



United Technologies

turn to the experts 



AQUAFORCE[®]

30KA Air-Cooled Liquid Chiller

Nominal cooling capacity: 550~1350kw



Turn To The Experts

Founded by the inventor of modern air conditioning, Carrier is the world's leader in high-technology heating, air-conditioning and refrigeration solutions. Carrier experts provide sustainable solutions, integrating energy-efficient products, building controls and energy services for residential, commercial, retail, transport and food service customers. Carrier is a part of UTC Building & Industrial Systems, a unit of United Technologies Corp., a leading provider to the aerospace and building systems industries worldwide.

With a broad portfolio of advanced technical patent awards, our global R&D center in Shanghai develops innovative heat, ventilation and air-conditioning (HVAC) solutions.



In 1998, Time magazine named Dr. Carrier one of its 20 most influential builders and titans of the 20th century.

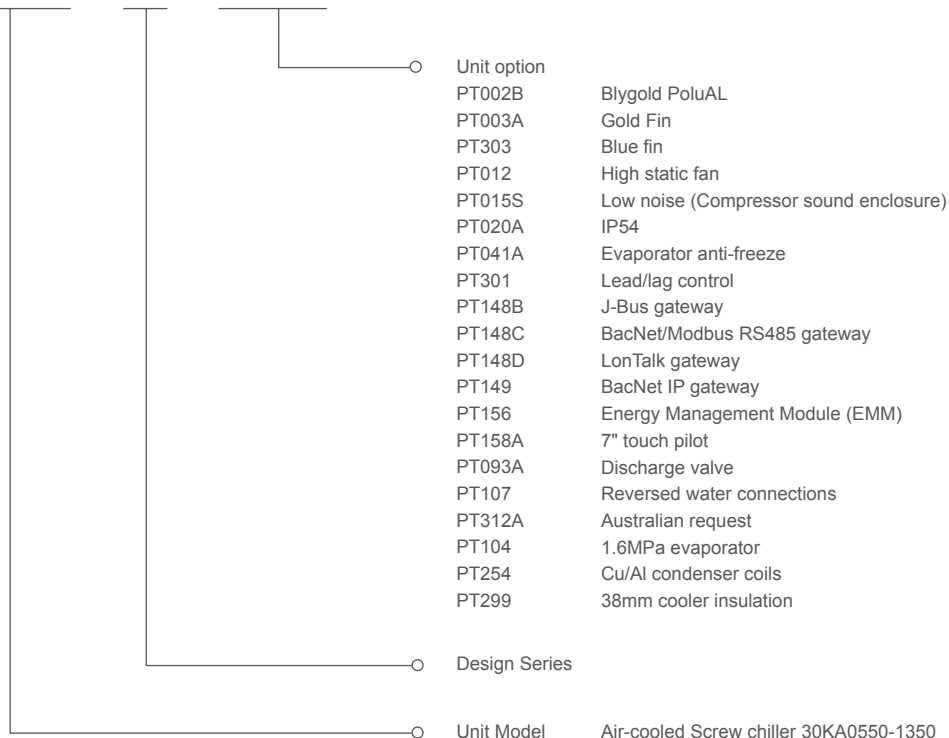


Nomenclature

30KA1050

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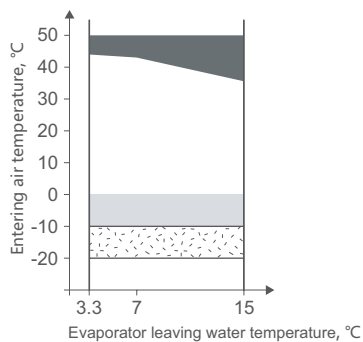
PT002B






Operating Range

Evaporator		Min. temperature	Max. temperature
Entering water temperature (at start)	°C	-	45
Entering water temperature (operating)	°C	6.8	21
Leaving water temperature (operating)	°C	3.3	15
Condenser		Min. temperature	Max. temperature
Outdoor air temperature	°C	-10*	50

* With PT028 "winter operation", outdoor air temperature may down to -20°C. A glycol/water solution or evaporator antifreeze.



-  Operating range, unit equipped with option PT028 (winter operation).
-  Below 0°C air temperature the unit must either be equipped with the evaporator frost protection option (PT041A), or the water loop must be protected against frost by using a frost protection solution (by the installer).
-  Part load average.

Features

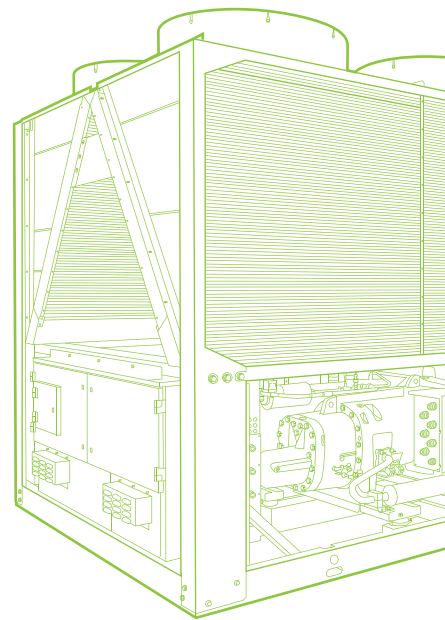
- ✦ The Aquaforce liquid chillers are the premium solution for industrial and commercial applications where installers, consultants and building owners require optimal performances and maximum quality.

Benefits

- ✦ Extremely high full load and part load energy efficiency leads to extremely low operation cost.
- ✦ Low operating sound with no intrusive low-frequency noise, creates a better working/living environment.
- ✦ Environmentally sound refrigerant HFC-134a of zero ozone depletion potential.
- ✦ Easy and fast installation to reduce on-site installation time.
- ✦ Exceptional endurance tests ensure superior reliability to minimize chiller down-time.

