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Quotation Date: Aug 29th 2024

Project Ref: UoM Energy Centre - Revised Heat Pump Solution

Further to your recent enquiry please find enclosed our proposal for the equipment required for the above mentioned project.

For your convenience, we have attached the following documents to the accompanying email:

- **Equipment data sheets**
- **Product Brochure/s**

We trust the foregoing meets with your approval, but should you have any queries or require further information, please do not hesitate to contact the undersigned.

Assuring you of our best attention at all times

Yours faithfully

Paul Hill

Sales Account Manager -Applied Equipment

Carrier Air Conditioning UK

A Division of Toshiba Carrier UK Ltd

Email: paul.hill@carrier.com

Tel: 07714 227383

For further assistance on this quotation please do not hesitate to contact us

Pricing – ASHP's

No. off	Model number	Description	Total Net Cost All 4
Four	30RQP520-R	Reversible Air Source Heat Pumps	£322,146.00 + VAT

With each AQUASNAP unit, everything is provided to simplify the installation whether it's for a HVAC or Industrial Process Cooling application. These units utilize low GWP A2L R32 refrigerant which is safe for many external locations. Carrier's reputation for build quality and reliability comes from being designed, manufactured and tested in Europe's largest chiller production and R&D facilities undergoing rigorous life cycle testing.

For full details on configurations and options please refer to our comprehensive product brochure, however major features for this Global leading product range include:

- Class leading part load efficiency up to SCOP 3.77
- Exceeding 2021 Tier 2 EcoDesign regulations.
- Reduced environmental impact thanks to low refrigerant volumes.

BREEAM:

- DELC <100kgCO_{2e}/kW; worth 2 BREEAM credits.
- In built energy monitoring for sub metering.
- ISO 14025 LCA; Product Environmental Profile.

SmartVu™ full colour touch screen with:

- F-Gas & Maintenance scheduling.
- Web connectivity as standard.
- ModBUS, LON & BACnet BMS options.

Units are highly configurable with options such as:

- Electronic flow measurement.
- VSD & fixed speed; pumps & AC/EC fan motors.
- Expansion & buffer tanks.
- Choice of coil coatings to suit most environments.



(For illustration purposes only)

AQUASNAP®

*Performance you can trust.
Independently certified by Eurovent.*

Included in the above net cost, are the following options:

Code	Product Name	Qty	
Delivery to Curb side	Excluding off-loading & positioning	4.00	
30RQP520R_149	Bacnet over IP	4.00	
30RQP520R_252	Coil defrost resistance heater	4.00	
30RQP520R_25E	Circuit soft starter	4.00	
30RQP520R_15LS	Compressor acoustic enclosures + Low speed fans	4.00	
30RQP520R_298A	BluEdge Digital (Connectivity embedded)	4.00	
30RQP520R_41	Exchanger & hydraulic module frost protection	4.00	
30RQP_0380-0520_AVMS	Anti-Vibration Mounts (supplied loose)	4.00	
UK_SER_COMM_13	Air Cooled Heat Pumps Commissioning- 1 Day - Central	4.00	

Pricing REF: DHW Heat Pump

No. off	Model number	Description	Total Net Cost
1	61XWH-ZE03	AquaForce Water Source Heat Pump	£67,625.00 + VAT

These AQUAFORCE™ heat pumps represent the best in reliable & efficient screw technology incorporating our own unique compressor, condenser & evaporator designs. Ideally suited for large scale high temperature renewable heating applications capable of extracting useful heat from a wide range of sources whilst utilizing ultra-low GWP HFO refrigerant R1234ze. Carrier's reputation for build quality and reliability comes from being designed, manufactured and endurance tested in Europe's largest chiller production and R&D facilities undergoing rigorous life cycle testing.

For full details on configurations and options please refer to our comprehensive product brochure, however major features for this Global leading product range include:

- Heating temperatures up to 85°C
- Source outlet temperatures from -5 to 45°C
- High delta T design up to 20K per unit
- Multiple units capable of series counterflow
- Low GWP refrigerant A2L, R1234ze, GWP 0.9
- Ultra-reliability; bearing life 100,000 hours

Efficient design thanks to:

- Up to 40% COP improvement with series counterflow
- Latest generation own twin-rotor screw compressors.
- Unique cleanable flooded heat exchangers
- Economizer circuit
- Patented compressor control algorithm

BREEAM:

- GWP≤10; worth 2 BREEAM credits.



(For illustration purposes only)

AQUAFORCE.

Included in the above net cost, are the following options:

Code	Product Name	Qty	
Delivery to curb side	Excluding off-loading & positioning	1.00	
61XWH-ZE03_149	BacNet over IP	1.00	
61XWH-ZE03_194	Dual relief valves on 3-way valve	1.00	
61XWH-ZE03_158A	Touch Pilot 7" display	1.00	
61XWH-ZE03_25A	Compressor Star-Delta starter	1.00	
61XWH-ZE03_298A	BlueEdge Digital (Connectivity embedded)	1.00	
UK_SER_COMM_23	Water Cooled Heat Pumps Commissioning - 1 Day - Central	1.00	

Pricing

No. off	Model number	Description	Total Net Cost all 3
Three	61XWH-ZE 05	AquaForce Water Source Heat Pumps	£250,644.89 + VAT

These AQUAFORCE™ heat pumps represent the best in reliable & efficient screw technology incorporating our own unique compressor, condenser & evaporator designs. Ideally suited for large scale high temperature renewable heating applications capable of extracting useful heat from a wide range of sources whilst utilizing ultra-low GWP HFO refrigerant R1234ze. Carrier's reputation for build quality and reliability comes from being designed, manufactured and endurance tested in Europe's largest chiller production and R&D facilities undergoing rigorous life cycle testing.

