Comparative table of insulin pumps

Pumps reviewed:
- Accu-Chek Combo (Roche)
- Accu-Chek insight (Roche)
- MiniMed™ Paradigm Veo™ (Medtronic)
- MiniMed 640G (Medtronic)
- Mylife OmniPod (Ypsomed Ltd)
- Mylife YpsoPump (Ypsomed Ltd)
- DANA Diabecare R (Advanced Therapeutics UK Ltd)
- DANA Diabecare RS (Advanced Therapeutics UK Ltd)
- A6 TouchCare® (Medtrum)
- Cellnovo (Cellnovo)
<table>
<thead>
<tr>
<th>Pump</th>
<th>Accu-Chek® Combo (Roche)</th>
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<th>DANA Diabecare RS (Advanced Therapeutics UK Ltd)</th>
<th>A6 TouchCare® (Medtrum)</th>
<th>Cellino (Cellino)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image</td>
<td>![Image](103x84 to 150x145)</td>
<td>![Image](103x171 to 161x225)</td>
<td>![Image](103x236 to 145x286)</td>
<td>![Image](103x297 to 169x355)</td>
<td>![Image](103x365 to 158x428)</td>
<td>![Image](103x461 to 158x530)</td>
<td><img src="49x19" alt="Image" /></td>
<td><img src="49x107" alt="Image" /></td>
<td><img src="49x174" alt="Image" /></td>
<td><img src="49x239" alt="Image" /></td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>System combines insulin pump with smart handset that is both a blood test meter and a bolus calculator linked via Bluetooth. Insulin Pump for users of large daily volume of insulin.</td>
<td>Insulin pump for patients with very low basal insulin requirements. It offers option of using a prefilled insulin cartridge; Handset acts as a blood glucose monitor, bolus advisor, data manager and remote control for the pump, linked via Bluetooth.</td>
<td>Insulin Pump with low glucose suspend feature when used with compatible CGM sensors</td>
<td>Insulin Pump with SmartGuard algorithm that uses CGM data to predict and prevent hypos. Provided as standard, however, some patients may still be offered Paradigm Veo™, the previous model*.</td>
<td>Tubeless insulin pump comprising insulin filled pod with automatic insertion mechanism. Personal diabetes monitor (PDM) has built-in FreeStyle blood glucose meter.</td>
<td>Intuitive insulin pump focused on ease-of-use and data connectivity. Links to mylife App for bolus calculations and data sharing / review.</td>
<td>Insulin Pump and handset (Bluetooth connection) with built-in blood test meter. Bluetooth connection to Android smartphone for full remote control. (fully featured***)</td>
<td>Insulin pump that communicates with smartphone app via two-way Bluetooth low Energy 4.0 connectivity, to remotely operate pump (fully featured***)</td>
<td>Tubeless Insulin pump (reusable pump base and disposable reservoir patch) and CGM System</td>
<td>Insulin pump and handset with touch screen controls and built in blood glucose monitor.</td>
</tr>
<tr>
<td><strong>Dimensions</strong> (mm)</td>
<td>82.5 x 56 x 21</td>
<td>72 x 52 x 16 mm without adapter 84 x 52 x 19 mm with adapter</td>
<td>51 x 94 x 20cm</td>
<td>86 or 96 x33x25 (1.8 or 3.0mL pump)</td>
<td>52 x 39 x 14.5</td>
<td>78 x48 x16</td>
<td>79 x 45 x 19</td>
<td>79 x 45 x 19</td>
<td>Patch pump: 56.5 x 33.3 x 13.3 Transmitter: 36.1 x 19.4</td>
<td>Pump:52.8 x 35.34 x 14.3 (including insulin cartridge)</td>
</tr>
<tr>
<td><strong>Weight (g)</strong></td>
<td>80 (no cartridge or battery)/ 110 incl battery, full cartridge and infusion set</td>
<td>115 (including battery, full cartridge, infusion set)</td>
<td>102 (including battery)</td>
<td>102 (3.0mL) including battery-</td>
<td>25</td>
<td>83g (incl battery and full cartridge)</td>
<td>63 (incl battery)</td>
<td>62 (incl battery)</td>
<td>Patch pump: 21.5 Transmitter: 4.8 (incl battery)_</td>
<td>Pump: 32 (incl cartridge)</td>
</tr>
<tr>
<td><strong>Water Proofing (IPX8 = fully waterproof)</strong></td>
<td>IPX 8 (waterproof up to a depth of 2.5m for 60mins)</td>
<td>IPX8 (1.3m for 60 minutes)</td>
<td>IPX 7 (splash proof)</td>
<td>IPX 8 (3.6 m for up to 60 minutes)</td>
<td>IPX 8 (7.6m for 60 mins)</td>
<td>IPX 6 (1m for 60 mins)</td>
<td>IPX 8</td>
<td>IPX 8</td>
<td>IPX 8 (2.5m for up to 60 mins)</td>
<td>IPX8 (1.1m for 60mins)</td>
</tr>
<tr>
<td><strong>Reservoir/ cartridge and capacity (units)</strong></td>
<td>Accu-Chek Easyfill cartridge (315 units)</td>
<td>Pre-filled NovoRapid PumpCart (160 units)</td>
<td>Reservoirs: 180 or 300 units</td>
<td>Reservoirs: 180 or 300 units</td>
<td>Pod itself 200 units Replace Pod at least once every 72 hours or up to 200 units of insulin (3 days).</td>
<td>Novo Nordisk Pump Cart (Pre-filled) or mylife Reservoir (self-filled) cartridges 160 units</td>
<td>DANA Diabecare R 3ml cartridges 300 units</td>
<td>DANA Diabecare R 3ml cartridges 300 units</td>
<td>Self-contained reservoir patch (changed every 2-3 days 200 units</td>
<td>Cellino Insulin cartridge (changed every 3 days 150 units)</td>
</tr>
</tbody>
</table>
### Pump