Economical operation

- ✦ Extremely high full load and part load energy efficiency:
 - Twin-rotor screw compressor equipped with a high efficiency motor and a variable capacity valve that permits exact matching of the cooling capacity to the load.
 - Flooded multi-pipe evaporator to increase the heat exchange efficiency, configured with aluminium cladding (standard) to improve thermal insulation and prevent energy loss.
 - Electronic expansion device allows operation at a lower condensing pressure and improved utilization of the evaporator heat exchange surface (superheat control).
 - Economizer system with electronic expansion device permits a considerable increase in cooling capacity and contributes to optimised energy efficiency of the chiller installation.
 - 30KA AHRI certificate

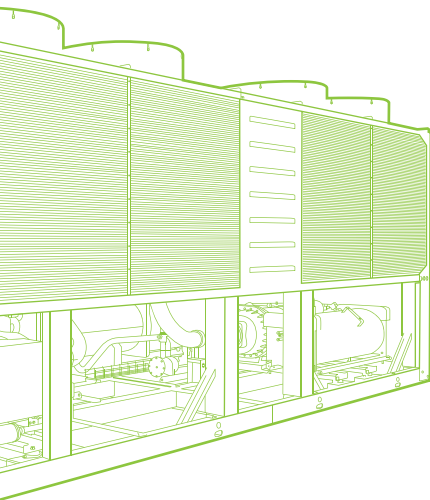


Quiet operation

- Compressors
 - Discharge dampers integrated in the oil separator (Carrier patent).
 - Acoustic compressor and oil separator enclosures (option) reduce the radiated noise.
- Condenser section
 - Condenser coils in W-shape with an open angle, allows quieter air flow across the coil.
 - VI Low-noise Flying Bird fans (Carrier patent) enjoy quieter operation and never generate intrusive low-frequency noise.



Twin screw CARRIER compressor



Environmental Friendly

- HFC-134a refrigerant
 - Refrigerant of the HFC group with zero ozone depletion potential.
- Leak-tight refrigerant circuit
 - Reduction of leaks as no capillary tubes and flare connections are used.
 - Verification of pressure transducers and temperature sensors without transferring refrigerant charge.



Absolute reliability

- Screw compressors
 - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
 - All compressor components are easily accessible on site minimizing down-time.
 - Electronic motor protection against overloads and power supply faults (loss of phase, phase reversal).
- Evaporator
 - Thermal insulation with aluminium cladding for perfect resistance against outside aggression (mechanical and UV protection).
- Exceptional endurance tests:
 - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
 - Transport simulation test equivalent to 2000 km by truck under harsh conditions.
 - Salt mist corrosion resistance test in the laboratory for increased corrosion resistance.

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and 551/591

General Features

🌿 New innovative smart control features:

- An intuitive and user-friendly, 5" colored interface (7" as option).
- Screen-shots with concise and clear information in local languages.
- Complete menu, customized for different users (end user, service personnel and Carrier-factory technicians).
- Easy access to the controller box with touch screen mounting to ensure legibility under any lighting conditions.
- Safe operation and unit setting: password protection ensures that unauthorized people cannot modify any advanced parameters.
- Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation.
- Night-mode: Cooling capacity management for reduced noise level.

Economical operation

🌿 Energy management:

- Internal time schedule clock controls chiller on/off times and operation at a second set-point.
- The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.



Large colored

Remote Management (Standard)

- Units with Touch Pilot control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System Manager or the Plant System Manager (optional). also communicates with other building management systems via optional communication gateways.

Quiet operation

- ✦ The following commands/visualizations are possible from remote
 - Start/Stop of the machine.
 - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example: unoccupied mode).
 - Demand limit setting: To limit the maximum chiller capacity to a predefined value.
 - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
 - Operation visualization: Indication if the unit is operating or if it's in stand-by (no cooling load).
 - Alarm visualization.

Absolute reliability

- ✦ The Energy Management Module (EMM) offers extended remote control possibilities:
 - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostat are installed).
 - Set-point reset: Ensures reset of the cooling set-point based on a 4-20 mA or 0-10 V signal.
 - Demand limit: Permits limitation of the maximum chiller power or current based on 0-10 V signal.
 - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller power or current to two predefined values.
 - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
 - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
 - Time schedule override: Closing of this contact cancels the time schedule effects.
 - Out of service: This signal indicates that the chiller is completely out of service.
 - Chiller capacity: This analogue output (0-10 V) gives an immediate indication of the chiller capacity.
 - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
 - Compressors running status : Set of outputs (as many as the compressors number) indicating which compressors are running.



touch display

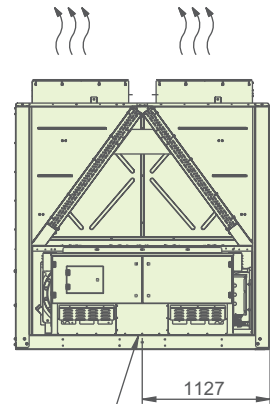
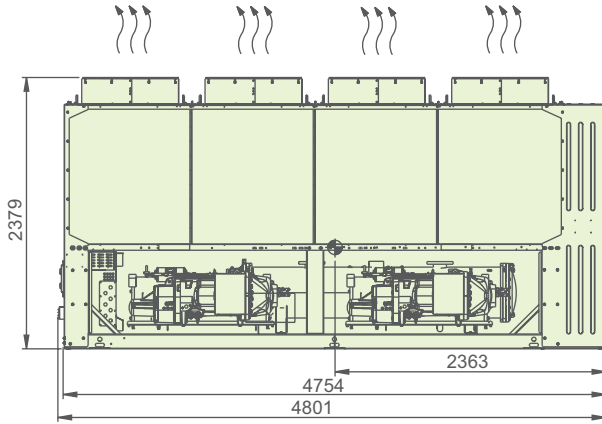
Performance data

