on a steel frame with **large removable panels to ease maintenance operations**.

These units are designed to be connected to a direct expansion exchanger such as:

- Air handling unit coils.
- Remote chilled water evaporators : coaxial type, shell and tube type or EXEL brazed plates type.

The whole range integrates the latest technological innovations and meets following expectations:

- Silence.
- Respect of environment.
- Simplicity of installation and reliability.



DESCRIPTION

The basic design of **CONDENCIAT CD** follows that of **AQUACIAT LD** chillers.

- The Unit conforms to norms EN 60-204 - EN 378-2 and conforms to directives :
- 98/37 CEE
- CEM 89/366/CEE modified 92/31/CEE - 93/68/CEE
- DESP 9723 CEE
- BT 73/23 CEE modified 93/68/CEE

■ Hermetic scroll compressors

- Motor cooled by suction gas.
- Internal motor protection by winding sensor.
- Mounted on resilient mounts.

■ Air cooled condenser

- Copper pipes and mechanically bonded aluminium fins coils.
- Direct drive propeller fan(s) streamlined blades
- 2 speed motor - IP 55, class F.
- Coil protection grid (models 80 to 300)

■ Control and safety devices

- HP safety by manual reset pressostats.

- LP safety :

- by automatic pressure switch
- Condensing pressure control allowing an operation down to •15 °C outside :
- by automatic HP pressure switch
- Short-cycle protection

■ Terminal strips for remote capacity control (compressors)

■ Automacity control on terminals

■ Electrical box

The entire electrical assembly box, containing all the electrical components, allows for complete control of the machine in relation to the commands received by the capacity control of the installation (not provided).

The electric box includes :

- Power circuit and remote control circuit,
- Wiring numbering,
- Main safety switch breaker on front panel with handle,
- Control circuit transformer,
- Circuit breakers protections on power and control circuits,
- Compressor(s) motor(s) contactor(s),
- Main earthing strip,
- Free contacts for field wiring signals report.

OPTIONS

■ High and low pressure gauge panel

■ Coil treatment

- Polyurethane coated fins
- BLYGOLD POLUAL treatment

■ Phase switch

■ Soft starter

■ Refrigerant circuit flexible connections kit

OPERATING LIMITS

EVAPORATION TEMPERATURE °C	Mini	Maxi	CONDENSER AIR TEMPERATURE °C	Mini	Maxi
	-10	+10		-15	+46

Specific operating limits are defined for each model in the cooling capacities tables.
Storage temperature or unit stopped : 50 °C maxi.



Condensing units

TECHNICAL CHARACTERISTICS

CD			100 V	120 V	150 V	180 V	200 V	240 V	300 V		
Standard version	Cooling capacity (1)	kW	25.6	28.3	37	44.1	49.9	57.7	73.2		
	Input power (2)	kW	8.7	10	13	14	17	20	27		
Low Noise version	Cooling capacity (1)	kW	24.3	26.7	34.4	41.6	45.6	55.7	70.2		
	Input power (2)	kW	9.04	10.6	14.1	15.2	18.6	20.3	27.6		
Compressor	Type		SCROLL								
	Number		1			2					
	Rotation speed	rpm	2900								
	R410A refrigerant charge	kg	No refrigerant (nitrogen charge) - 1890								
	Capacity control	%	100-0			100-50-0					
Suction circuit (low pressure)	Number		1								
	Balance circuit 1 / circuit 2	%	100 / 0								
	Evaporating temperature min./maxi	°C	-10 / +10								
Air cooled condenser	Fans		Helicoid direct drive								
	Number of fans		1 x 800								
	Rotation speed		STANDARD version 750 rpm								
	Air flow	m ³ /h	16700		15500		16100		24000		
	Motor unit power	kW	1 x 0.9			1 x 1.7					
	Rotation speed		LOW NOISE version 500 rpm								
	Air flow	m ³ /h	10800		9700		10800		18000		
Motor unit power	kW	1 x 0.46			1 x 1.2						
Standard version	Lw / Lp (3)	dB(A)	80/49		80/49		81/50		86/54		88/56
Low Noise version	Lw / Lp (3)	dB(A)	75/44		77/46		78/47		81/49		83/51

