



*High energy efficiency with **R410A**  
**Compact and quiet**  
**Scroll** compressors  
**Brazed-plate** heat exchangers  
**Self-adjusting**  
**electronic control***



*Cooling capacity: 20 to 170 kW  
Heating capacity: 20 to 180 kW*



**Cooling**



**Cooling or heating**



**Hydraulic module**



**Heat recovery**



## USE

**AQUACIAT2 LD-LDC-LDH** and **ILD-ILDC-ILDH** series packaged water chillers or heaters with air cooled condenser are medium-capacity units specifically designed for heating and air conditioning applications in offices, healthcare facilities, administration, shopping centres and the residential sector.

These packaged units are designed for outdoor installation and require no special protection against adverse weather conditions.

An optional XTRAFAN version enables installation with ductable fan(s), if required, if there is a risk of air recycling, or for sound insulation on site.

To operate in heating or cooling mode, they use the outdoor air as the only external source; this allows heat to be evacuated in summer and thermal energy to be supplied for heating in winter.

Connected to an underfloor heating or cooling system, fan coil units or an air handling unit, the reversible AQUACIAT2 ILDC-ILDH series is an extremely easy way to heat and air condition buildings.

Each unit is delivered fully assembled, wired (control and power), charged with refrigerant and factory tested.

Simply make the necessary electrical and hydraulic connections, and your unit is ready to operate.

## RANGE

**AQUACIAT2 LD series**

Cooling only versions without hydraulic system,

**AQUACIAT2 LDC-LDH series**

Cooling only versions with hydraulic system (circulation pump only or pump and buffer tank).

**AQUACIAT2 ILD series**

Reversible air/water versions without hydraulic system,

**AQUACIAT2 ILDC-ILDH series**

Reversible air/water versions with hydraulic system (circulation pump only or pump and buffer tank).

## DESCRIPTION

**AQUACIAT2 LD-LDC-LDH cooling only or ILDC-ILDH reversible** series models are supplied with the following components as standard:

- Air-cooled condenser with axial fan motor assembly,
- Chilled-water evaporator (or hot water condenser on reversible models),
- Chilled water or hot water capacity control,
- Control, automatic operation and startup box:
  - . Power supply: 3~50Hz 400V (+10%/-10%) + Earth
  - . 1~50Hz 230V control circuit (transformers fitted as standard on the machine),
- Casing for outdoor installation.

■ Complies with European EC directives

- Machinery 2006/42/EC
- EMC directive (2004/108 EC)
- Pressure equipment PED 97/23 EC:
  - category 2 for LD - LDC - LDH 80V to 700V
  - category 2 for ILDC - ILDH 80V to 700V
- Low voltage (2006/95/EC)

■ Complies with standards

- EN 60-204, EN 378-2 (NFC 15-100, France)



Models 80 to 300

## DESCRIPTION

<b>ILD</b>	>	Reversible version	<b>H</b>	>	Hydraulic with pump and buffer tank
<b>LD</b>	>	Cooling only version	<b>540</b>	>	Unit size
<b>C</b>	>	Hydraulic with pump only	<b>V</b>	>	R410A refrigerant

## MAIN COMPONENTS

■ Casing

- Removable galvanised metal panels,
- RAL 7024 and RAL 7035 lacquer coating

■ Hermetic Scroll compressors

- Built-in electric motor cooled by suction gases
- Motor protected by internal winding thermostat
- Placed on anti-vibration mounts

■ Evaporator

- Brazed-plate exchanger(s)
- End and inside plates in AISI 316 stainless steel
- High-performance, optimised plate patterns
- Thermal insulation

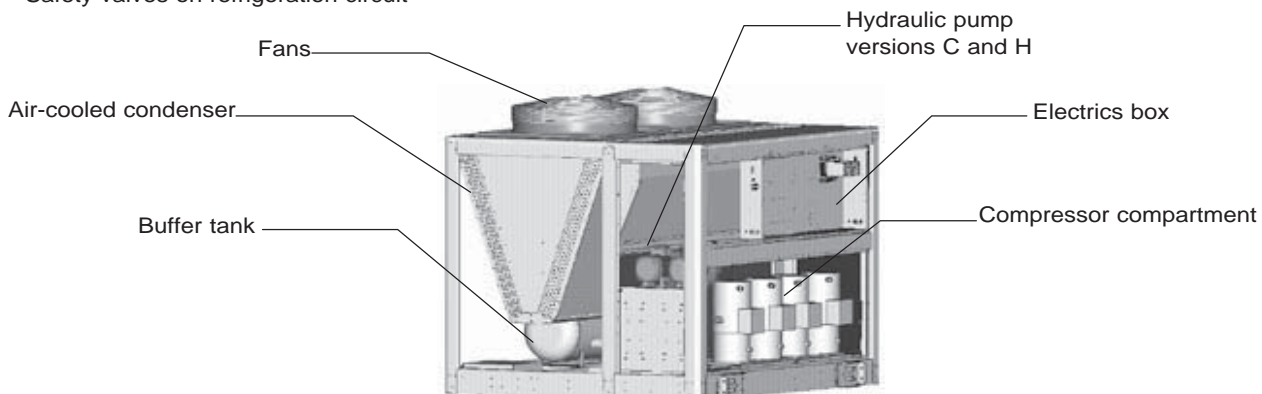
■ Control functions and safety devices

- Water flow control
- Thermostatic expansion valve(s)
- Refrigerant high and low-pressure safety devices
- Safety valves on refrigeration circuit

■ Condenser

- High efficiency air-cooled exchanger, aluminium fins with optimised profiles and grooved copper tubes
- Condenser or evaporator mode heat exchanger on ILDC-ILDH reversible heat pump versions
- Axial fan(s) with aluminium airfoil blades
- 2-speed motors - IP 54, class F

- Temperature and pressure sensors
- Water flow controller, evaporator fitted
- Unit start-up sequence



### ■ Electrics box

The fully wired electrics box which houses all the electrical components and the electronic CPU board, controls the entire unit, monitors its operation, adjusts water setpoints and interfaces with an external control system.

It comprises:

- Control and power circuits,
- Wire numbering,
- Main safety switch with handle on front,
- Control circuit transformer,
- Circuit breakers on the power and control circuits,
- Compressor and motor switches,
- Main earth connection,
- Microprocessor-controlled electronic control unit,
- Alarm or information signals on free terminals.

## ELECTRONIC CONTROL MODULE



### Connect 2

CIAT electronic control module with microprocessor and CPU, with central automatic operation and access to internal operation states.

#### ■ Features:

- Start, stop, reset or remote control,
- Cooling or heating mode selector,
- Outputs. RS485 output for CMS link (ModBus-JBus):
  - . Board adapter for additional voltage-free contacts,
  - . Remote control adapter (optional)
- Multilingual analogue LCD and LEDs.

#### ■ Functions:

- Operation information displayed via:
  - . Multilingual clear-text messages
  - . Direct temperature and pressure readings

- Complete management of compressors with start-up sequence, timer and runtime balancing,
- Self-adjusting and proactive functions with adjustment of settings drift control,
- Series stage capacity-reduction system on multi-compressors according to cooling and heating demands based on water temperatures,
- Monitoring of internal operation parameters,
- Pump standby based on demand,
- Second setpoint management,
- Direct display of water temperature and pressure,
- Diagnosis of operation and fault states:
  - HP/LP, water flow rate, compressor motor(s), frost protection
- Short-cycle protection,
- Remote management and remote monitoring,
- Master/Slave Management allows two machines to be controlled on a single water loop, by alternating the Master and Slave according to the running time,
- Setpoint adjustable by 4-20 mA signal,
- Weekly programming.

## OPTIONS

### ■ Main options

- Additional voltage-free contact boards,
- Remote control unit,
- Phase controller = rotation direction, missing phases, over- and undervoltage (factory fitted on 350 to 700 versions),
- Soft start system (factory fitted on 350 to 700 versions),
- Frost protection,
- Fan speed regulator (factory fitted on 350 to 700 versions)
- 800-micron water filter supplied as standard on LDC-LDH or ILDC-ILDH versions, and as an option on LD-ILD versions,
- Evaporator and condenser flexible couplings,
- Hydraulic control kit including manifold pressure gauges, control valve and shut-off valve,
- Pump intake minimum safety (factory fitted on sizes 350 to 700),
- Dual pump for 180 to 700 versions (factory fitted on 350 to 700 versions),
- Refrigerant leak detection (factory fitted on sizes 350 to 700),
- 15 kW extra heater kit (ILD, ILDC, ILDH 80 to 150).
- 15-30-45-60 kW extra heater module kit (ILD, ILDC, ILDH 180 to 300),
- MULTICONNECT management of up to 8 units,
- Management of 4 auxiliary heating devices,
- LONWORKS protocol,
- BACNET protocol,
- Container handling kit (350 to 700).