Model	30KA	0550A	0700A	0750A	0800A	0900A	1000A	1050A	1250A	1350A	
Nominal cooling capacity*	kW	560.0	668.1	722.0	774.0	890.0	990.0	1076	1227	1373	
Compressor power input	kW	171.2	192.8	220.6	238.3	270.6	297.0	331.4	378.0	417.0	
Total power input	kW	183.0	207.4	235.2	252.9	288.0	317.2	351.6	401.0	442.8	
Compressor	Semi-hermetic screw compressor										
CircuitA		1	1	1	1	1	1	1	1	1	
CircuitB		1	1	1	1	1	1	1	1	1	
Minimum capacity	%	15%	15%	15%	15%	15%	15%	15%	15%	15%	
Refrigerant	R134a										
CircuitA	kg	85	100	114	114	110	140	175	190	190	
CircuitB	kg	80	95	97	100	110	129	107	111	175	
Control	Touch pilot system										
Condenser	Cu/Al heat exchanger										
Fans	VI generation FlyingBird axial fan										
Quantity		8	10	10	10	12	14	14	16	18	
Total air flow	l/s	40084	50105	50105	50105	60127	70148	70148	80169	90190	
Fan speed	rpm	950									
Evaporator	Flooded multi-pipe										
Water content	l	78	93	99	117	127	157	174	174	202	
Nominal water flow	l/s	26.69	31.85	34.42	36.89	42.42	47.19	51.29	58.48	65.44	
Nominal water pressure drop	kPa	55.1	45.7	45.6	36.5	48.4	38.7	47.8	60.7	39.9	
Max. water-side pressure (without hydronic module)	kPa	1000									
Water connection	Victaulic										
Nominal Diameter	DN	150	150	150	150	150	200	200	200	150	
Electrical data											
Nominal power supply	400V-3Ph-50Hz										
Control power supply	Star-delta start										
Start-up method	24V via internal transformer										
Fan and control power	kW	11.8	14.6	14.6	14.6	17.4	20.2	20.2	23.0	25.8	
Nominal unit current draw	Circuit A+B	A	307.0	348.0	395.0	425.0	483.0	533.0	590.0	672.0	743.0
Maximum unit current draw	Circuit A+B	A	365.0	429.0	482.0	511.0	600.0	695.0	719.0	822.0	897.0
Maximum start-up current	Circuit A+B	A	591.0	627.0	790.0	822.0	920.0	973.0	1053.0	1118.0	1160.0
Max operation power	Circuit A+B	kW	223	262	294	312	366	424	438	501	547
Unit length	mm	4801	6126	6298	6298	7410	8410	8410	9509	10584	
Unit width	mm	2253									
Unit height	mm	2379									
Shipping weight	kg	4696	5388	5731	5828	6473	7088	7627	8121	9345	
Operating weight (Standard)	kg	4595	5224	5561	5658	6298	6927	7466	7925	9117	

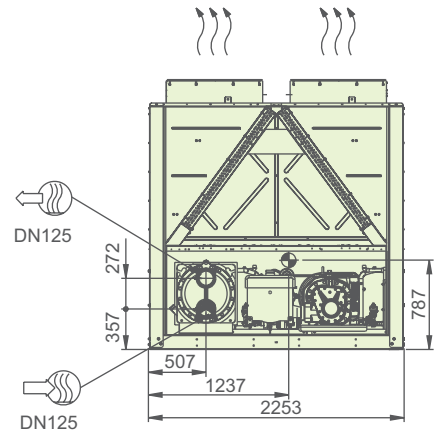
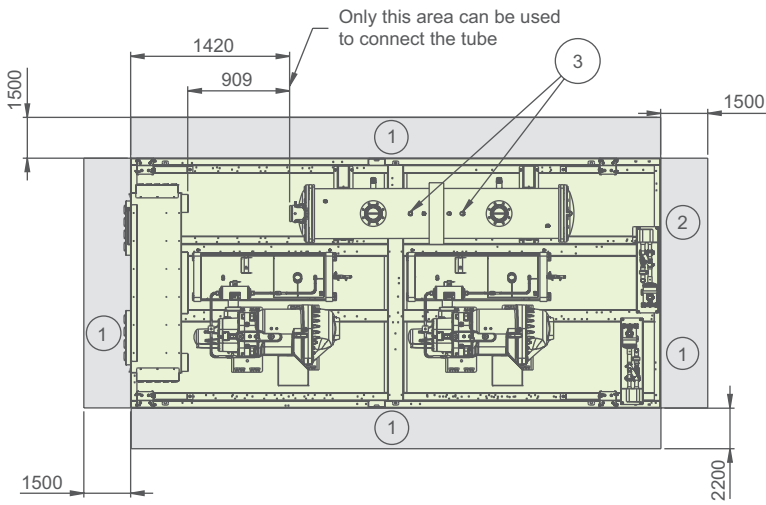
Notes: * Nominal conditions - evaporator entering/leaving water temperature=12/7°C, outdoor air temperature = 35°C Evaporator fouling factor = 0.018m²K/kW