CD			350 V	400 V	500 V	540 V	600 V	700 V		
Standard version	Cooling capacity (1)	kW	87.9	97.8	121	124	144	164		
	Input power (2)	kW	29	35	42	46	53	61		
Low Noise version	Cooling capacity (1)	kW	85.6	93.8	116	120	138	159		
	Input power (2)	kW	30.7	35.5	43.6	47	54.9	62.3		
Compressor	Type		SCROLL							
	Number		2			4				
	Rotation speed	rpm	2900							
	R410A refrigerant charge	kg	No refrigerant (nitrogen charge) - 1890							
	Capacity control	%	100-43-0	100-37-0	100-50-0	100-72-50-22-0	100-75-50-25-0	100-78-50-22-0		
Suction circuit (low pressure)	Number		1			2				
	Balance circuit 1 / circuit 2	%	100 / 0			50 / 50				
	Evaporating temperature min./maxi	°C	-10 / +10							
Air cooled condenser	Fans		Helicoid direct drive							
	Number of fans		2							
	Rotation speed		STANDARD version 900 rpm							
	Air flow	m ³ /h	44000		42000		41000		44000	
	Motor unit power	kW	2 x 1.7			2 x 1.8		2 x 1.7		
	Rotation speed		LOW NOISE version 750 rpm							
	Air flow	m ³ /h	32000		29000		30500		35000	
Motor unit power	kW	2 x 1.2			2 x 1.1					
Standard version	Lw / Lp (3)	dB(A)	89/57		90/58			91/59		
Low Noise version	Lw / Lp (3)	dB(A)	83/51			85/53				

(1) Cooling capacity based on +2 °C evaporating temperature and 35 °C outdoor air temperature

(2) Input power (compressors + fan motors)

(3) Lw : Total acoustic power level - Lp : Total acoustic pressure level free field at 10m from unit 1.50m from ground ISO 3744