## STANDARD AND OPTIONAL EQUIPMENT

	LD	LDC-LDH	ILD	ILDC-ILDH
	COOLING ONLY		HEAT PUMP	
Power supply: 400 V, 3-Phase, 50 Hz, without neutral, with transformer	Std	Std	Std	Std
Coil protection screen	Std ➔ 300	Std ➔ 300	Std ➔ 300	Std ➔ 300
Resilient mounts	Std	Std	Std	Std
MODBUS-JBUS RS 485 and MODBUS-TCP Ethernet communication interface	Std	Std	Std	Std
Main disconnect switch	Std	Std	Std	Std
Water flow regulator	Std	Std	Std	Std
Additional voltage-free contacts board	O	O	O	O
Remote control (remote control console)	O	O	O	O
Phase monitor (reversal, loss, over- and undervoltage)	O	O	O	O
Soft start	O	O	O	O
Frost protection	O	O	O	O
All-season operation (min. outdoor temp. -15°C)	Std	Std	Std	Std
Condenser ventilation variable speed drive (min. outdoor temp. -20°C)	O	O	O	O
Partial heat recovery - Desuperheater	O	O	O	O
ALTENA coil coating	O	O	O	O
Polyurethane coated coil fins	O	O	O	O
800-micron water filter	O	Std	O	Std
Hydraulic control kit (manifold, control & shut-off valve)	O	O	O	O
Hydraulic hoses	O	O	O	O
Pump intake minimum safety	O / 80 ➔ 300* 350 ➔ 700**	O / 80 ➔ 300* 350 ➔ 700**	O / 80 ➔ 300* 350 ➔ 700**	O / 80 ➔ 300* 350 ➔ 700**
Double pump	-	O / 180 ➔ 700	-	O / 180 ➔ 700
Refrigerant leak detection	O / 80 ➔ 300* 350 ➔ 700**	O / 80 ➔ 300* 350 ➔ 700**	O / 80 ➔ 300* 350 ➔ 700**	O / 80 ➔ 300* 350 ➔ 700**
Additional technical compartment (without equipment)	O / 180 ➔ 300	O / 180 ➔ 300	O / 180 ➔ 300	O / 180 ➔ 300
15 kW auxiliary electric heater kit	-	-	O / 80 ➔ 150	O / 80 ➔ 150
15 - 30 - 45 - 60 kW auxiliary electric heater module kit	-	-	O / 180 ➔ 300	O / 180 ➔ 300
MULTICONNECT multiple unit management	O	O	O	O
External auxiliary heating management board (4-stage)	-	-	O	O
XTRAFAN fan system	O / ➔ 700	O / ➔ 700	O / ➔ 700	O / ➔ 700
Reinforced insulation, low-temperature glycol/water mix (0°C to -12°C)	O / 350 ➔	O / 350 ➔	O / 350 ➔	O / 350 ➔
LONWORKS / BACNET gateway	O	O	O	O
Kit - Container handling	O / 350 ➔ 700	O / 350 ➔ 700	O / 350 ➔ 700	O / 350 ➔ 700
Optimised high pressure operation (All-season operation with energy optimisation)	O / 350 ➔ 700	O / 350 ➔ 700	-	-
Electronic expansion valve	O / 350 ➔ 700	O / 350 ➔ 700	-	-
Total heat recovery	O / 350 ➔ 700	O / 350 ➔ 700	-	-
Shell and tube exchanger	O / 350 ➔ 700	-	-	-

Std: Supplied as standard

O: Option

-: Not available

\* 80-->300 Kit supplied separately

\*\* 350 -->700 Factory fitted

**Note:** Some technical options not listed above may be added on special request (please contact us).

## TECHNICAL CHARACTERISTICS - COOLING ONLY



AQUACIAT LD - LDC - LDH		80V	90V	100V	120V	150V	180V	200V	240V	300V	
<b>Net cooling capacity (1)</b>	<b>kW</b>	<b>20.50</b>	<b>23.37</b>	<b>27.28</b>	<b>30.43</b>	<b>38.24</b>	<b>46.18</b>	<b>53.20</b>	<b>60.10</b>	<b>75.73</b>	
Net absorbed power	kW	6.73	7.73	8.74	10.10	13.88	14.77	17.74	20.44	28.07	
Net energy efficiency rating (EER) (2)		3.04	3.02	3.12	3.01	2.75	3.12	2.99	2.93	2.69	
Net seasonal energy efficiency rating (ESEER) LN		3.68	3.66	3.78	3.63	3.18	4.26	4.28	4.10	4.01	
Net seasonal energy efficiency rating (ESEER) HP		3.62	3.63	3.81	3.69	3.29	4.36	4.31	4.01	4.01	
Lw / Lp (3) (High Performance version - HP)	dB(A)	75/43		77/45		78/46	79/47		84/52	87/55	
Lw / Lp (3) (Low Noise version - LN)	dB(A)	71/39		73/41		75/43	77/45	76/44	80/48	81/49	
<b>Compressor</b>		Hermetic SCROLL (2 900 rpm)									
Start-up mode		Direct in line in series									
Quantity		1				2					
Power control	%	100-0				100-50-0					
Refrigerant oil type		Polyol ester POE 3MAF (32 cst)									
Oil capacity	l	2.50	3.25	3.25	3.25	4.14	6.50	6.50	6.50	8.30	
<b>No. of refrigerating circuits</b>		1									
Refrigerant (GWP)		R410A (GWP = 2 088)									
Refrigerant charge	kg	3.7	3.9	5.5	5.5	5.2	10.0	10.5	10.2	11.0	
Tonne CO <sub>2</sub> Equivalent	TCO <sub>2</sub> Eq	7.72	8.14	11.48	11.48	10.85	20.88	21.92	21.29	22.96	
<b>Power supply</b>	ph/Hz/V	3~50Hz 400V (+10%/-10%) + Earth									
Machine protection rating		IP 44									
Control circuit voltage	ph/Hz/V	1~50Hz 230V (+10%/-10%) - Transformer fitted									
<b>Evaporator</b>		Brazen-plate exchanger(s)									
Water content	l	1.78	1.78	2.22	2.22	3.11	3.55	4.22	4.77	7.71	
Chilled water outlet temp. (min./max.)	°C	-12 / +18									
Minimum water flow rate	m <sup>3</sup> /h	2.4	2.7	3.1	3.5	4.4	5.4	6.1	6.9	8.8	
Maximum water flow rate	m <sup>3</sup> /h	7.2	8.3	9.6	10.8	13.4	16.2	18.7	21.3	26.3	
Water connections	∅	Male G 1"1/4		Male G 1"1/2			Male G 2"				
Max. pressure, water end	bar	10 bar (LOD)/4 bar (LDC-LDH)									
<b>Air-cooled condenser</b>		Finned heat exchanger									
Fan ∅	mm	800									
No. x Motor output, High Performance (HP) version	no. x kW	1x0.8	1x0.8	1x0.8	1x0.8	1x0.8	1x0.8	1x0.8	1x1.6	1x1.6	
Qty x Motor output Low Noise version - LN	no. x kW	1x0.5	1x0.5	1x0.5	1x0.5	1x0.5	1x0.5	1x0.5	1x1.1	1x1.1	
Air flow, High Performance - HP	m <sup>3</sup> /h	15500	15500	16100	16100	16100	16200	16200	21700	21700	
Air flow, Low Noise - LN	m <sup>3</sup> /h	12300	12300	13100	13100	13100	13200	13200	17600	17600	
Min water volume (ILD - ILDC)	l	114	130	155	173	229	131	149	173	209	
Tank volume, model H	l	100			150			200			
Expansion vessel, C & H	l	6						18			
Standard pump	no.	44	44	44	44	45	40	40	40	41	
Height (excluding mounts)	mm	1170			1393			1743			
Length (standard version)	mm	1995			1995			1995			
Length (version C)	mm	1995			1995			1995			
Length (version H)	mm	1995			1995			2676			
Depth	mm	1055			1055			1055			
Weight (empty, standard version)	kg	347	350	365	367	449	569	575	581	711	
Weight (empty, version C)	kg	365	368	383	385	467	616	619	625	756	
Weight (empty, version H)	kg	390	393	407	409	492	813	816	822	953	
Storage temperature	°C	+ 50°C									