Dimension Drawing

30KA0550A



Power supply connection

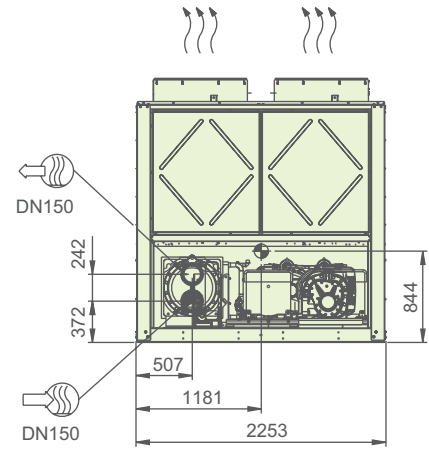
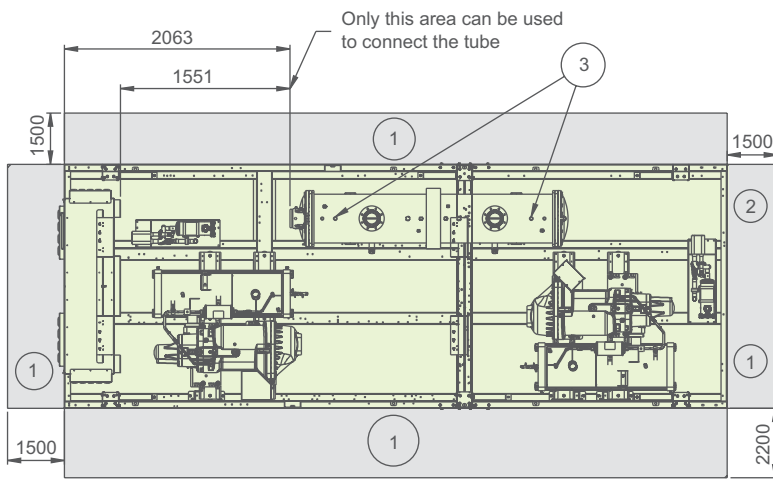
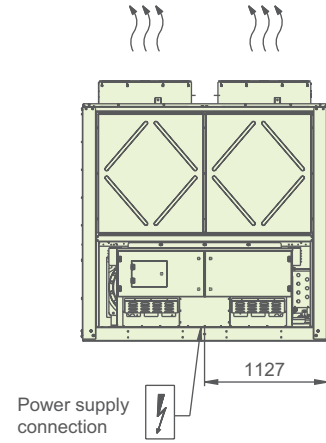
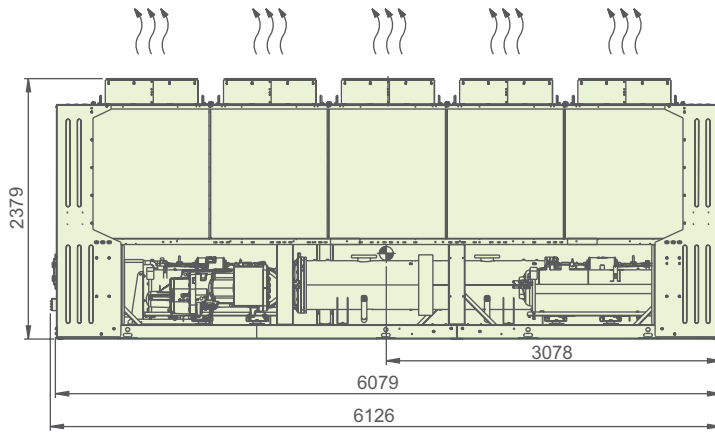


- ① Required clearances for maintenance
- ② Recommended space for evaporator tube removal
- ③ Safety valve
- Water inlet

- Water outlet
- Air outlet
- Power supply connection
- Center gravity

Dimension Drawing

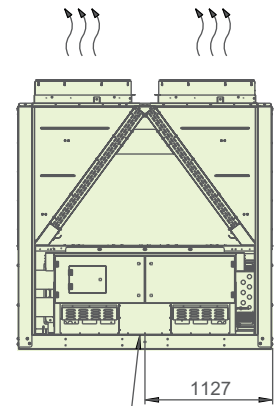
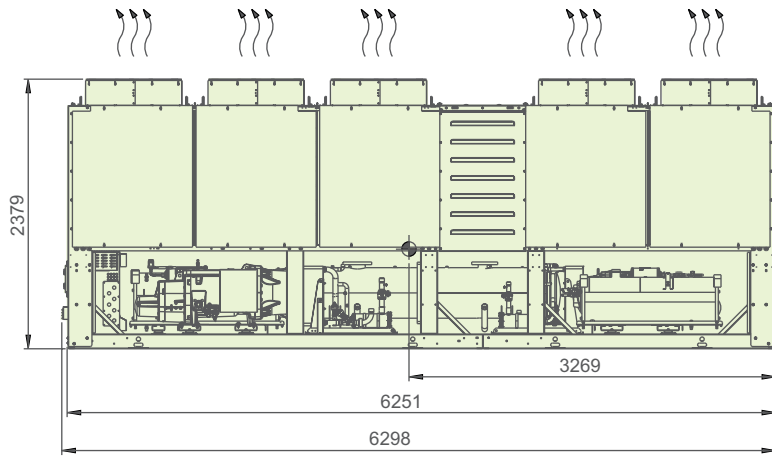
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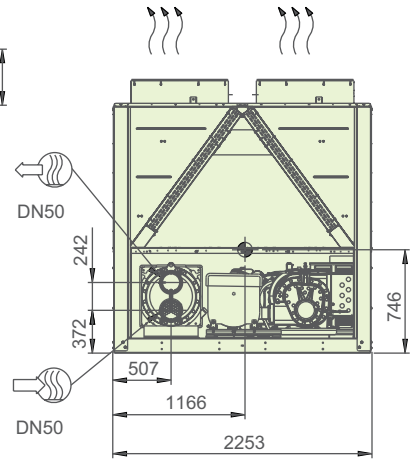
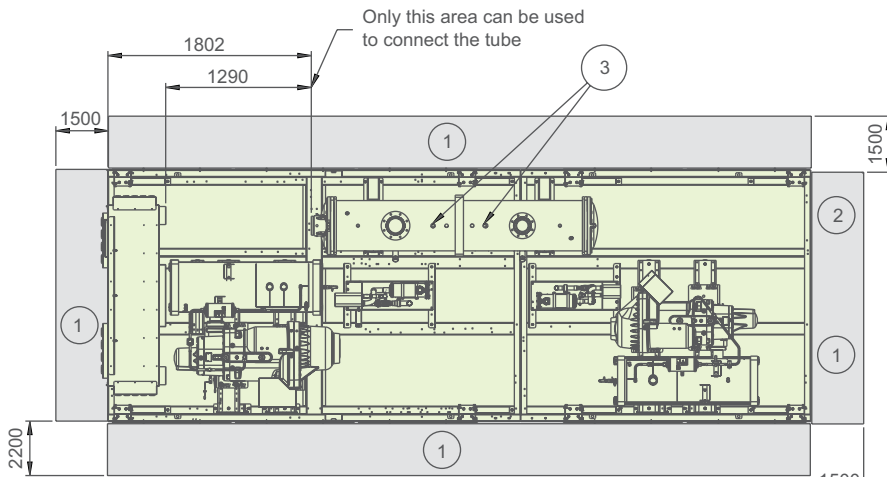
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Dimension Drawing