ELECTRICAL CHARACTERISTICS

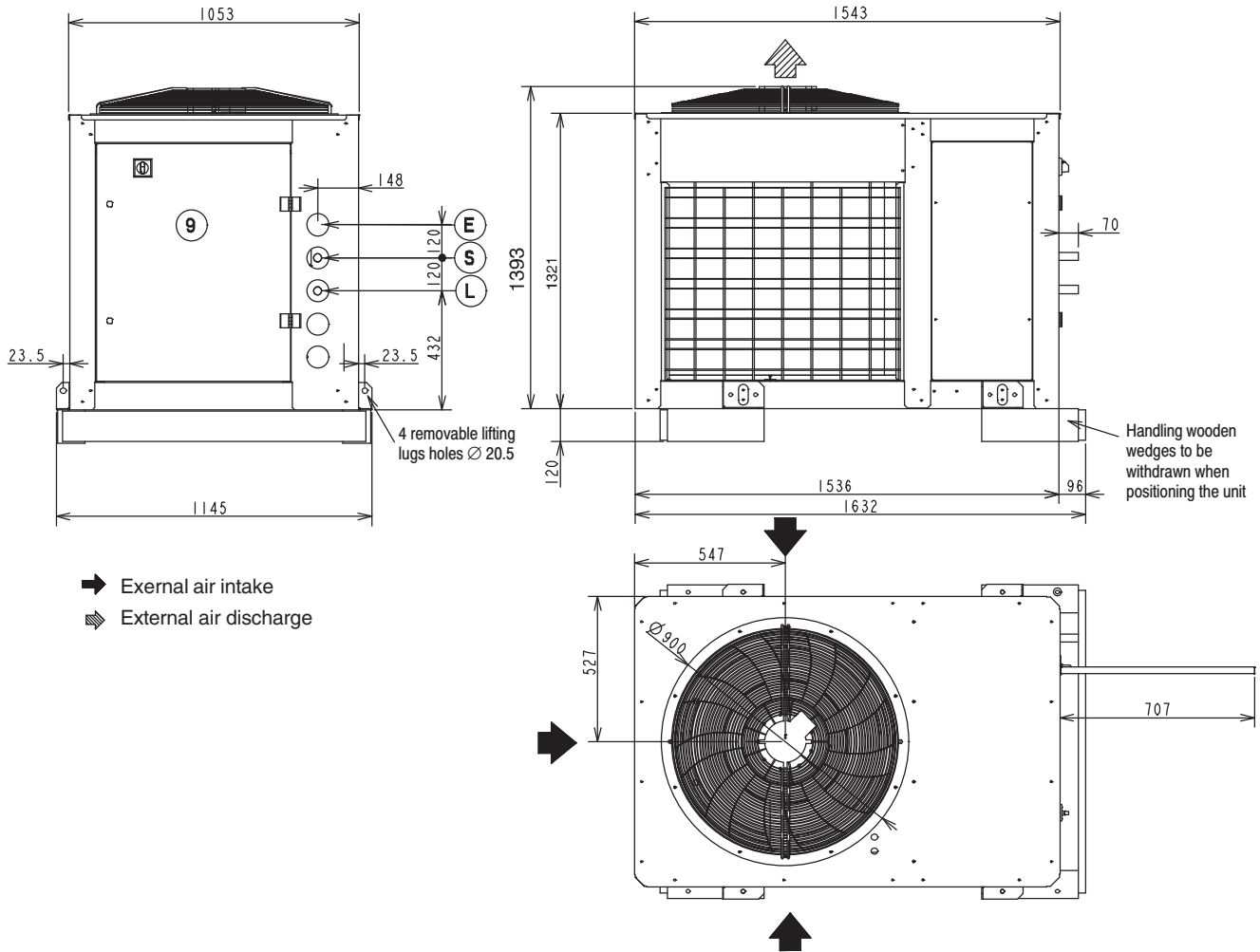
CD	100V	120V	150V	180V	200V	240V	300V	350V	400V	500V	540V	600V	700V	
Main electric supply	3 ph - 50 Hz - 400 V (+6%/-10%) + Earth													
Control voltage	1 ph - 50 Hz - 230 V (+6%/-10%) -- Mounted transformer													
Starting current	A	118	135	198	130	143	149	230	256	303	320	276	286	325
SOFT START option starting current	A	70	81	118	83	90	104	146	163	191	209	144	202	237
Breaking capacity (in neutral TN-NN)	kA	15		10	15			10	10	35	10			
Maxi wires section	mm ²	10		35			70			50			95	
Maxi running current (1)	A	22.7	24.8	30.9	33.0	43.4	49.6	60.0	72.0	82.0	104.0	110.0	120.0	138

