



### METRO, MAINLINE & SHUNTERS

Clayton's range of shunting locomotives are becoming the haulage solution of choice.

We offer a new generation of shunters/switchers providing cost-effective solutions: low emissions, low costs and low maintenance.

Alternatively, conversions provide an economical solution to deliver reliability, environmental and performance benefits.

### MINING

The most comprehensive range of locomotives available for surface and underground mining applications.

From 1.75 tonnes to 90 tonnes, for both hazardous and non-hazardous locations.

Overhead trolley/pantograph, battery, Diesel or hybrid powered.



### DESIGN & BUILD

We offer Design & Build solutions for your project, including tunnel drilling machines, cable handlers, overhauling or upgrading your existing equipment.

We can also offer conversions from old Diesel powered units to clean battery.



### TUNNELLING & CONSTRUCTION

The innovative LoCo™ tunnelling locomotive, with patent pending features, provides a cost effective solution with its low capital and operating costs, adjustable gauge and high haulage capabilities.

Cheaper than leasing and can be deployed to other sites with different gauges.



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ISO9001:2015 certified



# SHUNTERS/SWITCHERS & LOCOMOTIVES

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

BATTERY

DIESEL

HYBRID

SHUNTING

### 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 locomotives with integral battery charging
- High haulage capabilities of up to 3,500 tonnes or more
- Low maintenance solutions
- Lowest cost with high reliability

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

Metro systems, such as London Underground, SPT (Glasgow) and NYCT, have restricted gauges. With Clayton Equipment's experience, we can supply compact solutions to meet compliance.



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		12–20 tonnes	20–30 tonnes	30–45 tonnes	45–90 tonnes	90–135 tonnes
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	Battery	320 V <sub>DC</sub> traction battery, with integral lifting points. Capacity (kWh) to suit the haulage requirement	320 V or 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	97–180 kW, up to EU Stage V	180–250 kW, up to EU Stage V	390–566 kW, up to EU Stage V	Depends on requirements	
Transmission		Heat treated steel Ø711 mm rail wheels	Heat treated steel Ø840 mm rail wheels. Other diameters available			
		Fully enclosed spur and bevel reduction gearboxes to both drive axles				
		Sealed bearings in axle boxes and maintenance free primary chevron suspension. Dampers depend on speed.			Sealed bearings in axle boxes and maintenance free primary chevron suspension. Dampers and maintenance free secondary suspension.	
Drive options (battery)		1 or 2 x 104 kW SR traction motors	2 x 104 kW SR traction motors	2 or 4 x 104 kW SR traction motors	4 or 6 x 104 kW SR or 2 x 250 kW AC traction motors	
Drive options (overhead line)		Depends on railway infrastructure				
Drive options (Diesel)		Hydraulic, Diesel Electric or Powershift	Diesel Electric or Powershift		Diesel Electric	
Typical maximum speed		Depends on railway infrastructure				
Brakes		Fail safe emergency/parking brake, with gradient hold. Fitted with override for emergency recovery. Either electric, hydraulic or pneumatic depending on rolling stock				
		Electric service brake through motor control (not Diesel locomotives). Regen into battery and brake resistors				
Dimensions, (typical)	Length to buffers	Depends on railway infrastructure				
	Width	Depends on railway infrastructure				
	Height from rail head	Depends on railway infrastructure				
	Ground clearance	100–150 mm with standard diameter wheels, depending on design				
Mass, typical		12,000 kg to 20,000 kg (final mass adjusted to suit your haulage requirements)	20,000 kg to 30,000 kg (final mass adjusted to suit your haulage requirements)	30,000 kg to 45,000 kg (final mass adjusted to suit your haulage requirements)	45,000 kg to 90,000 kg (final mass adjusted to suit your haulage requirements)	90,000 kg to 135,000 kg (final mass adjusted to suit your haulage requirements)
Configuration		0-4-0			Bo-Bo, Bo-Bo-Bo or Co-Co	
Towing/propelling capacity (at $\mu = 0.25$ )		29–49 kN	49–74 kN	74–110 kN	110–220 kN	220–331 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 <sup>-2</sup>				