(1) Capacities on HIGH PERFORMANCE version based on: Net conditions, cooling: +12°C/+7°C and condenser air inlet temperature +35°C  
EN14511-2013 EUROVENT conditions

(2) Net value EER (excluding pump)

(3) Lw: Overall sound power level as per standard ISO3744

Lp: Overall pressure level measured at 10m in a free field, calculated using the formula  $Lp=Lw-10 \log S$

(4) Based on selection

**CHARACTERISTICS - COOLING ONLY**

AQUACIAT LD - LDC - LDH		350V	400V	500V	540V	600V	700V	
<b>Net cooling capacity (1)</b>	<b>kW</b>	<b>91.95</b>	<b>100.81</b>	<b>125.65</b>	<b>141.08</b>	<b>154.23</b>	<b>170.45</b>	
Net absorbed power	kW	30.23	35.02	43.17	46.31	53.73	62.95	
Net energy efficiency rating (EER) (2)		3.04	2.87	2.91	3.04	2.87	2.70	
Seasonal energy efficiency rating (ESEER)	Net LN	4.10	4.12	3.43	4.08	3.85	3.78	
Seasonal energy efficiency rating (ESEER)	Net HP	4.08	4.05	3.48	4.04	3.89	3.86	
Lw / Lp (3) (High Performance version - HP)	dB(A)	87/55	88/56	88/56	88/56	89/57	89/57	
Lw / Lp (3) (Low Noise version - LN)	dB(A)	81/49	81/49	83/51	83/51	83/51	83/51	
<b>Compressor</b>		Hermetic SCROLL (2900 rpm)						
Start-up mode		Direct in line in series						
Quantity		2	2	2	4	4	4	
Power control	%	100-57-43-0	100-63-37-0	100-50-0	100-78-72-55-50-45-28-22-0	100-75-50-25-0	100-78-71-57-50-43-28-21-0	
Refrigerant oil type		Polyester POE 3MAF (32 cst)						
Oil capacity	l	8.8	9.8	11.2	14.8	16.6	17.6	
<b>No. of refrigerating circuits</b>		1		2				
Refrigerant (GWP)		R410A (GWP = 2088)						
Refrigerant charge	kg	22	22	12 +12.6	15.3 + 15.6	15.2 + 15.7	17 + 17.4	
Tonne CO <sub>2</sub> Equivalent	TCO <sub>2</sub> Eq	45.93	45.93	51.36	64.51	64.51	71.82	
<b>Power supply</b>	ph/Hz/V	3~50Hz 400V (+10%/-10%) + Earth						
Machine protection rating		IP 44						
Control circuit voltage	ph/Hz/V	1~50Hz 230V (+10%/-10%) - Transformer fitted						
<b>Evaporator</b>		Brazen-plate exchanger(s)						
Water content	l	6.4	7.5	9.3	9.3	10.6	11.8	
Chilled water outlet temp. (min./max.)	°C	-12 / +18						
Minimum water flow rate	m <sup>3</sup> /h	10.7	11.8	17.3	18.1	20.8	20.8	
Maximum water flow rate	m <sup>3</sup> /h	32.5	35.3	43.6	48.7	53.0	59.0	
Water connections	∅	DN 80 flange			DN80 flange			
Max. pressure, water end	bar	10 bar (LOD)/4 bar (LDC-LDH)						
<b>Air-cooled condenser</b>		Finned heat exchanger						
Fan ∅	mm	800						
Number x Motor output High Performance (HP version)	no. x kW	2x1.7	2x1.7	2x1.7	2x1.6	2x1.6	2x1.6	
Qty x Motor output Low noise version - LN - XLN	no. x kW	2x1.1	2x1.1	2x1.1	2x1.1	2x1.1	2x1.1	
High Performance air flow- HP	m <sup>3</sup> /h	37 600	37 600	40 000	41 500	41 500	41 500	
Air flow, Low Noise - LN - XLN	m <sup>3</sup> /h	29 000	29 000	31 000	33 200	33 200	33 200	
Min water volume (ILD - ILDC)	l	220	213	357	164	207	203	
Tank volume, model H	l	250						
Expansion vessel, C & H	l	18						
Standard pump	no.	(4)						
Height (excluding mounts)	mm	2117			2117			
Length (standard version)	mm	2190			2740			
Length (version C)	mm	2190			2740			
Length (version H)	mm	2190			2740			
Depth	mm	2129			2129			
Weight (empty, standard version)	kg	1064	1163	1245	1530	1666	1732	
Weight (empty, version C)	kg	1162	1268	1315	1725	1845	1911	
Weight (empty, version H)	kg	1233	1332	1380	1790	1908	1974	
Storage temperature	°C	+ 50°C						

(1) Capacities on HIGH PERFORMANCE version based on: Net conditions, cooling: +12°C/+7°C and condenser air inlet temperature +35°C EN14511-2013 EUROVENT conditions  
(2) Net value EER (excluding pump)

(3) Lw: Overall sound power level as per standard ISO3744  
Lp: Overall pressure level measured at 10m in a free field, calculated using the formula Lp=Lw- 10 log S  
(4) Based on selection



## TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMPS



AQUACIAT ILD - ILDC - ILDH		80V	90V	100V	120V	150V	180V	200V	240V	300V	
<b>Net cooling capacity (1)</b>	<b>kW</b>	<b>20.06</b>	<b>22.72</b>	<b>27.21</b>	<b>30.26</b>	<b>40.22</b>	<b>46.77</b>	<b>53.16</b>	<b>61.50</b>	<b>75.29</b>	
Net absorbed power	kW	7.03	8.17	9.29	10.83	13.27	15.52	18.64	21.09	27.90	
Net energy efficiency rating (EER) (2)		2.85	2.77	2.92	2.79	3.02	3.01	2.85	2.91	2.69	
Seasonal energy efficiency rating (ESEER)	Net LN	3.16	3.03	3.17	2.95	3.11	4.09	3.93	3.83	3.66	
Seasonal energy efficiency rating (ESEER)	Net HP	3.20	3.10	3.30	3.13	3.38	4.07	4.05	3.75	3.70	
Lw / Lp (3) (High Performance version - HP)	dB(A)	77/45		79/47		80/48	81/49		86/54	89/57	
Lw / Lp (3) (Low Noise version - LN)	dB(A)	73/41		75/43		77/45	79/47	78/46	82/50	83/51	
<b>Net heating capacity (1)</b>	<b>kW</b>	<b>20.84</b>	<b>23.38</b>	<b>28.30</b>	<b>31.85</b>	<b>41.69</b>	<b>48.74</b>	<b>55.25</b>	<b>64.12</b>	<b>81.75</b>	
Net absorbed power	kW	7.14	8.08	9.80	10.95	13.89	15.74	18.25	21.32	26.65	
COP/net COP performance		2.91	2.89	2.88	2.90	3.00	3.09	3.02	3.00	3.06	
<b>Compressor</b>		Hermetic SCROLL (2 900 rpm)									
Start-up mode		Direct in line in series									
Quantity		1				2					
Power control	%	100-0				100-50-0					
Refrigerant oil type		Polyol ester POE 3MAF (32 cst)									
Oil capacity	l	2.50	3.25	3.25	3.25	4.14	6.50	6.50	6.50	8.30	
<b>No. of refrigerating circuits</b>		1									
Refrigerant (GWP)		R410A (GWP = 2088)									
Refrigerant charge	kg	5.2	5.2	6.4	7.1	9.7	12.5	12.7	13.1	13.1	
Tonne CO <sub>2</sub> Equivalent	TCO <sub>2</sub> Eq	10.85	10.85	13.36	14.82	20.25	26.1	26.51	27.35	27.35	
<b>Power supply</b>	ph/Hz/V	3~50Hz 400V (+10%/-10%) + Earth									
Machine protection rating		IP 44									
Control circuit voltage	ph/Hz/V	1~50Hz 230V (+10%/-10%) - Transformer fitted									
<b>Evaporator</b>		Braze-plate exchanger(s)									
Water content	l	1.78	1.78	2.22	2.22	3.11	3.55	4.22	4.77	7.71	
Chilled water outlet temp. (min./max.)	°C	-10 / +18									
Hot water outlet temp. (min./max.)	°C	+30 / +50									
Minimum water flow rate	m <sup>3</sup> /h	2.9	2.9	3.6	3.6	5.1	5.8	6.9	7.8	10.4	
Maximum water flow rate	m <sup>3</sup> /h	6.7	7.4	9.0	10	13.1	15.4	17.6	20.4	24.5	
Water connections	Ø	Male G 1"1/4		Male G 1"1/2			Male G 2"				
Max. pressure, water end	bar	10 bar (ILD)/4 bar (ILDC-ILDH)									
<b>Air-cooled condenser</b>		Finned heat exchanger									
Fan Ø	mm	800									
Number x Motor output High Performance (HP version)	no. x kW	1x0.5	1x0.5	1x0.9	1x0.9	1x0.9	1x0.9	1x0.9	1x1.7	1x1.7	
Qty x Motor output Low Noise version - LN	no. x kW	1x0.35	1x0.35	1x0.46	1x0.46	1x0.46	1x0.46	1x0.46	1x1.2	1x1.2	
Air flow, High Performance - HP	m <sup>3</sup> /h	10800	10800	16700	16700	15500	16100	16100	24000	24000	
Air flow, Low Noise - LN	m <sup>3</sup> /h	8700	8700	10800	10800	9700	10800	10800	18000	18000	
Min water volume (ILD - ILDC)	l	114	130	155	173	229	131	149	173	209	
Tank volume, model H	l	100		150			200				
Expansion vessel, C & H	l	6				18					
Standard pump	no.	44		44	44	45	40	40	40	41	
Height (excluding mounts)	mm	1170			1393			1743			
Length (standard version)	mm	1995			1995			1995			
Length (version C)	mm	1995			1995			1995			
Length (version H)	mm	1995			1995			2676			
Depth	mm	1055			1055			1055			
Weight (empty, standard version)	kg	328	331	366	368	452	611	614	620	756	
Weight (empty, version C)	kg	346	349	384	386	470	648	651	656	789	
Weight (empty, version H)	kg	371	374	409	411	495	845	848	853	986	
Storage temperature	°C	+ 50°C									