(1) Current for wires design



DIMENSIONS

CONDENCIAT CD 100 - 150



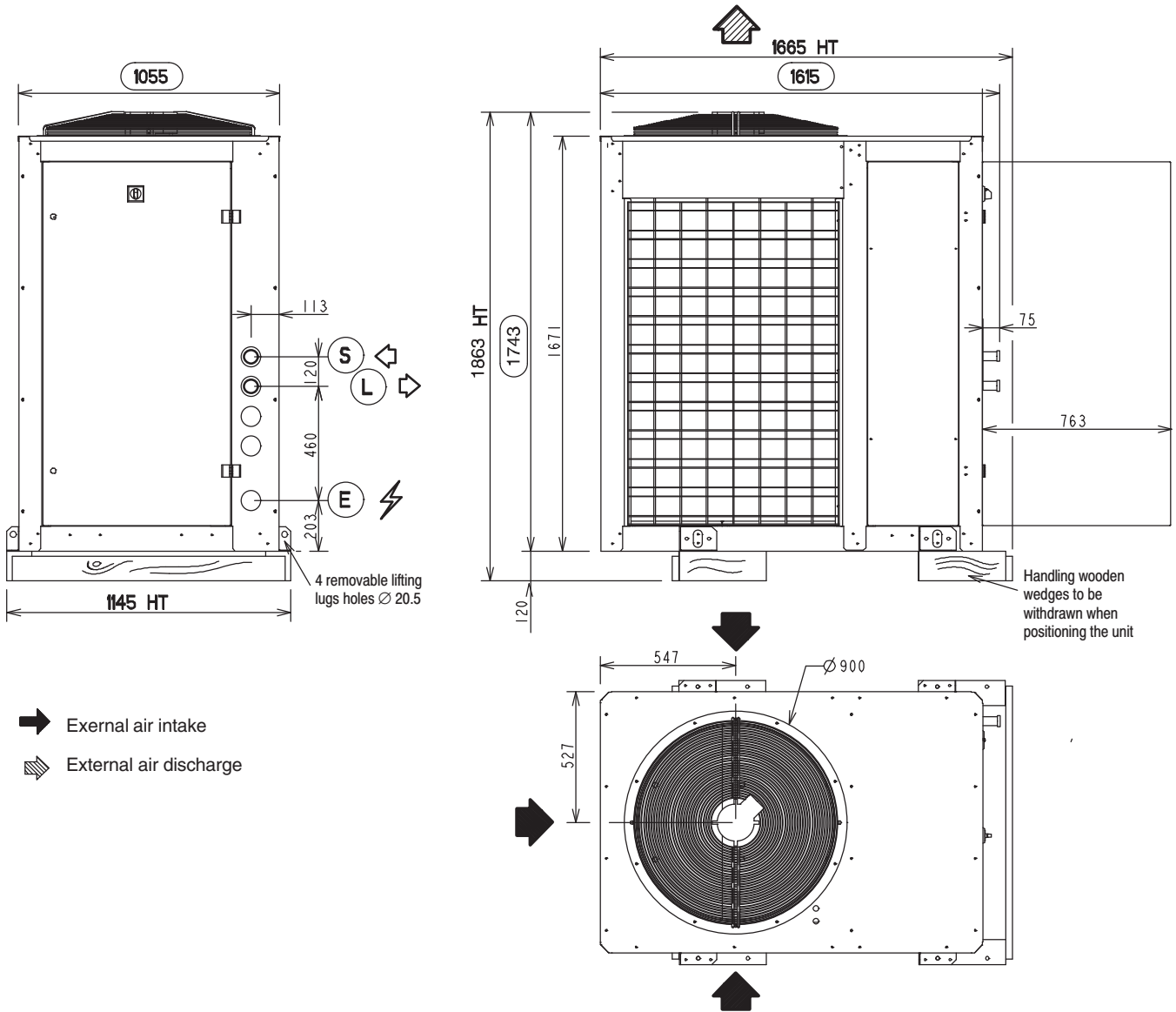
CD	100	120	150
E = \varnothing		80	
Suction S = \varnothing		1" 3/8	1" 5/8
Liquid L = \varnothing		7/8"	
Mass kg empty	290		350