<table>
<thead>
<tr>
<th>Pump</th>
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### CGM capability

| Eversense XL CGM system. Sensor does not need to be changed for up to 180 days (claimed to be longer than other CGM systems which require weekly or more frequent sensor change)  
|**Standalone CGM only**|

| Min: 0.05U/h  
Max: 50U/h  
-24 hourly basal rates, adjustable in unit increments of 0.01 (up to 1.00 U/h), 0.05 (up to 10.0 U/h) and 0.1 (up to 50.0 U/h).  
-Option to set 5 basal profiles.  
-Temporary basal rate(TBR) can be set |

| Basal rates from 0.025 U/hr; max: 35 U/hr  
-potential for 48 Basal rates  
-Option for up to 8 pre-set temporary basal patterns e.g. high, 'moderate and 'low activity', work day, day off and sick |

| Minimum: 0.025 U/hr  
Maximum: 35 U/hr  
PDM can store up to 7 basal programmes; of which each contains 24 rates programmed in half hour increments |

| Minimum: 0.02U/h in increments of 0.01U/h  
Maximum: 40U/hr;  
Up to 24 segments per programme  
2 basal rate profiles.  
Temp basal available – 15 minute increments for up 24hr |

| Minimum: 0.04U/h  
Max: 16U/h  
Minimum increment: 0.01U/hr  
4 individual adjustable basal profiles with 24 basal rates |

| Minimal: 0.04 U/h  
Increments: 0.1 U/h or 0.1 U/hr  
• Number of Rates Per Profile: 24/day, hourly  
• 4 Profiles |

| Minimum: 0.05U/h  
Maximum: 10 U/h  
48 segments basal rate setting  
Basal rate increments 0.05 U/hr  
Option to set 5 basal profiles |

| Basal flow rate from 0.05U/h to 5.0 U/hr adjustable in 0.05u increments, programmed in hour by hour time blocks over 24hr period.  
Potential for 24 different basal rates in 24 hours  
Potential for up to 20 different basal profiles |