(1) HIGH PERFORMANCE version capacities based on net conditions:  
a/ Cooling: +12°C/+7°C and condenser air inlet temperature +35°C - EN14511-2013 EUROVENT conditions  
b/ Heating: hot water outlet +45°C and outdoor air +7°C DB 86%RH

(2) EER or COP in net values (excluding pump)  
(3) Lw: Overall sound power level as per standard ISO3744  
Lp: Overall pressure level measured at 10m in a free field, calculated using the formula Lp=Lw- 10 log S

**TECHNICAL CHARACTERISTICS - REVERSIBLE HEAT PUMPS**

Aquaciat ILD - ILDC - ILDH		350V	400V	500V	540V	600V	700V	
<b>Net cooling capacity (1)</b>	<b>kW</b>	<b>92.41</b>	<b>104.77</b>	<b>127.51</b>	<b>139.23</b>	<b>154.68</b>	<b>162.42</b>	
Net absorbed power	kW	31.78	35.61	44.98	46.76	53.11	60.21	
Net energy efficiency rating (EER) (2)		2.90	2.94	2.83	2.97	2.91	2.69	
Seasonal energy efficiency rating (ESEER)	Net LN	3.71	3.77	3.15	3.99	3.91	3.69	
Seasonal energy efficiency rating (ESEER)	Net HP	3.56	3.70	3.16	3.83	3.81	3.50	
Lw / Lp (3) (High Performance version - HP)	dB(A)	89/57	90/58	90/58	90/58	91/59	91/59	
Lw / Lp (3) (Low Noise version - LN)	dB(A)	83/51	83/51	85/53	85/53	85/53	85/53	
<b>Net heating capacity (1)</b>	<b>kW</b>	<b>95.40</b>	<b>109.25</b>	<b>133.22</b>	<b>147.83</b>	<b>164.68</b>	<b>182.37</b>	
Net absorbed power	kW	31.80	36.45	43.72	48.43	53.68	58.89	
COP/net COP performance		2.99	2.99	3.04	3.05	3.06	3.15	
<b>Compressor</b>		Hermetic SCROLL (2 900 rpm)						
Start-up mode		Direct in line in series						
Quantity		2	2	2	4	4	4	
Power control	%	100-57-43-0	100-63-37-0	100-50-0	100-78-72-55-50-45-28-22-0	100-75-50-25-0	100-78-50-22-0	
Refrigerant oil type		Polyol ester POE 3MAF (32 cst)						
Oil capacity	l	8.8	9.8	11.2	14.8	16.6	17.6	
<b>No. of refrigerating circuits</b>		1			2			
Refrigerant (GWP)		R410A (GWP = 2088)						
Refrigerant charge	kg	21	24	14.0 +14.0	18.0 +18.0	18.2 +19.2	19.5 +19.5	
Tonne CO <sub>2</sub> Equivalent	TCO <sub>2</sub> Eq	43.84	50.11	58.46	75.16	78.09	81.43	
Power supply	ph/Hz/V	3~50Hz 400V (+10%/-10%) + Earth						
Machine protection rating		IP 44						
Control circuit voltage	ph/Hz/V	1~50Hz 230V (+10%/-10%) - Transformer fitted						
<b>Evaporator</b>		Brazed-plate exchanger(s)						
Water content	l	8.68	9.88	10.66	12.48	15.42	15.42	
Chilled water outlet temp. (min./max.)	°C	-10 / +18						
Hot water outlet temp. (min./max.)	°C	+30 / +50						
Minimum water flow rate	m <sup>3</sup> /h	11.7	13.3	17.3	18.1	20.8	20.8	
Maximum water flow rate	m <sup>3</sup> /h	30.7	34.6	41.9	45.9	50.7	50.7	
Water connections	∅	DN 80 flange			DN80 flange			
Max. pressure, water end	bar	10 bar (ILD)/4 bar (ILDC-ILDH)						
<b>Air-cooled condenser</b>		Finned heat exchanger						
Fan ∅	mm	800						
Number x Motor output High Performance (HP version)	no. x kW	2x1.7	2x1.7	2x1.8	2x1.7	2x1.7	2x1.7	
Qty x Motor output Low noise version - LN	no. x kW	2x1.2	2x1.2	2x1.2	2x1.1	2x1.1	2x1.1	
Air flow, High Performance - HP	m <sup>3</sup> /h	44000	42000	41000	44000	44000	44000	
Air flow, Low Noise - LN - XLN	m <sup>3</sup> /h	32000	29000	30500	35000	35000	35000	
Min water volume (ILD - ILDC)	l	220	213	357	164	207	203	
Tank volume, model H	l	250						
Expansion vessel, C & H	l	18						
Standard pump	no.	(4)						
Height (excluding mounts)	mm	2117			2117			
Length (standard version)	mm	2190			2740			
Length (version C)	mm	2190			2740			
Length (version H)	mm	2190			2740			
Depth	mm	2129			2129			
Weight (empty, standard version)	kg	1096	1195	1283	1570	1706	1878	
Weight (empty, version C)	kg	1194	1292	1355	1675	1804	1976	
Weight (empty, version H)	kg	1257	1356	1418	1748	1868	2040	
Storage temperature	°C	+ 50°C						

(1) HIGH PERFORMANCE version capacities based on net conditions:  
a/ Cooling: +12°C/+7°C and condenser air inlet temperature +35°C  
b/ Heating: hot water outlet +45°C and outdoor air +7°C DB 86%RH  
EN14511-2013 EUROVENT conditions  
(2) EER or COP in net values (excluding pump)

(3) Lw: Overall sound power level as per standard ISO3744  
Lp: Overall pressure level measured at 10m in a free field, calculated using the formula Lp=Lw- 10 log S  
(4) Based on selection



