Hybrid Closed Loop (HCL) Systems Comparison Chart

	Medtronic	Tandem	Advanced Therapeutics	Ypsomed	Insulet
HCL algorithm	SmartGuard	Control IQ Technology	CamAPS FX	mylife Loop (mylife CamAPS FX)	SmartAdjust
Location of algorithm	Pump-integrated	Pump-integrated	App based (Android)	App based (Android)	Pod-integrated
Pump	Medtronic 780g	t:slim X2	DANA-i	mylife YpsoPump	Omnipod 5
Pump type	Tethered (tubed)	Tethered (tubed)	Tethered (tubed)	Tethered (tubed)	Patch (tubeless)
Continuous glucose monitor (CGM)	Guardian 4, Simplera	Dexcom G6, Dexcom G7	Dexcom G6	Dexcom G6, FreeStyle Libre 3	Dexcom G6, FreeStyle Libre 2 Plus
Control & bolus delivery operation	Pump	Pump	Android smartphone	Android smartphone	Omnipod 5 Controller (PDM)
Pump charging mechanism	AA battery	Rechargeable	AAA battery	AAA battery	Battery within each pod Controller is rechargeable
Target glucose	5.5, 6.1 or 6.7 mmol/L (default 5.5)	6.1 mmol/L (treatment values 6.25-8.9)	Customisable from 4.4 to 11.1 (default 5.8)	Customisable from 4.4 to 11.1 (default 5.8)	6.1, 6.7, 7.2, 7.8, or 8.3 mmol/L
Exercise mode target glucose	8.3 mmols/L	6.1 mmol/L (treatment values 7.8-8.9)	No specific target. Ease off mode can be used for exercise	No specific target. Ease off mode can be used for exercise	8.3 mmol/L & less insulin delivery
Sleep mode target glucose	No	6.1 mmol/L (treatment values 6.25-6.7)	Customisable glucose target can be adjusted overnight	Customisable glucose target can be adjusted overnight	Customisable glucose target or exercise feature (see above)
Bolus calculator based on	CGM value, glucose trend data and bolus calculator settings	CGM value only with bolus calculator settings	CGM value only with bolus calculator settings	CGM value only with bolus calculator settings	CGM value, glucose trend data and bolus calculator settings
Automated correction bolus settings	If predictive glucose > 6.7 mmols/L and if max basal rate is reached	If predicted glucose in 30 mins >10 mmols/L	Incorporated into continuous insulin delivery. Adjusts insulin delivery every 8-12 minutes	Incorporated into continuous insulin delivery. Adjusts insulin delivery every 8-12 minutes	Automated micro-boluses every 5 mins. Plus user initiated correction bolus
Active insulin time	Adjustable	Not adjustable (set at 5 hrs)	Adjustable	Adjustable	Adjustable
Set up requirements	Basal rates, ICR, ISF & AIT	TDD, body weight, basal rates, ICR & ISF	TDD & body weight	TDD & body weight	Basal rates, ICR, ISF & AIT
Algorithm mechanisms	Uses TDD over past 2-6 days. Requires 48 hours of manual mode to learn user profile	Updates every 5 mins based on rolling 6-day average of TDD Predicts glucose 30 mins ahead	Overall insulin needs, diurnal, post meal	Overall insulin needs, diurnal, post meal	Adapts with each pod using previous TDDs. Predicts glucose 60 mins ahead
Remote monitoring for parents/carers	Glucose and insulin data via CareLink Connect app	Glucose via Dexcom follow app	Glucose via Dexcom follow app	Glucose and insulin data via 'companion' in mylife CamAPS FX app	Glucose via Dexcom follow app if using G6
Data share with HCPs	CareLink (via app in real-time)	Glooko (download needed)	Glooko (real-time)	Glooko (real-time)	Glooko (real-time)
Minimum and maximum daily dose	8-250 units per day	10-100 units per day	5-350 units	5-350 units	Min 5 units per day Min 85 units to activate pod
Pump capacity	300 units	300 units	300 units	160 units	200 units
Insulin compatibility	NovoRapid & Humalog	NovoRapid, Humalog & Admelog	Any rapid and ultra-rapid acting	NovoRapid, Humalog, Fiasp, Apidra & Lyumjev	NovoRapid, Humalog & Admelog
Licensed in pregnancy	No	No	Yes	Yes	No
Age Range	7-80 years	6 years & over	1 years & over	1 years & over	2 years & over
Demo pump app/simulator	Yes	Yes	?	Yes	Yes

ICR – insulin carbohydrate ratio
ISF – insulin sensitivity factor

TDD – total daily dose of insulin
AIT – active insulin time

For availability of systems approved by NHS England: www.supplychain.nhs.uk/product-information/contract-launch-brief/insulin-pumps-and-associated-products

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