30KA0750A



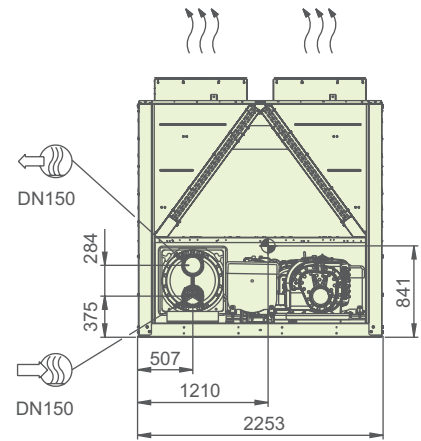
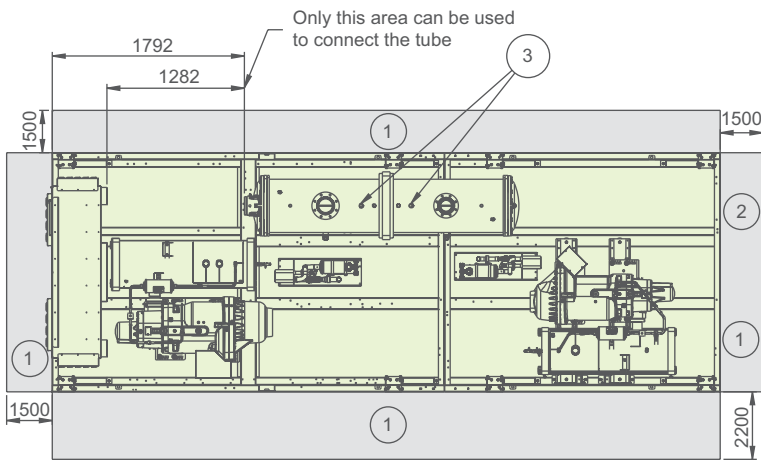
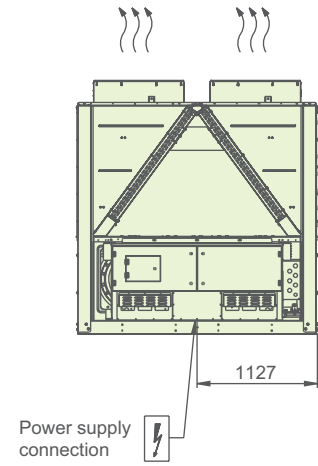
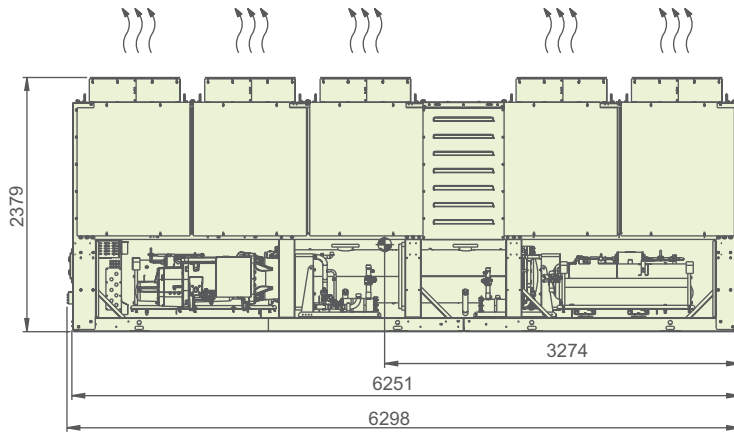
Power supply connection