## ELECTRICAL CHARACTERISTICS

### ■ Basic unit (excluding pump)

		80V	90V	100V	120V	150V	180V	200V	240V	300V	350V
Power supply	ph/Hz/V	3~50Hz 400V (+10%/-10%) + Earth									
Monitor circuit voltage	ph/Hz/V	1~50Hz 230V (+10%/-10%) - Transformer fitted									
Starting current (excluding pump)	A	95	111	118	137	174	129	139	160	205	256
Starting current, SOFT START option	A	50	53	55	70	60	70	76	93	91	168
Breaking capacity (TN-TT neutral system)	kA	15			10		15			10	
Maximum wire cross-section	mm <sup>2</sup>	10			35			70			95
Maximum nominal current (1)	A	19.8	22.3	25.8	27.8	35.7	40.0	47.0	52.0	68.0	83.1

		400V	500V	540V	600V	700V
Power supply	ph/Hz/V	3~50Hz 400V (+10%/-10%) + Earth				
Monitor circuit voltage	ph/Hz/V	1~50Hz 230V (+10%/-10%) - Transformer fitted				
Starting current (excluding pump)	A	303	317	251	267	323
Starting current, SOFT START option	A	195	208	137	153	235
Breaking capacity (TN-TT neutral system)	kA	10	35	10		
Maximum wire cross-section	mm <sup>2</sup>	95				
Maximum nominal current (1)	A	91.3	105.0	123.6	139.4	150.4

(1) pump current not included

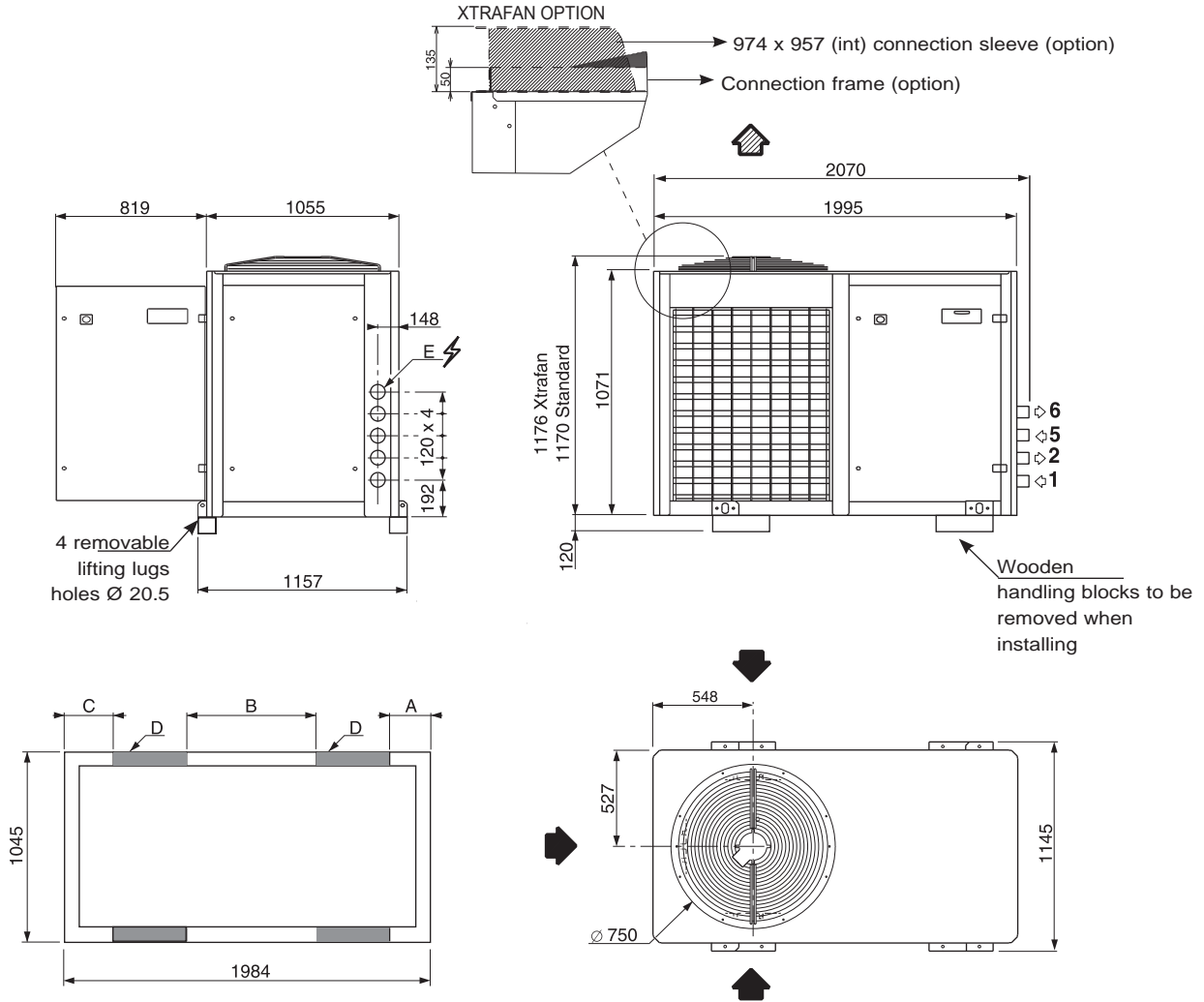
### ■ Hydraulic pumps (versions C and H)



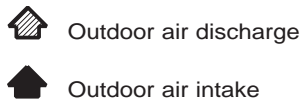
SINGLE PUMP NO.		44	45	40	41	42	43	140	138	139	117	102	103	118	105	107	119
DUAL PUMP NO.		-	-	2 x 40	2 x 41	2 x 42	2 x 43	240	238	239	217	202	203	218	205	207	219
Max. current at 50Hz (A)	400V	1.7	1.91	1.91	2.36	3.15	5.2	3.2	3.2	4.6	4.4	5.8	7.7	7.7	10.2	13.7	13.7
Motor output	400V/50Hz	66.4%	77.4%	79.0%	80.5%	82.0%	84.0%	81.3%	81.3%	83.2%	83.2%	84.6%	85.8%	85.8%	87.0%	88.1%	88.1%
Max. working P (kW)		0.55	0.75	0.75	1.1	1.5	2.2	1.5	1.5	2.2	2.2	3	4	4	5.5	7.5	7.5
Maxi. abs. P (kW)		0.83	0.97	0.95	1.37	1.83	2.62	1.85	1.85	2.64	2.64	3.55	4.66	4.66	6.32	8.51	8.51
Min. flow rate	m <sup>3</sup> /h	1.0	1.9	5.0	6.0	7.0	8.0	4.2	4.0	6.1	15.0	20.0	20.0	15.0	20.0	20.0	15.0
Max. pressure	mWC	20.6	20.9	17.5	21.5	22.0	24.5	14.2	18.5	22.3	15.5	14.5	18.0	26.0	26.0	33.0	39.0
Max. flow rate	m <sup>3</sup> /h	8.0	13.0	19.0	22.5	30.0	30.0	30.0	28.0	32.0	55.0	80.0	86.0	60.0	80.0	80.0	60.0
Min. pressure	mWC	7.3	9.7	8.5	8.0	10.0	14.0	12.1	12.5	13.7	10.0	8.0	10.0	21.0	19.5	27.0	31.0
Protection rating		IP55															
Power supply	V	3ph-50Hz 400V (+10%/-10%) + Earth															

