



# 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)

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Pump	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)
Image										
Description	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	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	Insulin Pump with low glucose suspend feature when used with compatible CGM sensors  Provided as standard, however, some patients may still be offered Paradigm Veo™, the previous model*	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*	Tubeless insulin pump comprising insulin filled pod with automatic insertion mechanism.  Personal diabetes monitor (PDM) has built-in FreeStyle blood glucose meter	Intuitive insulin pump focused on ease-of-use and data connectivity.  Links to mylife App for bolus calculations and data sharing / review	Insulin Pump and handset (Bluetooth connection) with built-in blood test meter.  Bluetooth connection to Android smartphone for full remote control. (fully featured***)	Insulin pump that communicates with smartphone app via two-way Bluetooth low Energy 4.0 connectivity, to remotely operate pump (fully featured***)	Tubeless Insulin pump (reusable pump base and disposable reservoir patch) and CGM System	Insulin pump and handset with touch screen controls and built in blood glucose monitor
Dimensions (mm)	82.5 x 56 x 21	72 x 52 x 16 mm without adapter 84 x 52 x 19 mm with adapter	51 x 94 x 20cm	86 or 96 x53x25 (1.8 or 3.0mL pump)	52 x 39 x 14.5	78 x48 x16	79 x 45 x 19	79 x 45 x 19	Patch pump: 56.5 x 33.3 x 13.3 Transmitter: 36.1 x 19.4	Pump:52.8 x 35.34 x 14.3 (including insulin cartridge)
Weight (g)	80 (no cartridge or battery)/ 110 incl battery, full cartridge and infusion set	115 (including battery, full cartridge, infusion set)	102 (including battery)	102 (3.0mL) including battery-	25	83g (incl battery and full cartridge)	63 (incl battery)	62 (incl battery)	Patch pump: 21.5 Transmitter: 4.8 (incl battery_	Pump: 32 (incl cartridge)
Water Proofing (IPX8 = fully waterproof)	IPX 8 (waterproof up to a depth of 2.5m for 60mins)	IPX8 (1.3m for 60 minutes)	IPX 7 (splash proof)	IPX 8 (3.6 m for up to 60 minutes)	IPX 8 (7.6m for 60 mins)	IPX 8 (1m for 60 mins)	IPX 8	IPX 8	IPX 8 (2.5m for up to 60 mins)	IPX8 (1.1m for 60mins)
Reservoir/ cartridge and capacity (units)	Accu-Chek Easyfill cartridge (315 units)	Pre-filled NovoRapid PumpCart (160 units)	Reservoirs: 180 or 300 units	Reservoirs: 180 or 300 units	Pod itself 200 units  Replace Pod at least once every 72 hours or up to 200 units of insulin (3 days).	Novo Nordisk Pump Cart (Pre-filled) or mylife Reservoir (self-filled) cartridges  160 units	DANA Diabecare R 3ml cartridges  300 units	DANA Diabecare R 3ml cartridges  300 units	Self-contained reservoir patch (changed every 2-3 days)  200 units	Cellnovo Insulin cartridge (changed every 3 days)  150 units