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Dimension Drawing

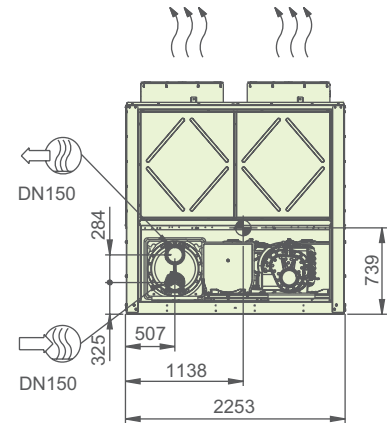
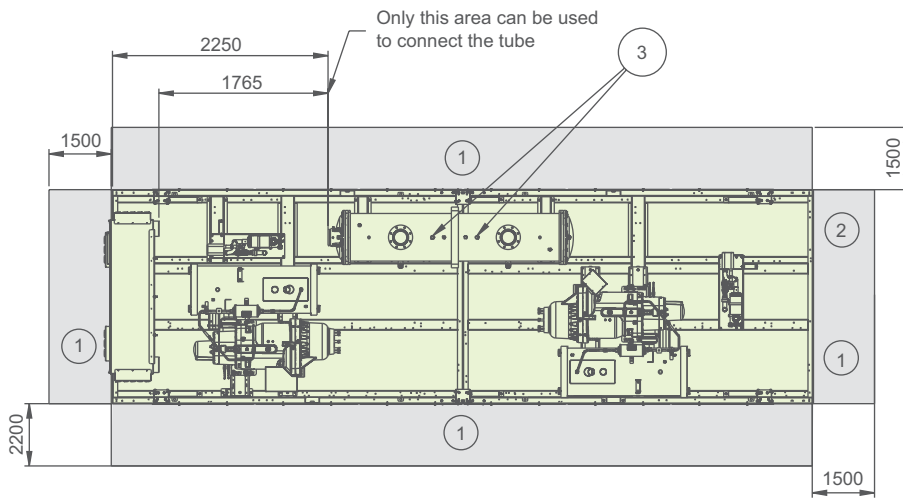
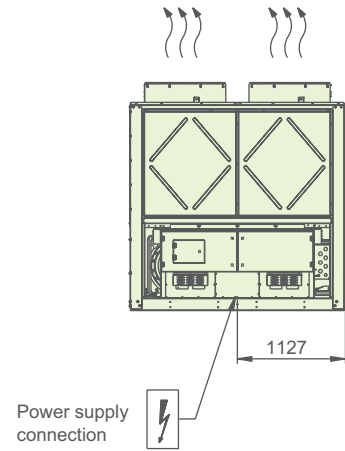
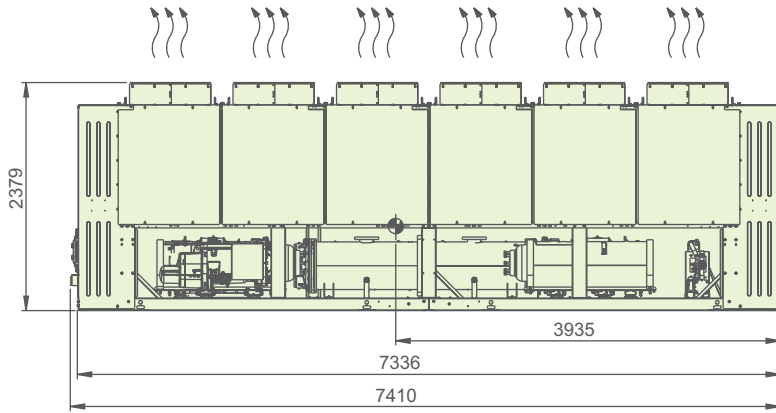
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- ① Required clearances for maintenance
- ② Recommended space for evaporator tube removal
- ③ Safety valve
- Water inlet
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- Power supply connection
- Center gravity

Dimension Drawing

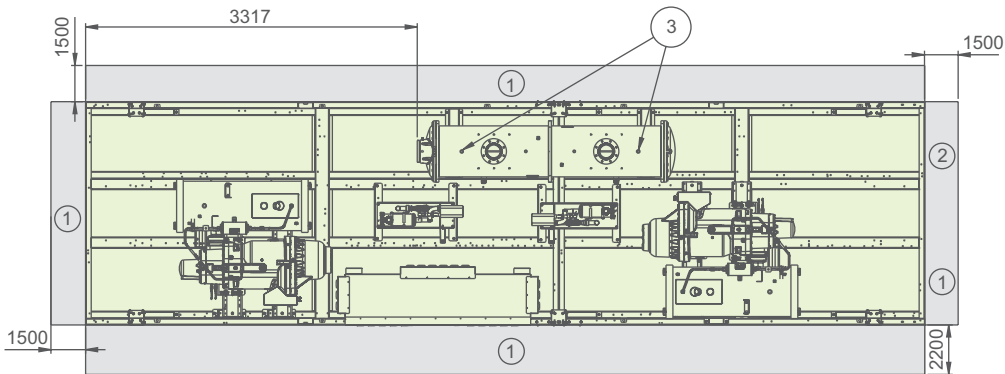
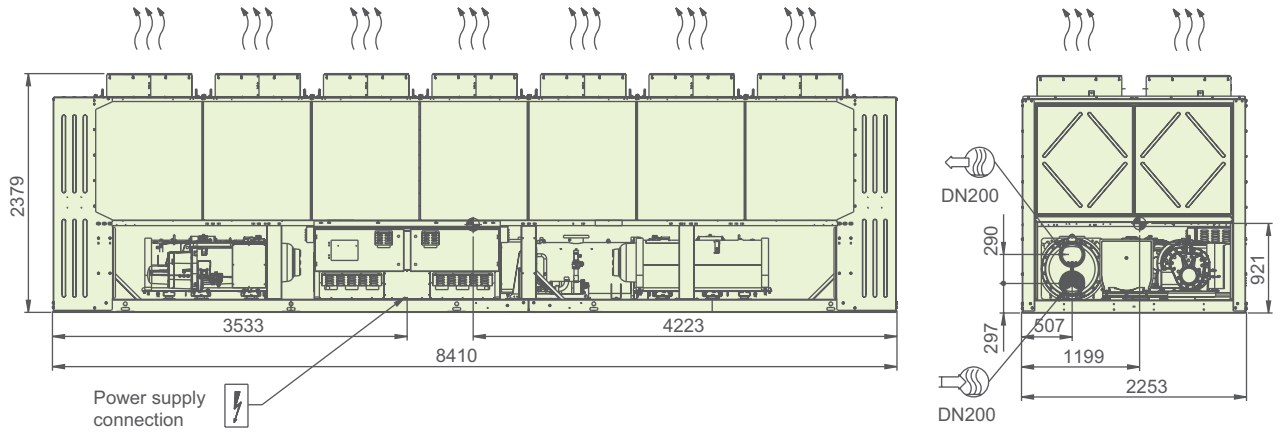
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- ① Required clearances for maintenance
- ② Recommended space for evaporator tube removal
- ③ Safety valve
- Water inlet
- Water outlet
- Air outlet
- Power supply connection
- Center gravity