## DIMENSIONS

AQUACIAT2 sizes 80 - 90



Leave a space of 1 metre around the unit for maintenance

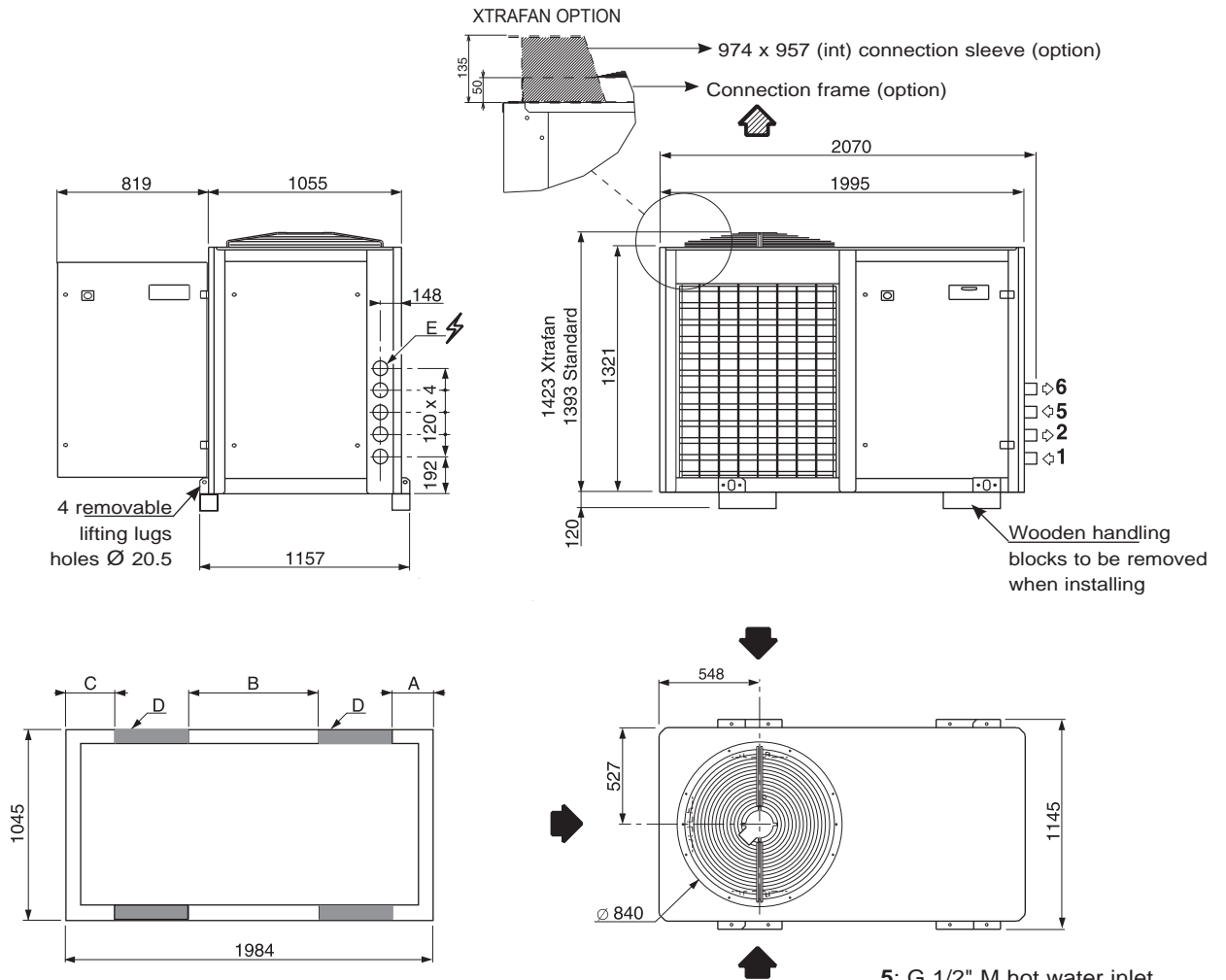


- 5: G 1/2" M hot water inlet
- 6: G 1/2" M hot water outlet
- 1: G 1 1/4" M chilled water inlet
- 2: G 1 1/4" M chilled water outlet
- E: Power supply Ø 80

AQUACIAT2	Position of mounts				Anti-vibration mounts	Weight (kg)	
	A	B	C	D		empty	in operation
LD 80	250	1284	250	P25 50 x 100	347	352	
					350	355	
LDC 80	250	1284	250	P25 50 x 100	365	370	
					368	373	
LDH 80	140	1114	490	P25 50 x 120	390	495	
					393	498	
ILD 80	250	1284	250	P25 50 x 100	328	333	
					331	336	
ILDC 80	250	1284	250	P25 50 x 100	346	351	
					349	354	
ILDH 80	140	1114	490	P25 50 x 120	371	476	
					374	479	

**DIMENSIONS**

AQUACIAT2 sizes 100 to 150



Leave a space of 1 metre around the unit for maintenance

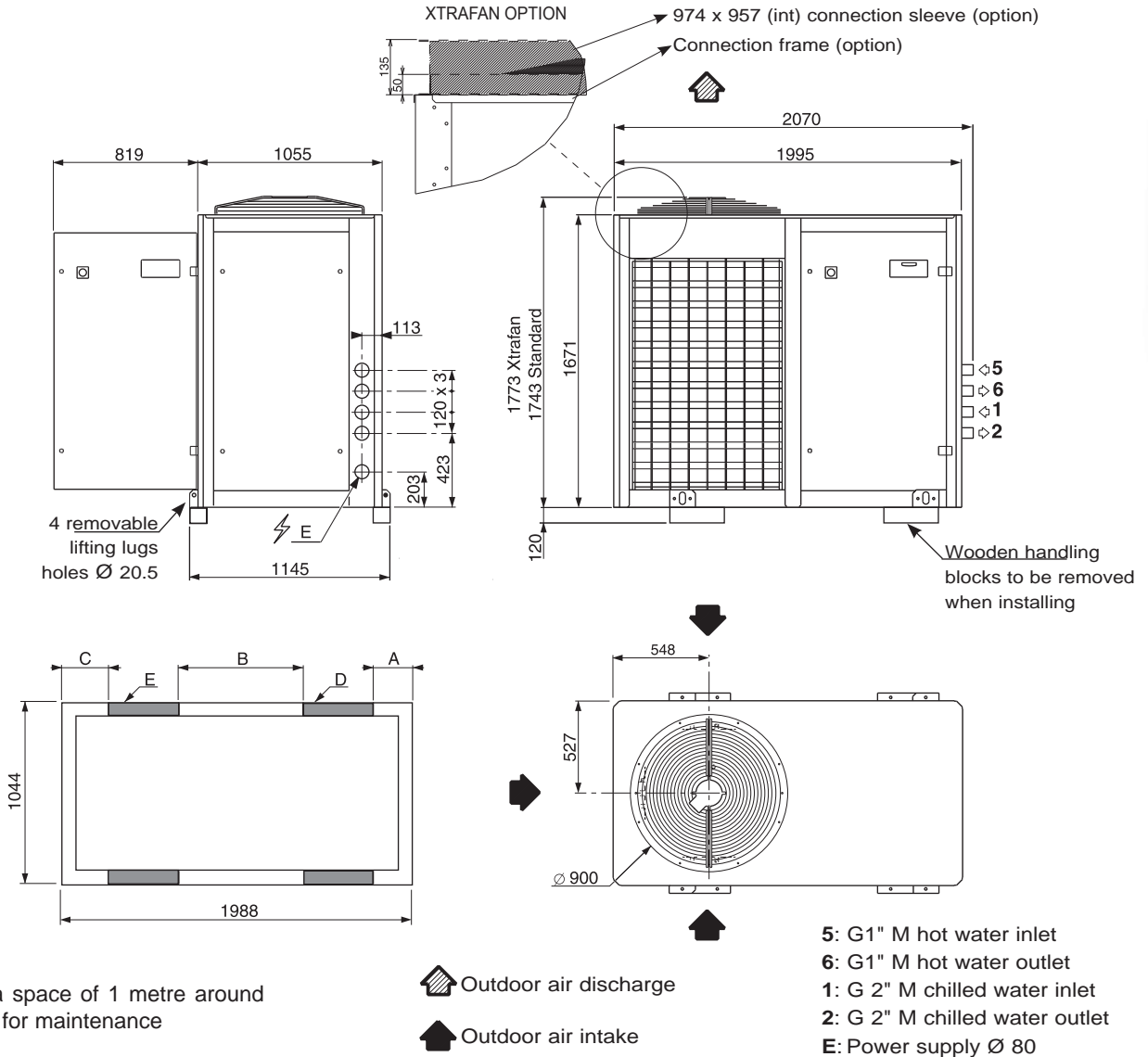
- Outdoor air discharge
- Outdoor air intake

- 5:** G 1/2" M hot water inlet
- 6:** G 1/2" M hot water outlet
- 1:** G 1 1/2" M chilled water inlet
- 2:** G 1 1/2" M chilled water outlet
- E:** Power supply Ø 80

