Introducing Edel

- Low carbon hot water heat pump.
- Hot water solutions to improve the SAP rating.
- Help pass the building regulations.
- Reduce fuel poverty.
Over nearly 70 years Dimplex has built a portfolio of over 700 products delivering solutions to a wide range of customers.

- We are the world’s largest electric heating appliance manufacturer and have a proud reputation for continued investment in quality and innovation.

- We are backed by an award-winning customer service team and are members of HWA, ECA, EDA, BEAMA and HEVAC. We have sold more than 45 million heaters via the trade in the UK.

- Hot water heat pumps help to solve another piece of the puzzle. They won’t be ideal for every situation but they give provide an ideal solution in some circumstances.

- Don’t forget our market leading Storage heaters, Panels, Fires, Heat pumps and Cylinders.
Every year, the Glen Dimplex group sell 10,000 heat pumps in France.

- Uses external air as source of energy.
- The Edel heat pump consumes over 3 times less electricity than standard electric water heaters.
- Stainless steel tank with 5 year guarantee and no requirement for sacrificial anode.
- Very quiet operation due to sound proof hood, variable speed fan and a high performance rotary compressor mounted on anti-vibration pads.
Controls for the UK market

**Intuitive controller with four operating modes:**

- Boost mode for periods of higher hot water consumption.
- Comfort mode for everyday use.
- Eco mode lowers the water temperature when the property is empty.
- Holiday mode re-starts hot water production before the home owner returns from a period being away.

**Features for the UK market:**

- Compatible with Off-peak tariffs.
- Built in defrost mode for use with external air.
- Meets Part G3 or the UK water regulations via KIWA approval (pending). Includes factory fitted T&P valve. Tundish and inlet group included in scope of supply.
### Dimensions & connections

<table>
<thead>
<tr>
<th></th>
<th>Edel 200 Air UK</th>
<th>Edel 270 Air UK</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dimensions</strong></td>
<td>mm</td>
<td>630 x H 1426</td>
</tr>
<tr>
<td>Weight with packaging</td>
<td>kg</td>
<td>80</td>
</tr>
<tr>
<td>Weight without packaging</td>
<td>kg</td>
<td>65</td>
</tr>
<tr>
<td>Air duct diameter</td>
<td>mm</td>
<td>160</td>
</tr>
<tr>
<td>Maximum ducting length</td>
<td>m</td>
<td>Smooth ducting: 20m total (intake and outlet)</td>
</tr>
<tr>
<td>Water connections</td>
<td>Inch</td>
<td>M 3/4&quot;</td>
</tr>
<tr>
<td>Condensate tube</td>
<td>mm</td>
<td>18/23</td>
</tr>
<tr>
<td>Electrical supply</td>
<td></td>
<td>230V - 50Hz- 16A</td>
</tr>
<tr>
<td>IP rating</td>
<td></td>
<td>IPX1</td>
</tr>
<tr>
<td>MCB type C</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

### Hot water cylinder

- **Material**: Stainless steel
- **Insulation**: 45mm PU foam with PVC outer
- **Refrigeration heat exchanger**: Double walled separation from potable water
- **Maximum operating pressure**: bar 6
- **Maximum condensate production**: L/h 0.3
- **Integrated electric immersion**: W 1500
- **Maximum temperature with immersion**: °C 65

### Approvals

- **Water regulations**: G3 KIWA approval to EN12897 pending
- **Accessories**: Factory fitted T&P valve, Inlet group, tundish, expansion vessel

### Performance

- **COP [EN16147]**: 3.22 3.41
- **Heat up Time [hh:mm]**: 6:30 8:30
- **Heat pump output [W]**: 1500
The electric heating market represents approximately 9% of the total English domestic heating market, according to the 2013 English housing survey undertaken by DECC.

Across the entirety of the UK this is closer to 10% as Scotland and Wales have significant off gas grid areas which use electric heating.

Electric heating is also commonly used in hotels, student accommodation blocks, care homes, social housing developments and is dominant in the new build sector for flat/apartments.

A hot water heat pump will help electric heating achieve a pass in SAP when used in conjunction with MVHR, which is typical to most new build flatted developments.

A hot water heat pump will also be able to improve the EPC rating and energy efficiency against a host of alternate systems, helping Private Landlords achieve compliance with the Energy Efficiency Directive, it will also help reduce fuel poverty.
Why Edel & electric heating

Electrical panel heaters are a firm favourite as they offer the following attributes when considered within the building design.

- Lower capital costs
- Faster build speeds
- Design flexibility
- No flue runs or boiler condensate pipework
- Lower overheating risk
- No complex billing arrangements or heat meters
- Tried and tested technology.

Since the introduction of carbon reduction targets, building regulations have tightened making it harder to install electric heating.

