

# METRO, MAINLINE & SHUNTERS

Clayton Equipment's larger Battery, Diesel, Diesel-Electric & Hybrid locomotives are market leading products, developed for Metro maintenance, depot shunting and industrial haulage applications.

Bo-Bo

Co-Co

Bo-Bo-Bo

## Locomotives for Metro, Mainline, Depots & Industry

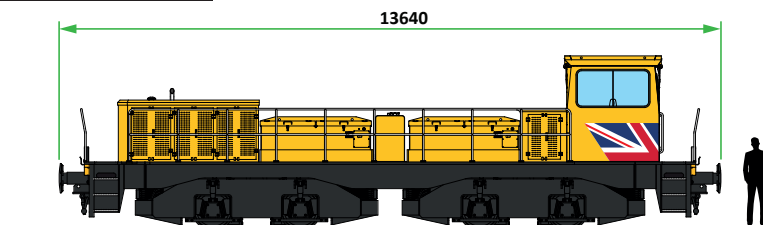
Clayton Equipment's range of locomotives are designed and developed to match the operations you need.

Innovative solutions include:

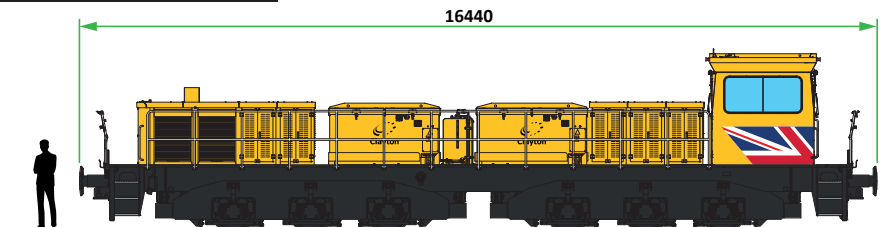
- Battery-Diesel hybrids for underground Metro and surface operations
- Battery locomotives for use near built-up areas as they are emission free and low noise
- Diesel locomotives with the latest Stage V emission compliance
- Battery locomotives that can also operate on 3rd/4th rail supply
- Battery & hybrid locomotives with integral and/or shore supply battery charging
- High haulage capabilities of up to 3,500 tonnes or more
- Low maintenance solutions
- Lowest cost with high reliability

**Diesel-Electric, Hybrid and Hybrid+™: we have the solution for you.**

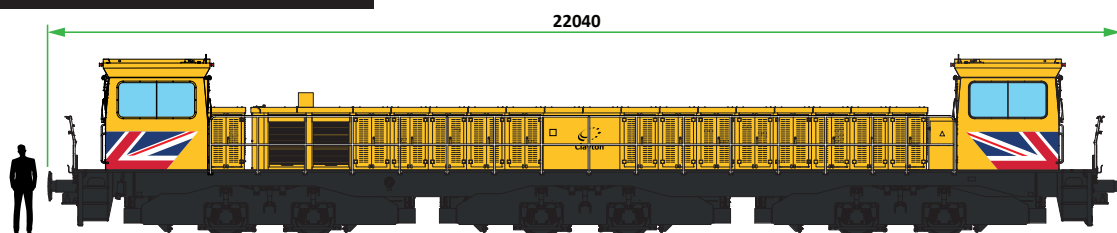
### Bo-Bo Hybrid+™ & Diesel-Electric



### Co-Co Hybrid+™ & Diesel-Electric



### Bo-Bo-Bo Diesel-Electric



**The only locomotive supplier from 1.75 to 150 tonnes**

## Specifications Table\*

\* Specification may be subject to change and can be tailored to suit your requirements

Locomotive Mass		Bo-Bo	Co-Co	Bo-Bo-Bo
Track	Gauge	From 1,000 mm to 1,676 mm to suit your application		
	Cant	Up to 200 mm		
	Gradient	Up to 1:15 (6.67%)		
Power source options	Battery	564 V <sub>DC</sub> traction battery, with integral lifting points. Capacity (kWh) to suit the haulage requirement		
	Battery/Diesel hybrid	To suit application. Onboard or lineside/depot battery charging		
	3rd/4th rail	To suit railway infrastructure		
	Overhead line	To suit railway infrastructure		
	Diesel	1, 2 or 3 x 390–566 kW, up to EU Stage V		
Transmission		Heat treated steel Ø840 mm rail wheels. Other diameters available		
		Fully enclosed spur and bevel reduction gearboxes to all drive axles		
		Sealed bearings in axle boxes and maintenance free primary chevron suspension. Dampers and maintenance free secondary suspension.		
Drive options (battery)		4, 6, 8 or 12 x 104 kW SR traction motors		
Drive options (overhead line)		Depends on railway infrastructure		
Drive options (Diesel)		Diesel-Electric		
Typical maximum speed		Depends on railway infrastructure, maximum 80 km/h		
Brakes		Fail safe emergency/parking brake, with gradient hold. Fitted with override for emergency recovery. Pneumatic with single or dual line wagon connections		
		Electric service brake through motor control. Regen into battery and brake resistors		
Dimensions, (typical)	Length to buffers	13.6 m	16.4 m	22.0 m
	Width	Depends on railway infrastructure		
	Height from rail head	Depends on railway infrastructure		
	Ground clearance	100–150 mm with Ø840 mm wheels, depending on design		
Mass, typical		80,000 kg to 100,000 kg (final mass adjusted to suit your haulage requirements)	96,000 kg to 150,000 kg (final mass adjusted to suit your haulage requirements)	96,000 kg to 150,000 kg (final mass adjusted to suit your haulage requirements)
Towing/propelling capacity (at μ = 0.30)		Up to 294 kN	Up to 440 kN	
Coupling		UIC standard hook and link. Other coupling types available to suit rolling stock. Buffers at both ends if required. Optional oversized buffer heads to prevent interlocking		
Lights		LED white front and rear red marker lights, both ends, with automatic direction changeover. Step and cab interior LED lights. Optional warning beacons and strobes		
Cab seating		Bespoke seating configuration to suit operational preferences		
Driver controls		Drive and electric service brake joystick, HMI with switches for direction control, horn, stop and deadmans, sanding, wash/wipe, gradient brake hold, depending on final specification		
		Battery capacity meter (battery locomotives only). Engine and Generator HMI (Diesel and hybrid locomotives only)		
Safety		Strengthened cab, fully enclosed		
		CCTV both ends, colour monitor in cab		
		Emergency stop in cab and on all four corners. Overspeed activates failsafe brakes. Battery disconnect isolator with plug and socket		
		Hand held fire extinguisher, dry powder. Optional automatic fire suppression (standard on Diesel locomotives)		
		CE Marking (EU and UK only). Other compliances as requested		
Noise and vibration		75–85 dB(A), <2.5 ms-2		

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ISO9001:2015 certified