### Bolus settings

| Delivers up to 50U  
4 bolus options: quick/standard/extended bolus/multiwave  
Quick bolus: 0.1/0.2/0.5/1.0/2.0U increments; for other modes, 0.1U |

| Maximum bolus amount/delivery: 50 U  
Standard, Extended and Multiwave Boluses, adjustable in increments of 0.05 U (up to 2.0 U), 0.1 U (2-5 U), 0.2 U (5-10 U), 0.5 U (10-20 U), 1.0 U (20-25 U) |

| Minimum: 0.02S  
Maximum: 75U  
3 settings: standard/ Square wave/ Dual wave |

| 0.02S to 0.05 U increments  
-Maximum: 75U  
-3 personalised bolus settings: standard, dual, and square wave  
-Discrete remote bolus from Bayer Contour Next Link Meter (provided with pump)  
-Pre-set bolus options. |

| 0.05, 0.1, 0.5 or 1.0U bolus increments  
Max 30 U  
Max flow rate 1.5U/min |

| 0.1U, 0.5U, 1.0U and 2.0U bolus increments  
30U maximum |

| Dosage increments in 0.05, 0.1, 0.5 or 1.0 units up to 60U  
Extended bolus (30 mins to 6 hrs)  
Dual pattern bolus |

| Bolus increments in 0.05, 0.1, 0.5, 1.0 U  
Up to 80 units  
Extended bolus (30mins to 12hrs)  
Dual pattern Bolus |

| Bolus increments: 0.05 U (maximum 25 U)  
Normal, extended and combo boluses  
Delivers up to 30U bolus in increments of 0.05U  
-4 different methods of delivery: immediate/extended/dual phase/multi phase |
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**Infusion sets**

- **Accu-Chek FlexLink Plus range**: Manual or automatic insertion using Accu-Chek LinkAssist Plus insertion device, in a 90° angle with a soft cannula.
  - Three cannula lengths (6 / 8 / 10mm) and three (40 / 70 / 100cm) tubing lengths for maximum comfort, convenience and wear ability.
  - Snap out – snap in mechanism exposes introducer needle only when needed.
- **Accu-Chek Insight range**: Automatic or manual insertion in a 90° angle with a soft cannula.
  - Three cannula lengths (6 / 8 / 10mm) and three tubing lengths (40 / 70 / 100cm) for maximum comfort and convenience.
  - Unique snap out – snap in mechanism exposes introducer needle only when needed.
- **Minimed Mio / Quick Set / Silhouette / SureT range**
  - Cannula lengths 6mm, 9mm, 90° degree angle
  - Cannula tubing length 45cm, 60cm, 80cm and 110cm
- **Accu-Chek Tender Link**: Soft infusion set.
  - Soft cannula with a variable 20 – 45 degree insertion angle.
  - Needle guard safety mechanism only exposes needle for use.
  - Two cannula lengths (13 and 17mm) and three tubing lengths (40/70/100cm)
- **Accu-Chek Rapid D Link**: 90° steel cannula available in lengths of 6mm, 8mm, 10mm, and tubing in 20/50/70/110cm lengths.

**Battery for pump (life expectancy where stated)**

- **MiniMed Mio / Quick Set / Silhouette / SureT**: 1.5 V alkaline battery lasts up to 8 weeks for Pump, 1xAAA Lithium battery last up to 4 weeks for handset (part of service pack).
- **Minimed Mio / Quick Set / Silhouette / SureT**: 1.5 V alkaline (14 days based on 50 U/day).
- **Accu-Chek Tender Link**: 1 AAA alkaline (50 U/day using U-100 insulin); battery life ~ 5 days alkaline and 14-28 days lithium (with Bluetooth).
- **Minimed Mio / Quick Set / Silhouette / SureT**: 1 AA (1.5 V) battery, preferably lithium (7-14 days).
- **Accu-Chek Tender Link**: 3 xNeriger A76INS inside pod which are discarded with pod.
- **Minimed Mio / Quick Set / Silhouette / SureT**: 1.5 V alkaline AAA. (~ 30 days based on 50 U/day).
- **Accu-Chek Tender Link**: Company’s own 3.6v lithium (6-8 weeks).
- **Accu-Chek Tender Link**: 1x 1.5V AA lithium battery lasts up to 8 weeks for Pump, 3xAAA Lithium batteries last up to 4 weeks for handset (part of service pack).
- **Accu-Chek Tender Link**: 1 AAA alkaline (~14 days based on 50 U/day).
- **Accu-Chek Tender Link**: 1 AA (1.5 V) battery, preferably lithium (7-14 days).
- **Accu-Chek Tender Link**: 3 xNeriger A76INS inside pod which are discarded with pod.
- **Accu-Chek Tender Link**: 2 AAA in PDM (3 weeks).
- **Accu-Chek Tender Link**: 1.5 V alkaline AAA. (~ 30 days based on 50 U/day).
- **Accu-Chek Tender Link**: Company’s own 3.6v lithium (6-8 weeks).
- **Accu-Chek Tender Link**: Patch pump: powered by 2 button batteries (1.5V); lasts ~3 weeks.
- **Accu-Chek Tender Link**: PDM: 1 X AAA Alkaline battery (1.5V).
- **Accu-Chek Tender Link**: Transmitter: built-in 3.7V polymer lithium (7 days and then recharged for 15-20 minutes).
- **MiniMed Mio / Quick Set / Silhouette / SureT**: Battery life: 3 days based on 50U per day.