With the Edel hot water heat pump in a typical flatted development Part L can easily be achieved with electric heating.
Building Regulations and compliance

- Since 2002 the Target emission rate has been successively tightened.
- Fabric values and air change rates have reduced significantly making it no longer cost effective to continue reducing carbon emissions from Space Heating.
- Hot water has become the dominant load, therefore a significant amount of energy/carbon emissions can be saved for hot water production.
**New build flatted development scenario**

**Modelling and building types**

- **2 Building Types**
  - 1 bedroom apartment
  - 2 bedroom apartment
- All FEES compliant
- Approved thermal bridging construction
- Double glazing
- Quantum electric heating
- Buildings modelled are from real dwellings
- Midlands location in sheltered location
- Airtightness of 5 with two MEV extract fans
- LED lights throughout
- Electric Water Heater <2 kwh per 24/hrs

<table>
<thead>
<tr>
<th></th>
<th>Scenario 1 (Historic)</th>
<th>Scenario 2 (PV)</th>
<th>Scenario 3 (Edel)</th>
<th>Scenario 4 (Edel)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Space heating</td>
<td>Quantum</td>
<td>Quantum</td>
<td>Quantum</td>
<td>Quantum</td>
</tr>
<tr>
<td>Hot water</td>
<td>Standard Cylinder</td>
<td>Standard Cylinder</td>
<td>Edel heat pump</td>
<td>Edel heat pump</td>
</tr>
<tr>
<td>Ventilation</td>
<td>Natural</td>
<td>Natural</td>
<td>MVHR</td>
<td>MVHR</td>
</tr>
<tr>
<td>Photovoltaic</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Results – Scenario 1

Quantum, standard cylinder - fail

<table>
<thead>
<tr>
<th>Property type</th>
<th>Space heating</th>
<th>Water heating</th>
<th>Ventilation</th>
<th>Renewables</th>
<th>TER KG CO² per m²</th>
<th>DER KG CO² per m²</th>
<th>Energy Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 bedroom apartment</td>
<td>Quantum</td>
<td>Standard cylinder</td>
<td>Natural 5m³/hm²@50Pa</td>
<td>N/A</td>
<td>25.0</td>
<td>32.5</td>
<td>B</td>
</tr>
<tr>
<td>2 bedroom apartment</td>
<td>Quantum</td>
<td>Standard cylinder</td>
<td>Natural 5m³/hm²@50Pa</td>
<td>N/A</td>
<td>20.1</td>
<td>26.2</td>
<td>B</td>
</tr>
</tbody>
</table>

- Traditional electric heating and standard natural ventilation doesn’t pass the current regulations.
Results – Scenario 2

Quantum, standard cylinder with PV - Pass

<table>
<thead>
<tr>
<th>Property type</th>
<th>Space heating</th>
<th>Water heating</th>
<th>Ventilation</th>
<th>Renewables</th>
<th>TER KG CO² per m²</th>
<th>DER KG CO² per m²</th>
<th>Energy Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 bedroom apartment</td>
<td>Quantum</td>
<td>Standard cylinder</td>
<td>Natural 5m³/hm²@50Pa</td>
<td>1.2kW PV</td>
<td>25.0</td>
<td>23.4</td>
<td>A</td>
</tr>
<tr>
<td>2 bedroom apartment</td>
<td>Quantum</td>
<td>Standard cylinder</td>
<td>Natural 5m³/hm²@50Pa</td>
<td>1.6kW PV</td>
<td>20.1</td>
<td>18.5</td>
<td>A</td>
</tr>
</tbody>
</table>

Part L compliance is possible with PV panels, however:
- South facing roofs may not be available.
- There may not be enough roof space to install enough panels for off of the apartments.
- The architect may not want to spoil the aesthetic of the building.
Results – Scenario 3

Quantum, EDEL and MVHR - Pass

<table>
<thead>
<tr>
<th>Property type</th>
<th>Space heating</th>
<th>Water heating</th>
<th>Ventilation</th>
<th>Renewable</th>
<th>TER KG CO² per m²</th>
<th>DER KG CO² per m²</th>
<th>Energy Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 bedroom apartment</td>
<td>Quantum</td>
<td>Edel</td>
<td>MVHR 3m³/hm² @50Pa</td>
<td>N/A</td>
<td>25.0</td>
<td>21.3</td>
<td>B</td>
</tr>
<tr>
<td>2 bedroom apartment</td>
<td>Quantum</td>
<td>Edel</td>
<td>MVHR 3m³/hm² @50Pa</td>
<td>N/A</td>
<td>20.1</td>
<td>17.4</td>
<td>B</td>
</tr>
</tbody>
</table>

The Edel hot water heat achieves the required DER:
- Currently SAP only gives Hot Water heat pumps an efficiency of 170%
- The actual performance measured to the European standard is 340%
- Dimplex are currently discussing adding the correct performance to SAP Q
- In the future indicative calculations suggest it may not be necessary to include MVHR

<table>
<thead>
<tr>
<th>Hot water heat pump efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing efficiency recognised in SAP</td>
</tr>
<tr>
<td>Efficiency measured to European standard</td>
</tr>
</tbody>
</table>
### Results – Scenario 4