For full details on configurations and options please refer to our comprehensive product brochure, however major features for this Global leading product range include:

- Heating temperatures up to 85°C
- Source outlet temperatures from -5 to 45°C
- High delta T design up to 20K per unit
- Multiple units capable of series counterflow
- Low GWP refrigerant A2L, R1234ze, GWP 0.9
- Ultra-reliability; bearing life 100,000 hours

Efficient design thanks to:

- Up to 40% COP improvement with series counterflow
- Latest generation own twin-rotor screw compressors.
- Unique cleanable flooded heat exchangers
- Economizer circuit
- Patented compressor control algorithm

BREEAM:

- GWP≤10; worth 2 BREEAM credits.



(For illustration purposes only)

AQUAFORCE

Included in the above net cost, are the following options:

Code	Product Name	Qty	
Delivery to Curb side	Excluding off-loading & positioning	3.00	
61XWH-ZE05_149B	Modbus over IP and RS485	3.00	
61XWH-ZE05_25A	Compressor Star-Delta starter	3.00	
61XWH-ZE05_257	Low sound operation	3.00	
61XWH-ZE05_158A	Touch Pilot 7" Display	3.00	
61XWH-ZE05_194	Dual relief valves on 3-way valve	3.00	
61XWH-ZE05_298A	BluEdge Digital (Connectivity embedded)	3.00	
UK_SER_COMM_23	Water Cooled Heat Pumps Commissioning - 1 Day - Central	3.00	

Project Notes/Comments on Spec:

There will be an over all noise reduction to the 30RQP 520 ASHPs using Option 15 LS = **Acoustic compressor enclosures** and **low speed fans** 900 rpm to 700 rpm.

However, in **heating mode** the speed is adjusted (700 -900 rpm) according to the running conditions in order to preserve and maintain performances (this also reduces the amount of time in defrost period) Therefore, the full benefit of low speed fans and reduced noise level will be negated.

The 30RQP-520R ASHP units will now be supplied **without** the Hydronic modules, so pumps & expansion tanks are excluded from our scope of supply.

Click **HERE**
to download the full Carrier Catalogue

Price Fluctuations

Whilst our quotation is fixed for manufacturing costs for the validity of our offer, our quoted prices are based upon the current exchange rate between the pound Sterling and the Euro at the close of trading on the date of the quote and could fluctuate with the rate of exchange. Our prices do not allow for the influence, if any, of factors such as import surcharge or value added tax. We reserve, therefore, the right to adjust the quoted prices to allow for such unavoidable price increases affecting the production, sale and/or shipment of these goods.

Programme

Actual delivery periods will be confirmed in our acknowledgement of your official order, therefore please contact us for further information with regards to Delivery periods.

Where prices are quoted as including delivery to site, we reserve the right to charge for part deliveries and for special deliveries outside normal working hours.

Warranty / Maintenance

Standard warranty is 12 months parts and labour from date of commissioning or 18 months from delivery, whichever is sooner.

Safety

This unit uses R1234ze refrigerant which has an A2L: Lower Flammability classification according to ISO-817. This means that it is safe to be used in most indoor installations. To ensure safe operation we advise that the unit is installed in accordance with the relevant safety standards such as EN-378, DSEAR and reference is made to the guidelines in our IOM. Copies are available from our Technical Sales & Support Teams.

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Exclusions

1. Any offloading and/or positioning of equipment on site.
2. Any provision of lifting tackle required for site offloading.
3. Any scaffolding.
4. Any builder's work or allied tradesman's work.
5. Any preparation of foundations, sub-bases or making good.
6. Any plumbing work, condensate water or drain connections; chilled water pipe work, condenser water pipe work, supply or return air ductwork, pumps or insulation thereon.
7. Any electrical wiring or isolating switchgear not included as part of the unit.
8. Any system sensors for recording chilled and condenser water temperatures.
9. Any commissioning of equipment unless otherwise stated above.
10. Any item not specifically mentioned in our quotation and/or specification.
11. Special deliveries including the below:-
 - a) deliveries before 08:30 or after 17:30 Monday to Friday or anytime at the weekend
 - b) timed deliveries
 - c) specific vehicle type (e.g. Flatbed or Hiab)
 - d) storage or indirect delivery
 - e) Anything not specifically stated within this quotation, as a deviation from our standard kerbside delivery
12. Any deviation from equipment performance data when accessories are used with **Carrier** equipment but without our prior consultation.
13. Any liability for the construction and performance of equipment/parts stipulated by contractor/client but not designed by a company within the **Carrier** Organisation.

**Validity Period**

Our offer is open to acceptance for a period of 30 days, after which it may be subject to revision. Please do not hesitate to contact us if you have any queries or require additional information.

This proposal should not be disclosed outside Customer's organisation and shall not be duplicated, used or disclosed -in whole or in part - for any purpose other than to evaluate this offer and for determining the terms of any resulting contract.

Storage and delivery

In the event of a delay in the initially scheduled delivery date caused by the Client for any order, the Client undertakes to inform the Company of the chosen warehouse where the latter can proceed with the delivery of the order. If the Client does not specify a warehouse, the Company may select one at its discretion. The storage of orders will be carried out at the exclusive expense of the Client, including unloading, reloading, and subsequent transportation to the site. If the orders are stored at a Carrier site, the Company reserves the right to invoice the client for storage fees. Delivery shall be deemed to have occurred upon the handover of the orders to the warehouse.

Payment conditions:

Subject to prior credit referencing and account status. A payment schedule will then be agreed upon between both parties.

Example payment schedule :

- 25% at order
- 70% at delivery
- 5% at commissioning

Carrier – Your Complete Integrated HVAC Solution
01372 220 220