Dimension Drawing

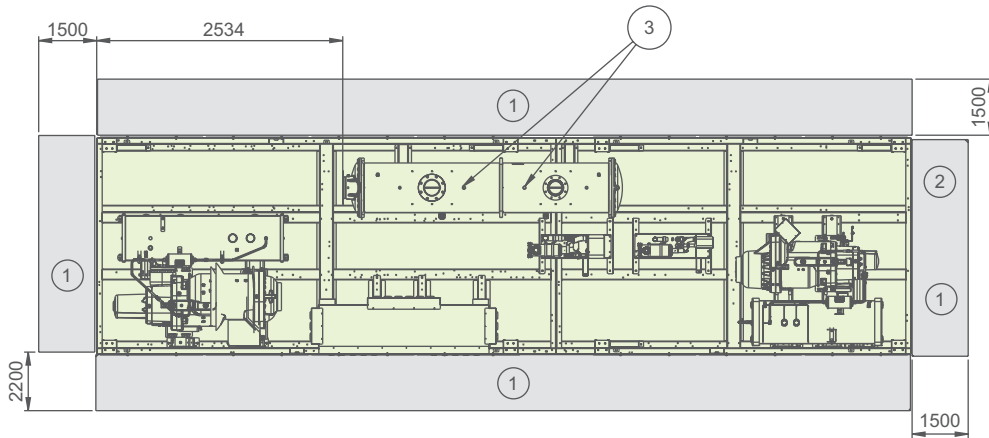
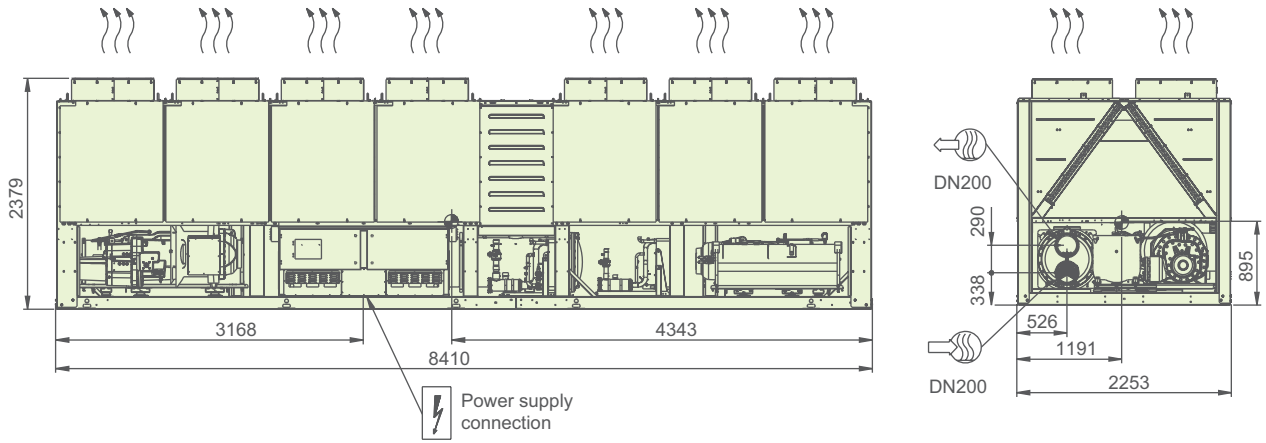
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- ① Required clearances for maintenance
- ② Recommended space for evaporator tube removal
- ③ Safety valve
- Water inlet
- Water outlet
- Air outlet
- Power supply connection
- Center gravity

Dimension Drawing

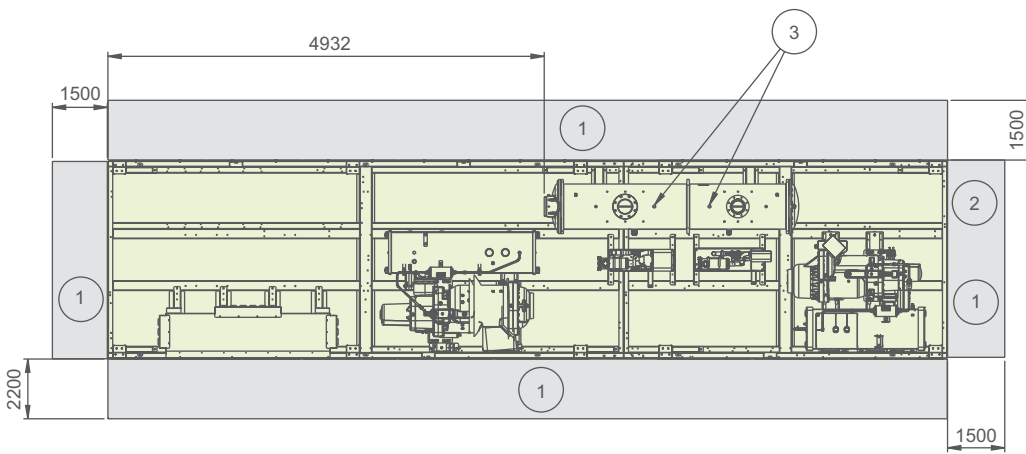
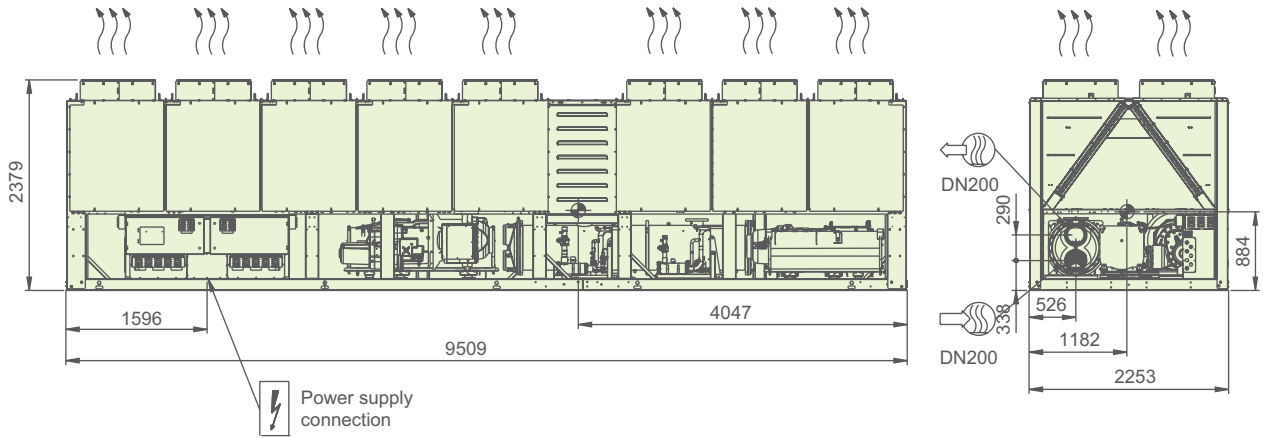
30KA1050A