AQUACIAT2	Position of mounts			Anti-vibration mounts	Weight (kg)		
	A	B	C	D	empty	in operation	
LD	100						
	120	250	1284	250	P25 50 x 100	365	370
	150	240	1264	240	P25 50 x 120	367	372
LDC	100						
	120	250	1284	250	P25 50 x 100	449	454
	150	240	1264	240	P25 50 x 120	383	388
LDH	100						
	120	125	1084	475	P25 50 x 150	385	390
	150	240	1264	240	P25 50 x 120	407	562
ILD	100						
	120	250	1284	250	P25 50 x 100	409	564
	150	240	1264	240	P25 50 x 120	492	647
ILDH	100						
	120	250	1284	250	P25 50 x 100	366	371
	150	240	1264	240	P25 50 x 120	368	373
ILDC	100						
	120	250	1284	250	P25 50 x 100	452	457
	150	240	1264	240	P25 50 x 120	384	389
ILDH	100						
	120	125	1084	475	P25 50 x 150	386	391
	150	240	1264	240	P25 50 x 120	470	475
ILDH	100						
	120	250	1284	250	P25 50 x 100	409	564
	150	240	1264	240	P25 50 x 120	411	566
					495	650	

## DIMENSIONS

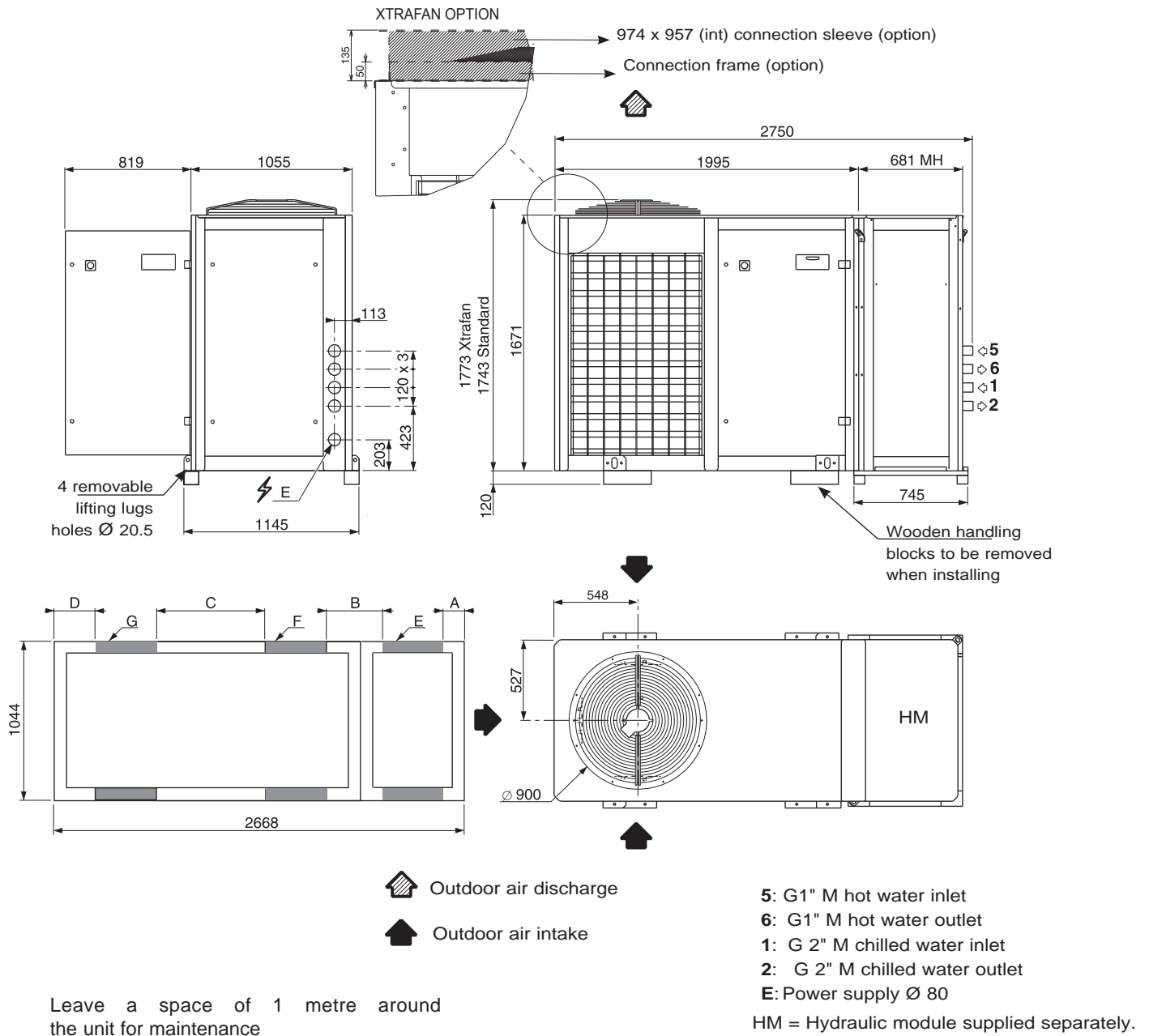
AQUACIAT2 LD - LDC - ILD - ILDC sizes 180 to 300



AQUACIAT2	Position of mounts			Anti-vibration mounts		Weight (kg)	
	A	B	C	D	E	empty	in operation
LD	180	100	328	P25 50 x 150	P25 50 x 150	569	575
	200					575	579
	240					581	585
	300					711	717
LDC	180	100	400	P25 50 x 200	P25 50 x 120	616	621
	200					619	623
	240					625	629
ILD	180	150	300	P25 50 x 200	P25 50 x 200	756	760
	200					611	615
	240					614	618
	300					620	624
ILDC	180	100	350	P25 50 x 200	P25 50 x 150	756	760
	200					648	652
	240					651	655
	300					656	660
					P25 50 x 200	789	793