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<b>CGM capability</b>	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		MiniLink™ Transmitter and CG Sensor	Guardian™ 2 Link transmitter and Enlite™ sensor	X	X	AAPS compatible (opensource system that can connect CGM technologies to pumps via smartphone app; system independent of Advanced Therapeutics UK Ltd )		Fully intergrated system with low glucose suspend (LGS) and predictive LGS mechanism.  CGM can be used as a standalone sytem known as A6 TouchCare CGM System.	X
<b>Basal settings</b>	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	Min: 0.02 U/h; Max: 25 U/h -1 to 24 hr basal rates, duraton adjustable in units of 15 min, and in 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 up to 5 different basal rates, and to personalise names of basal rates and TBRs	Basal rates from 0.025 U/hr; max: 35 U/h in increments of 0.025 U/h  Potential for 48 Basal rates  Standard and 2 additional basal patterns available	Minimum: 0.025 U/hr Maximum: 35 U/h  -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: 0.05U/h Maximum: 30U/h  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	Min: 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/hr or 0.01 U/h • 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
<b>Bolus settings</b>	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: 0.025 Maximum: 75U  3 settings: standard/ Square wave/ Dual wave	0.025 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 80U  Extended bolus (30 mins to 8 hrs)  Dual pattern bolus	Bolus Increments in 0.05, 0.1, 0.5, 1.0 units  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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<b>Infusion sets</b>	<p><u>Accu-Chek FlexLink Plus range:</u> 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</p> <p><u>Accu-Chek FlexLink</u> Flexible teflon 90° cannula (Cannula lengths 6mm, 8mm, 10mm – 22 gauge) (Tubing 30cm, 60cm, 80cm).</p> <p><u>Accu-Chek Tender Link</u> is Flexible 45° cannula (Cannula Lengths 13mm, 17mm) (Tubing Lengths 30cm, 60cm, 80cm, 110cm).</p> <p><u>Accu-Chek Rapid D Link</u> 90° steel cannula available in lengths of 6mm, 8mm, 10mm, and tubing in 20/ 50/ 70/ 110cm lengths</p>	<p><u>Accu-Chek Insight Flex range:</u> -automatic or manual insertion in a 90° angle with a soft cannula. --three cannula lengths 6 / 8 / 10 mm and three tubing lengths 40 / 70 / 100 cm for maximum comfort and convenience. -unique “snap out – snap in” mechanism exposes introducer needle only when needed.</p> <p><u>Accu-Chek Insight Tender infusion set</u> -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 (40/70/100 cm)</p>	<p><u>Minimed Mio / Quick Set/ Silhouette/ SureT</u>  -cannula lengths 6mm, 9mm 90degree &amp; 13mm and 17mm 30 degree angle -cannula tubing length 45cm, 60cm, 80cm and 110 cm</p>		<p>None required (tubeless)</p> <p>Self-inserting soft (teflon) 9mm cannula in pod inserted at 45° angle to depth of 6.5mm</p>	<p>All infusion sets rotate 360° to reduce kinks and snagging.</p> <p>All cannulas are inserted at 90°</p> <p>Soft Teflon cannulas available in 6mm and 9mm lengths – tubing available 45cm, 60cm, 80cm and 110cm.</p> <p>Steel cannulas available in 5.5mm and 8.5mm – tubing available in 45cm, 60cm, 80cm and 110cm.</p>	<p>Reverse Luer Lock system-manufacturers own infusion sets</p> <p>Soft Release O, 6mm or 9mm cannula lengths, 60cm, 80cm or 100cm tubing lengths, 360 degree spinning cannula connection</p> <p>Easy Release (4.5mm, 7.5mm stainless steel needle) 70cm tubing</p>	<p>None required (tubeless)</p>	<p>Cannulas manufactured and supplied by Ypsomed and include: 90 degree insertion in Teflon (6mm and 9mm) and Steel (5.5mm).</p> <p>All Cannulas come with an Insertion device provided in patient starter kit.</p>	
<b>Battery for pump (life expectancy where stated)</b>	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)	1x 1.5 V AAA Alkaline or lithium battery (based on typical usage pattern [50 U/day using U-100 insulin]; battery life ~: 5 days alkaline and 14-28 days lithium (with Bluetooth®)	1 AAA alkaline (~14 days based on 50 U/ day))	1 AA (1.5 V) battery, preferably lithium (7-14 days)	3 xEnergizer A76INS inside pod which are discarded with pod.  2 AAA in PDM (3 weeks)	1.5 V alkaline AAA. (~ 30 days based on 50 U/day)	Company's own 3.6v lithium (6-8 weeks)	Patch pump: powered by 2 button batteries (1.5V); lasts ~3 weeks  PDM: 1 X AAA Alkaline battery (1.5V)  Transmitter: built-in 3.7V polymer lithium ion battery (lasts over 7 days and then recharged for 15-20 minutes)	Both pumps and handset contain internal rechargeable 3.7v lithium polymer batteries (starter kit includes charger)  Pump battery life: 3 days based on 50U per day.	
<b>Warranty</b>	4 years									

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<b>Availability 24 hour Support</b>	24-hour insulin pump helpline (Tel 0800 731 22 91)		24-hour technical Support (Tel 01923 205 167; office hours 09.00-17.00, US call centre out of hours)		24-hour Customer support (Tel 03448567820– UK based personal)		24-hour Customer support (Tel 07775 642 239– UK based personal)		24-hour helpline (Tel 01923 883623) and email customer support service at: customerservice.uk @medtrum.com	24hr support helpline (Tel 0800 025 8009- UK based personal)  Online support available: www.cellnovo.com Real time chat, appointments and email

\* 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 (and 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.

## Appendix

Features	Accu-Chek® Combo (Roche)	Accu-Chek® Insight (Roche)	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®Syst em (Medtrum)	Cellnovo (Cellnovo)
Bolus calculator/wizard	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Carbohydrate calculator	x	x	✓	✓	x	x	✓	✓	✓	✓
Reference food library	x	x	x	x	x	x	x	x	x	✓
Missed meal bolus alert	✓	✓	✓	✓	x	x	✓	✓	x	x
Button lock mode to prevent unintended operation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Alarm: low battery/low reservoir/occlusion	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bolus frequency restriction	x	x	x	x	x	x	✓	✓	x	x
Programmable reminders	✓	✓	✓	✓	✓	x	✓	✓	✓	✓ (for low insulin reservoir)
Pump data download	Accu-Chek 360° Diabetes Management System  Accu-Chek Smart Pix  Diasend		Carelink Therapy Management System		mylife or Diasend software		DANA Monitor or Diasend		Web based: easyview.medtrum.eu	Cellnovo Online System