**Warranty**

4 years
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<td><strong>Availability 24 hour Support</strong></td>
<td>24-hour insulin pump helpline (Tel 0800 731 22 91)</td>
<td>24-hour technical Support (Tel 01923 205 167, office hours 09.00-17.00, US call centre out of hours)</td>
<td>24-hour Customer support (Tel 03448567820– UK based personal)</td>
<td>24-hour Customer support (Tel 07775 642 239– UK based personal)</td>
<td>24-hour Customer support (Tel 07775 642 239– UK based personal)</td>
<td>24-hour support helpline (Tel 0800 025 8009-UK based personal)</td>
<td>Online support available: <a href="http://www.cellino.com">www.cellino.com</a></td>
<td>Real time chat, appointments and email</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Paradigm Veo™ does not have following capabilities of MiniMed™ 640G system: SmartGuard™ (predictive suspend before low) capability, favourite temporary basal rates and boluses cannot be saved, remote bolus from blood glucose meter, LCD coloured screen, quick view icons, water resistant but not waterproof, transmitter is MiniLink Transmitter (not Guardian 2 Link Transmitter). A separate CareLink™ USB dongle is required to download pump data into the CareLink™ software.

** Manufacturer of Omnipod® System, Insulet Corporation, will take over marketing, sales, and distribution of Omnipod® System, including all associated customer service activities, from Ypsomed as of 1 July 2018.

*** DANA Handset and the companion smartphone apps are complete remote controls; once remote control is set up there is no part of pump functionality that is not available via remote control.
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<th>Features</th>
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<th>Cellinovo (Cellinovo)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bolus calculator/wizard</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Carbohydrate calculator</td>
<td>x</td>
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<td>✓</td>
<td>✓</td>
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<tr>
<td>Reference food library</td>
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<td>x</td>
<td>x</td>
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<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>✓</td>
</tr>
<tr>
<td>Missed meal bolus alert</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>x</td>
<td>x</td>
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<tr>
<td>Button lock mode to prevent unintended operation</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
<td>✓</td>
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<td>✓</td>
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<tr>
<td>Alarm: low battery/low reservoir/occlusion</td>
<td>✓</td>
<td>✓</td>
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<td>✓</td>
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<tr>
<td>Bolus frequency restriction</td>
<td>x</td>
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<td>x</td>
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<tr>
<td>Programmable reminders</td>
<td>✓</td>
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<td>✓</td>
<td>x</td>
<td>✓</td>
<td>✓</td>
<td>✓ (for low insulin reservoir)</td>
</tr>
<tr>
<td>Pump data download</td>
<td>Accu-Chek 360° Diabetes Management System</td>
<td>Carelink Therapy Management System</td>
<td>mylife or Diasend software</td>
<td>DANA Monitor or Diasend</td>
<td>mylife or Diasend software</td>
<td>DANA Monitor or Diasend</td>
<td>Web based: easyview.medtrum.eu</td>
<td>Cellinovo Online System</td>
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