- ① Required clearances for maintenance
- ② Recommended space for evaporator tube removal
- ③ Safety valve
- Water inlet
- Water outlet
- Air outlet
- Power supply connection
- Center gravity

Dimension Drawing

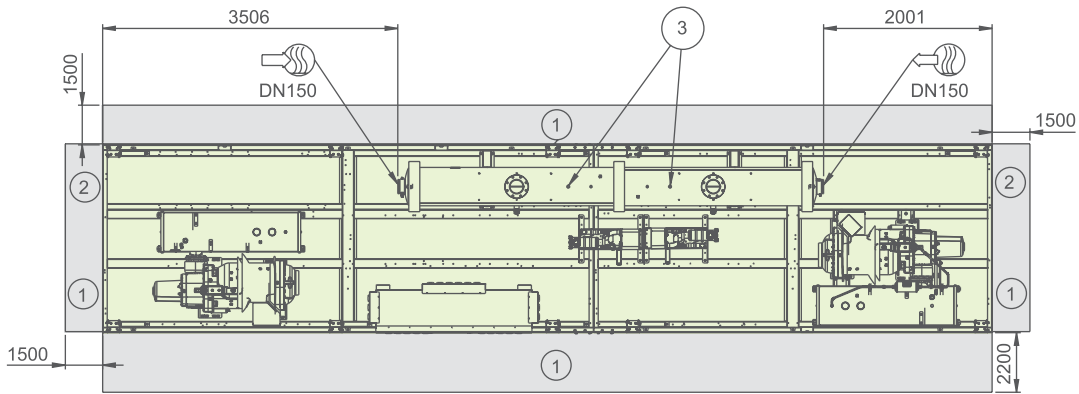
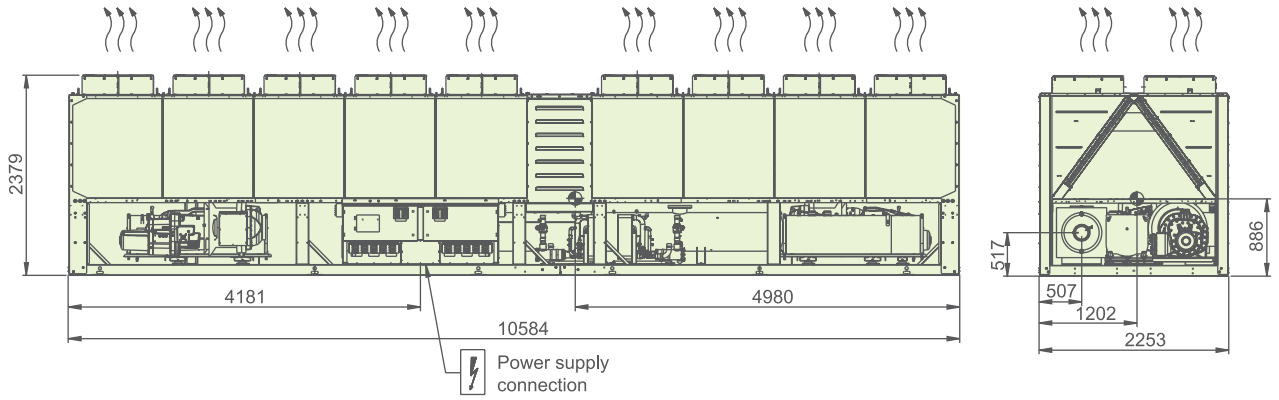
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- ① Required clearances for maintenance
- ② Recommended space for evaporator tube removal
- ③ Safety valve
- Water inlet
- Water outlet
- Air outlet
- Power supply connection
- Center gravity

Dimension Drawing

30KA1350A



- | | |
|----------|----------|
| ① 推荐维修空间 | ← 出水接管 |
| ② 推荐拔管空间 |))) 空气出口 |
| ③ 安全阀 | ⚡ 电源接线 |
| ↪ 进水接管 | ⊙ 重心 |



Carrier improves the world around us; Carrier improves people's lives; our products and services improve building performance; our culture of improvement will not allow us to rest when it comes to the environment.



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Supersede:	-
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