Condensing units

DIMENSIONS

CONDENCIAT CD 180 - 300

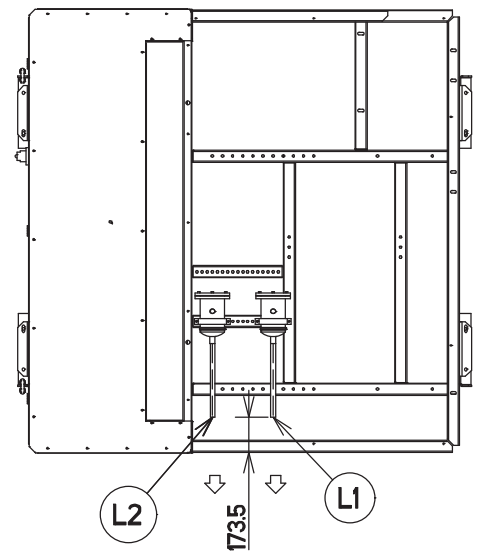
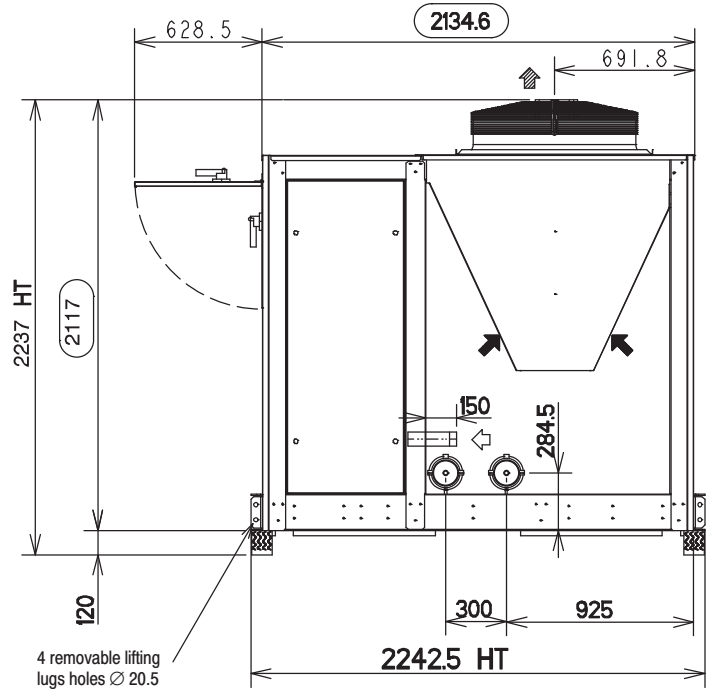
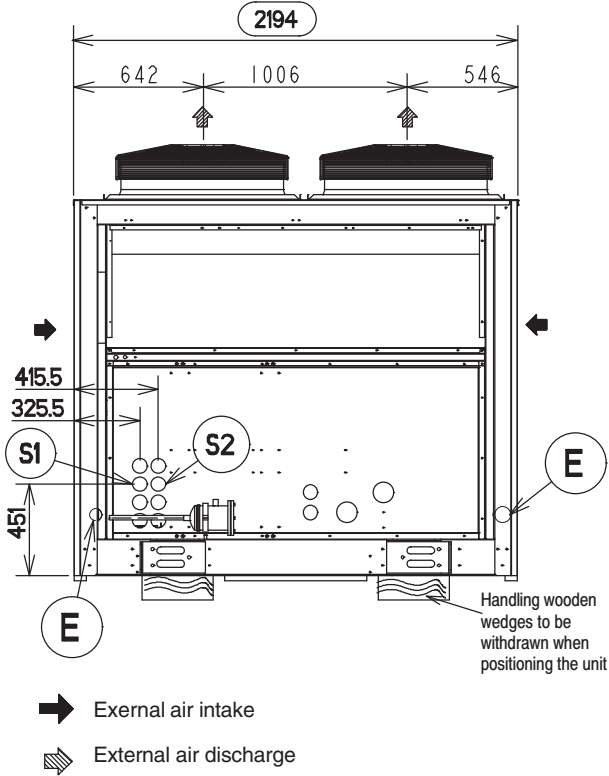


- External air intake
- External air discharge

CD	180	200	240	300
E = Ø		80		
Suction S = Ø		1" 5/8		2" 1/8
Liquid L = Ø		1" 1/8		
Mass kg empty	460		465	575