**Quantum, Edel, MVHR & PV - London Plan - Pass**

<table>
<thead>
<tr>
<th>Property type</th>
<th>Space heating</th>
<th>Water heating</th>
<th>Ventilation</th>
<th>Renewables</th>
<th>TER KG CO² per m²</th>
<th>DER KG CO² per m²</th>
<th>Energy Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 bedroom apartment</td>
<td>Quantum</td>
<td>Edel</td>
<td>MVHR 3m³/hm²@50Pa</td>
<td>0.7kW PV</td>
<td>25.0 (16.2)</td>
<td>15.7</td>
<td>A</td>
</tr>
<tr>
<td>2 bedroom apartment</td>
<td>Quantum</td>
<td>Edel</td>
<td>MVHR 3m³/hm²@50Pa</td>
<td>0.9kW PV</td>
<td>20.1 (13.1)</td>
<td>12.8</td>
<td>A</td>
</tr>
</tbody>
</table>

- Part L compliance in London requires a reduction of 25% beyond the DER
- Compliance is possible using multiple technologies
- Once Edel is recognised on SAPQ London compliance may be possible by removing either MVHR or PV.
Installation considerations

Necessary connections and equipment:
- Electrical supply
- Cold water
- Hot water draw off
- Condensate drain
- T&P valve and discharge
- Expansion vessel

Product features:
- Versatile ducting connections
- PV function to boost hot water temp
- Adjustable fan speed for ducting over 5m
- Electrical backup and Boost mode
- Economy mode
- Freeze protection mode
- Holiday mode
Ducting Information

<table>
<thead>
<tr>
<th></th>
<th></th>
<th><strong>160MM INSULATED DUCT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>188210</td>
<td>160MM INSULATED DUCT 2M</td>
</tr>
<tr>
<td>2</td>
<td>188225</td>
<td>160MM INSULATED DUCT 90° BEND</td>
</tr>
<tr>
<td>3</td>
<td>188224</td>
<td>160MM INSULATED DUCT 45° BEND</td>
</tr>
<tr>
<td>4</td>
<td>188255</td>
<td>160MM INSULATED DUCT CONNECTOR</td>
</tr>
<tr>
<td>5</td>
<td>169139</td>
<td>160MM INSULATED DUCT WALL BRACKET</td>
</tr>
<tr>
<td>6</td>
<td>188845</td>
<td>160MM CIRCULAR WALL TERMINAL W/MESH INOX</td>
</tr>
</tbody>
</table>
Installers must ensure ducting must be compliant with Approved document F

- Ducting carrying external air must be insulated
- It is not permissible to take air from un-insulated loft spaces
- Consideration must be made when ducting crosses fire zones
- 5 items of ducting available from Dimplex, the installer can order other accessories direct from Ubbink via Travis Perkin.
- Maximum equivalent length is 20m.

<table>
<thead>
<tr>
<th>Dimplex model number</th>
<th>Dimplex Description</th>
<th>Ubbink part code</th>
<th>Pressure loss at 250 / 400 m3/h (PA)</th>
<th>Equivalent length of straight ducting at 250 / 400 m3/h (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID2M-160</td>
<td>160MM Insulated duct 2m</td>
<td>730011</td>
<td>1.7 Pa / 5.3 Pa</td>
<td>0.3m / 2m</td>
</tr>
<tr>
<td>IDWT-160</td>
<td>160MM Circular wall terminal with Inox mesh</td>
<td>730015</td>
<td>42.0 Pa / 127 Pa</td>
<td>8m / 25m</td>
</tr>
<tr>
<td>ID90-160</td>
<td>160MM Insulated duct 90° bend</td>
<td>730012</td>
<td>8.1 Pa / 20.2 Pa</td>
<td>1.6m / 4m</td>
</tr>
<tr>
<td>IDC-160</td>
<td>160MM Insulated duct connector</td>
<td>730014</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>IDWB-160</td>
<td>160MM Insulated duct wall bracket</td>
<td>730013</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
There are few manufacturers providing UK Building Regulation compliant products into the UK market.

Ariston and Joule have been identified as the primary manufacturers who do produce UK Building Regulation approved products which are third party certified.

Installers and plumbing contractors appear to source products from Europe/Asia that do not meet the requirements of UK Building Regulations.

Consultants and specifiers are not always aware of the UK Building Regulation requirements, Building Inspection officers themselves may not know what exactly to look out for when inspecting a new build or replacement cylinder.
Challenges to Market

1. **Air Ducting Installation** – installers struggle with the technical requirements of designing, specifying and installing ducting. Not part of a typical water cylinder installation.

2. **Reheat times** – End users are not familiar with long reheat times, typically hot water can be obtained within 30 minutes with a standard electrically heater water cylinder whereas 6.5 to 8.5 hours reheat time with many DHW HP’s.

3. **Sizing** – Correct sizing of the DHW cylinder is key to ensure sufficient how water is available for the complete day. Some confusion exists as to how to size cylinder properly and this is more critical for DHW HP’s with long reheat times.

4. **Acceptance** – Confidence in the technology is not as strong in the UK as it appears in Europe. The technology is not “tried and trusted” and essentially new to most potential customers.

5. **Specification** – Educating specifiers and consultants in the use of the technology, the installation methods required but also the gains for building models and SAP ratings.
Thank you!

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