**DIMENSIONS**

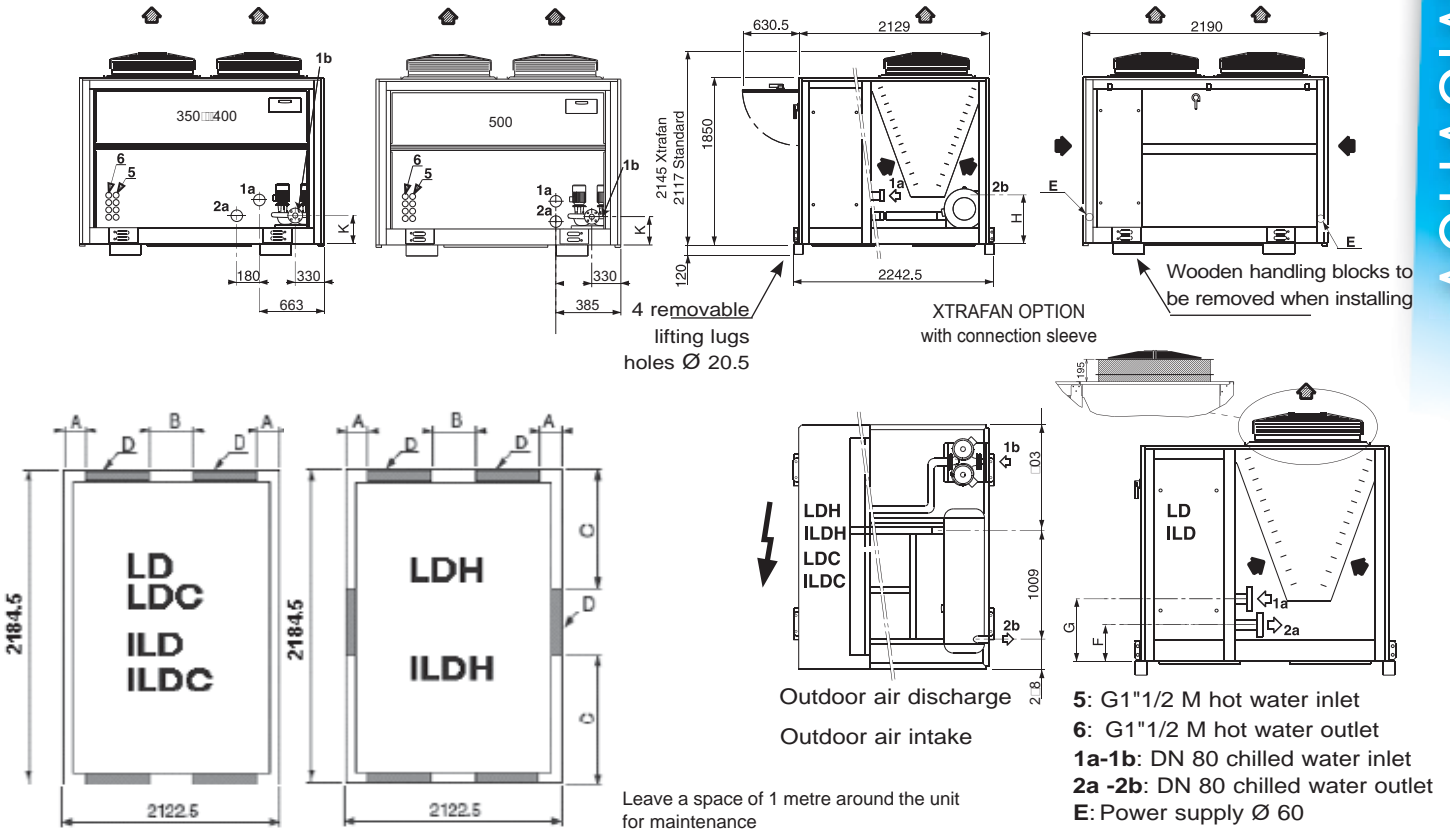
AQUACIAT2 LDH - ILDH sizes 180 to 300



AQUACIAT2	Position of mounts				Anti-vibration mounts			Weight (kg)	
	A	B	C	D	E	F	G	empty	in operation
LDH 180	196	600	1156	196	P25 50 x 200	P25 50 x 200	P25 50 x 120	813	1017
ILDH 180								845	1049
LDH 200								816	1020
ILDH 200								848	1052
LDH 240								822	1026
ILDH 240								853	1057
LDH 300	196	600	1076	196	P25 50 x 200	P25 50 x 200	P25 50 x 200	953	1157
ILDH 300								986	1190

## DIMENSIONS

AQUACIAT2 sizes 350 to 500



Leave a space of 1 metre around the unit for maintenance

### Position of hydraulic connections

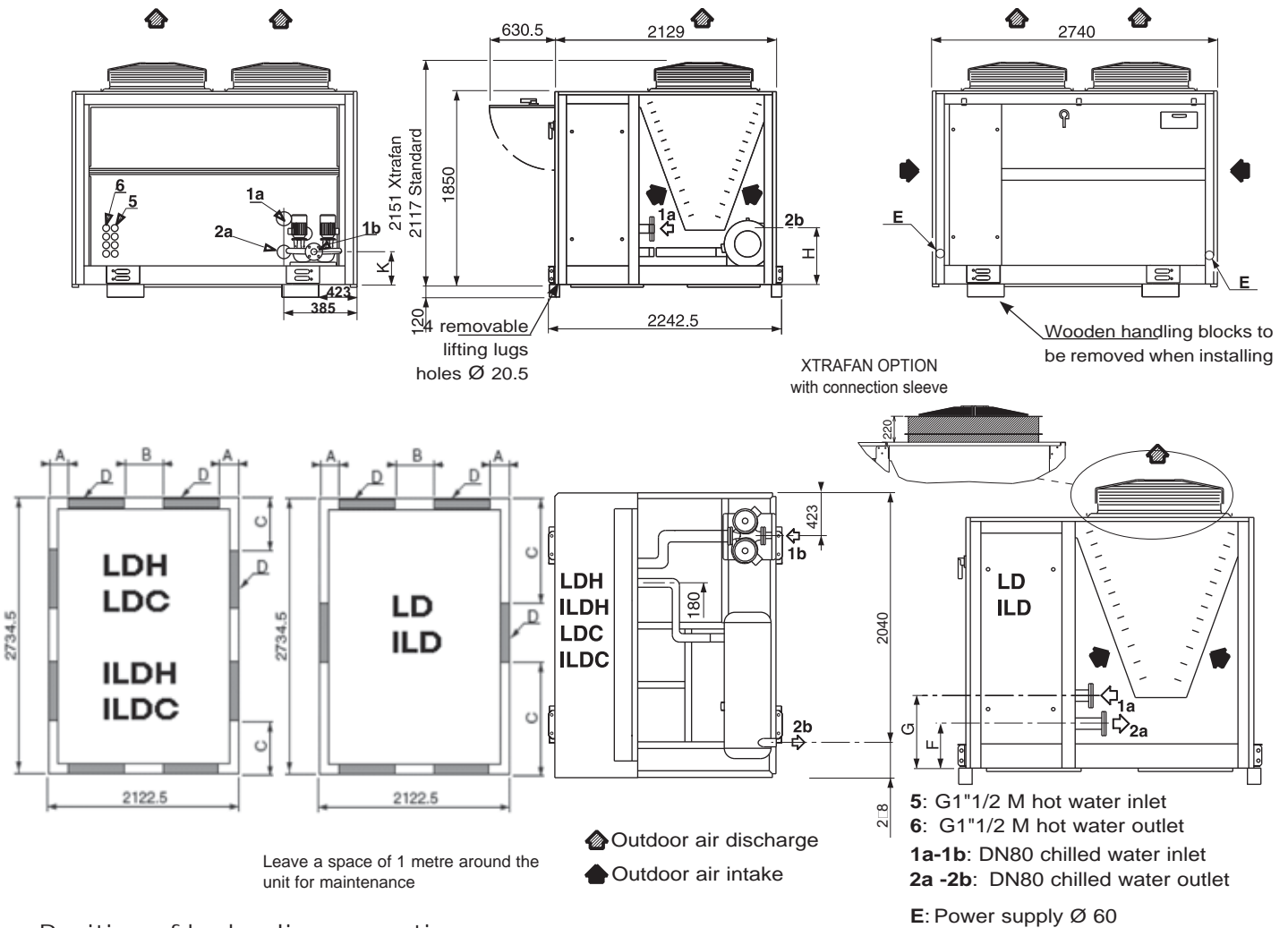
Size	K	Pump	Chilled water inlet	Chilled water outlet
LD - ILD	330	No.140-240-138-238-139-239	1a	2a
LDC - ILDC		No.117-217-118-218-119-219	1b	2a
LDH - ILDH	330	No.140-240-138-238-139-239	1b	2b
		No.117-217-118-218-119-219		

AQUACIAT2	Position of mounts			Anti-vibration mounts		Hydraulic connection position			Weight (kg)	
	A	B	C	D	Qty	F	G	H	empty	in operation
LD 350	150	422.5	X	P25 50 x700	4	311	411	X	1064	1084
ILD 350									1096	1116
LD 400									1163	1183
ILD 400									1195	1215
LD 500									1245	1265
ILD 500									1283	1303
LDC 350									1162	1182
ILDC 350									1194	1224
LDC 400									1268	1298
ILDC 400									1292	1322
LDC 500	1315	1336								
ILDC 500	1355	1385								
LDH 350	150	422.5	742,25	P25 50 x700	6	X	549	X	1233	1503
ILDH 350									1257	1527
LDH 400									1332	1602
ILDH 400									1356	1626
LDH 500									1380	1650
ILDH 500									1418	1688



**DIMENSIONS**

AQUACIAT2 sizes 540 to - 700



**Position of hydraulic connections**

Size	K	Pump	Chilled water inlet	Chilled water outlet
LD - ILD			1a	2a
LDC - ILDC	330	No.140-240-138-238-139-239	1b	2a
		No.117-217-118-218-119-219	1b	2a
LDH - ILDH	330	No.140-240-138-238-139-239	1b	2b
		No.117-217-118-218-119-219	1b	2b

AQUACIAT2	Position of mounts			Anti-vibration mounts		Hydraulic connection position			Weight (kg)	
	A	B	C	D	Qty	F	G	H	empty	in operation
LD 540	150	422.5	1017,5	P25 50 x700	6	271	661	X	1530	1553
ILD 540									1570	1593
LD 600									1666	1691
ILD 600									1706	1731
LD 700									1732	1757
ILD 700									1878	1903
LDC 540									1725	1760
ILDC 540									1675	1710
LDC 600									1845	1880
ILDC 600									1804	1839
LDC 700	1911	1946								
ILDC 700	1976	2011								
LDH 540	150	422.5	445	P25 50 x700	8	X	661	550	1790	2070
ILDH 540									1748	2028
LDH 600									1908	2188
ILDH 600									1868	2148
LDH 700									1974	2254
ILDH 700									2040	2320



→ Water chillers  
Heat pumps

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