DIMENSIONS

■ **CONDENCIAT CD 350 - 500**



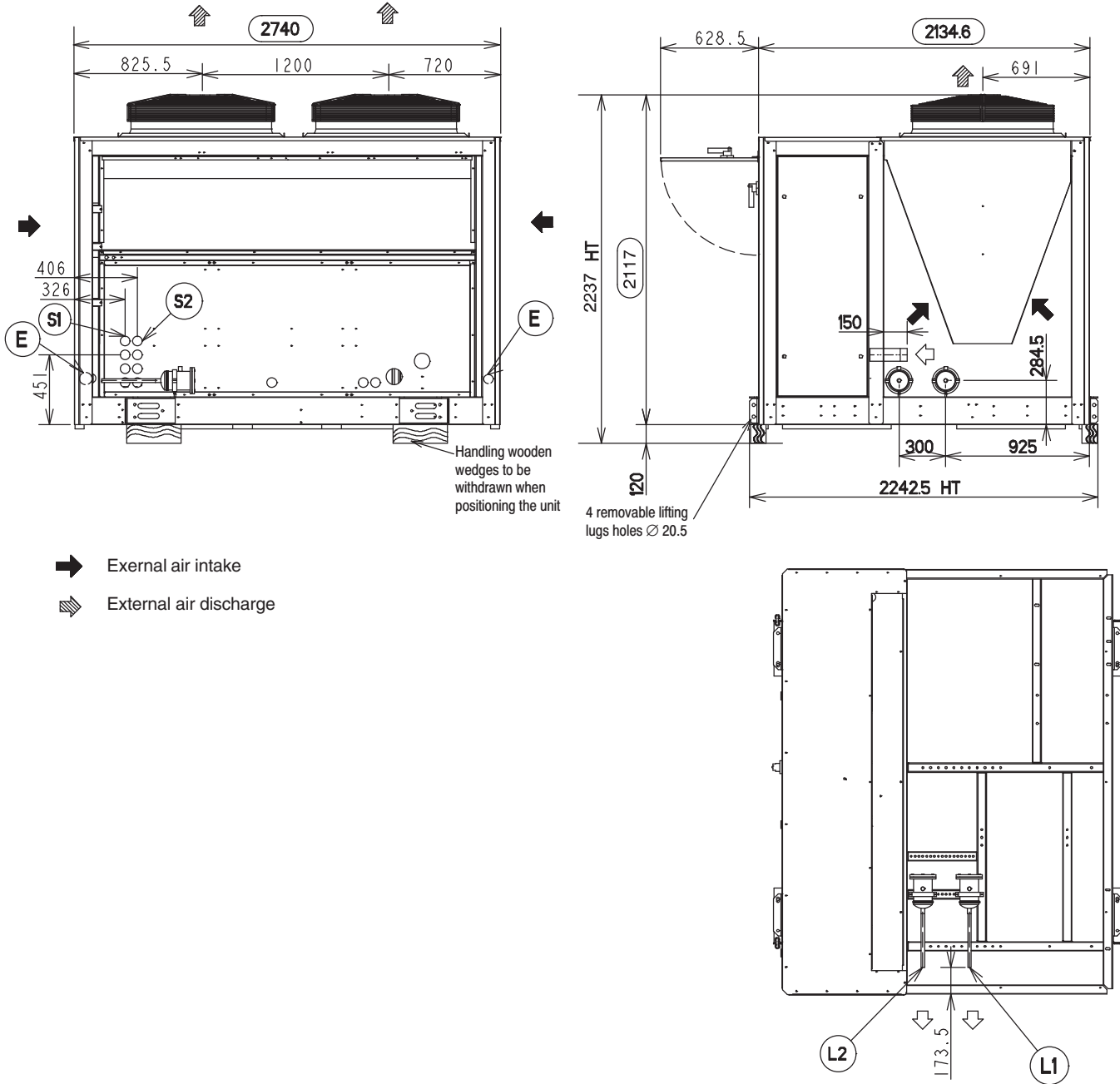
CD	350	400	500
E = \varnothing		60	
Suction S = \varnothing		2" 1/8	2 x 2" 1/8
Liquid L = \varnothing		1" 1/8	2 x 1" 1/8
Mass kg empty	983	1082	1090



Condensing units

DIMENSIONS

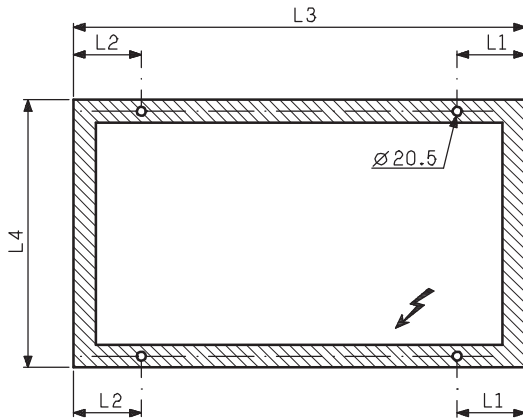
CONDENCIAT CD 540 - 700



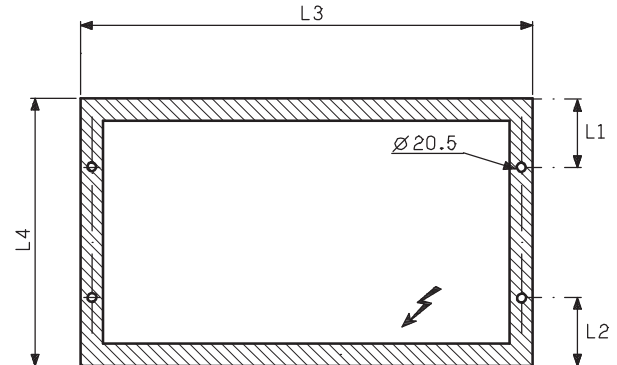
CD	540	600	700
E = \varnothing		60	
Aspiration S = \varnothing		2 x 2" 1/8	
Liquid L = \varnothing		2 x 1" 1/8	
Mass kg empty	1360	1499	1676

FIXATION OF CHASSIS TO THE GROUND

CONDENCIAT CD



CD 100 V to 300 V



CD 350 V to 700 V

The fixation of chassis to the ground is possible (mounts with bolts not supplied by CIAT) hardness to be defined according to the weight and gravity center of the unit.

CD	100V	120V	150V	180V	200V	240V	300V	350V	400V	500V	540V	600V	700V
L1				316					281			405	
L2				316					281			281	
L3				1540					2185			2735	
L4				1044					2123			2123	

RECOMMENDATIONS FOR INSTALLATION

■ Location

- CD series CONDENCIAT units are designed to be positioned outside, on the ground or on the roof.
- In all cases, access to the units must be made easy to carry out connections and maintenance.
- Provide a clearance of 1 to 1.5 metres around the unit.
- No obstacles should block the air intake on the coil and at the fan outlet .
- Study the installation of the unit carefully, choose a location that is compatible with the environmental requirements (noise level, integration on site, etc.).

■ Electrical connections

These must be made in compliance with the current regulations and standards and in compliance with the electrical diagram and the instructions in the maintenance manual.

Work to be performed on site:

- Connect the power supply, power, earth connector to the input terminals.
- Make the respective connections between the thermostat, electrical valve, external safety device, etc., and the corresponding connection terminals on the electrical panel.

Note : The output of the power lines must be equipped with an isolating switch or a motor circuit breaker (to be provided for by the installer).

Important : When the unit is in operation, the electrical cabinet must always be switched on to enable, during shut down, the compressor casing to be heated and thus make the next start-up easier.

For the first start-up, or following a prolonged shut down, the electrical cabinet should be switched on several hours before the unit is started up.

■ Refrigeration connections

The work is to be performed according to the strictest professional standards and generally includes:

- Thorough study of the line (slope, trap or diameter) for an easier oil return to the compressor.
 - Fitting of refrigeration lines between the coil and CONDENCIAT, intake and fluid pipes.
 - Fitting of refrigeration accessories on the direct expansion coil (pressure reducing valve, electrical valve). For CIAT supplies and services, this equipment is fitted in the workshop.
 - The length of the connections between the equipment must always be as short as possible (maximum developed length : 15 m including 6 m of slope). In the event of doubt, contact our technical departments.
 - Insulation of the intake pipe.
 - Vacuum draining of the circuit, loading and start-up.
 - The assembly of the condensing group, connecting piping and evaporator must be carried out in conformity with the European directive concerning the equipments under pressure (DEP) N° 97/23/CE.
- The CIAT condensing unit and evaporators conform to this directive.
- The units must be connected by antivibratil sleeves (supplied by CIAT as an option).

■ Maintenance

- Comply with the maintenance manual.
- **Take out a maintenance contract.**