



Clayton Equipment Ltd

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SHUNTER LOCOMOTIVES



COMPANY OVERVIEW

CLAYTON EQUIPMENT – SPECIALISTS IN RAIL EQUIPMENT

A progressive company that strives to build for the future

Since 1931, Clayton Equipment Ltd is *the* UK based manufacturer specialising in bespoke locomotives. We are one of the world's premier suppliers of above and below ground locomotive haulage equipment. Clayton Equipment is the only locomotive manufacturer capable of designing and manufacturing locomotives from 1.75 tonnes to 150 tonnes, for track gauges from 457 mm to 1,676 mm. Our reputation is built on innovative thinking, excellence of execution and solid, yet flexible, partnerships with our impressive list of clients. Our philosophy isn't 'one size fits all'. Bespoke solutions meeting your needs – we understand that all our clients have different requirements and that's what makes Clayton Equipment Ltd the most versatile choice in over 60 countries worldwide. The company designs and builds battery, low emission Diesel, overhead (trolley), rubber-tyre, battery-Diesel, Hybrid+™ and third rail locomotives. Today, the future for Clayton Equipment remains firmly with rail locomotives and equipment, seeing the company expand and safeguard another 90 years of innovation.

From humble beginnings to an unsurpassed global reputation



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SHUNTER LOCOMOTIVES

BATTERY, DIESEL-TO-BATTERY CONVERSIONS, LOW-EMISSION DIESEL, DIESEL ELECTRIC, HYBRID & HYBRID+™

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

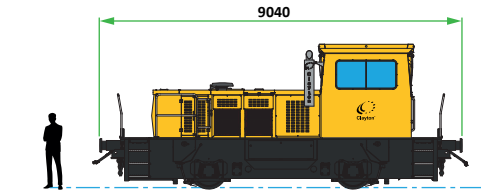
Being the workhorses of rail depots and manufacturing facilities, some shunters are 60 years old, possess high emissions levels and are increasingly unreliable, labour intensive and expensive to operate. They usually require at least two personnel and specialist maintainers. A good example can be found in the case of the 996 Class '08' shunters made in the UK between 1953 and 1962. Less than 10% of them remain operational today and the number is decreasing every year due to the obsolescence of critical parts and general age-related issues.

Clayton offers a new generation of shunters providing cost-effective haulage solutions:

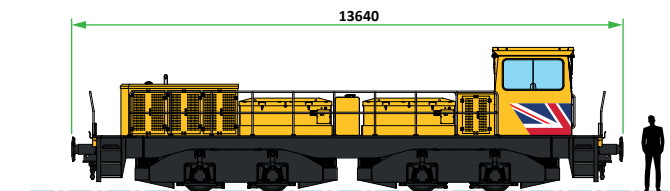
- 2-axle locomotives up to 50 tonnes
- 4-axle Bo-Bo locomotives up to 100 tonnes
- 6-axle Co-Co and Bo-Bo-Bo locomotives up to 150 tonnes
- Diesel-to-Battery conversions of existing shunters
- Power from 208 kW to 1,698 kW
- Tractive effort up to 440 kN

Benefits include:

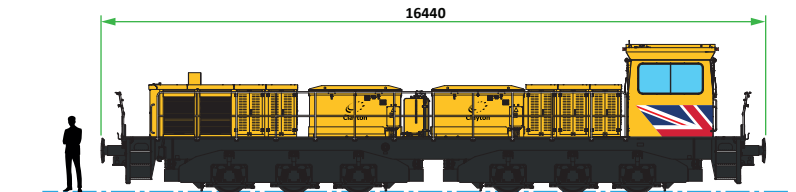
- Significantly lower operational costs
- Improved fleet availability
- Battery locomotives for use near built-up areas as they are emission free and low noise
- Single-driver operated, multiple locomotive option for increased performance and haulage capacity
- Increased safety including optional remote control for single driver operation
- Zero and low emissions (EU Stage V)
- Low maintenance solutions
- Short delivery time with purchase, lease, lease-to-buy or part exchange options available
- UK technical and project management support



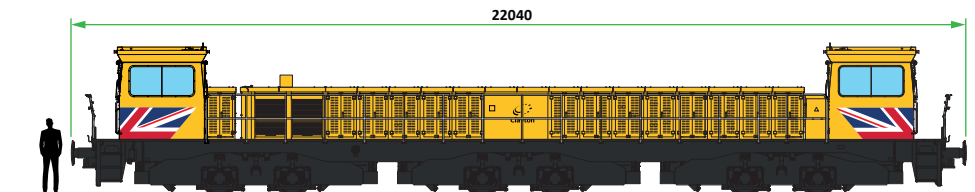
0-4-0 Hybrid+™, Battery, Diesel-Electric or Diesel-Hydraulic



Bo-Bo Hybrid+™, Battery or Diesel-Electric



Co-Co Hybrid+™, Battery or Diesel-Electric



Bo-Bo-Bo Hybrid+™, Battery or Diesel-Electric

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Battery Locomotives:

- Zero emissions, maximum CO₂ reduction, no fumes inside workshops
- Low noise, increasingly important near residential areas and for 24/7 operations
- Lowest operational and maintenance costs
- Highest availability in service
- Regenerative braking, resulting in reduced brake wear and reduced charging times

Hybrid+™ Locomotives:

- All the benefits of battery locomotives
- Battery charging on the locomotive and depot based
- Small engine enables low maintenance costs

Diesel to Battery-Electric conversions:

- Benefits same as battery locomotives
- Maximises capital cost saving
- Retain existing certification in most cases
- Lowest driver/maintainer retraining cost
- Improved safety

Diesel and Diesel-Electric Locomotives:

- Lowest emissions with EU Stage V
- Reduced idling, the latest engines can be shut down and restarted quickly
- Improved line of sight



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SHUNTER LOCOMOTIVES CASE STUDIES

BATTERY-DIESEL HYBRID+™

CBD90 Hybrid+™ Locomotive for Tata Steel, Port Talbot

As part of Tata Steel's requirement to replace their ageing locomotive fleet at the Port Talbot works, Clayton Equipment has supplied a number of new Battery-Diesel Hybrid+™ locomotives.

The new Clayton Equipment CBD90 is a 90 tonne, Hybrid+™ Bo-Bo locomotive.

Power is delivered by the traction battery and four maintenance-free, high torque electric motors, totalling 416 kW.

The locomotive is self-contained, with on-board battery charging from a low emission EU Stage V compliant Diesel engine.

This configuration enables Tata Steel to realise significant financial savings from reduced fuel and lower maintenance costs.



CBD90 Hybrid+™ Locomotive for Beacon Rail Leasing

Clayton Equipment has a contract with Beacon Rail Leasing for the supply of 15 innovative Hybrid+™ CBD90 locomotives along with options for a period of three years for the larger CBD135 Hybrid+™ locomotives.

Beacon Rail supports customers in the UK and Europe with flexible rail leasing solutions.

To meet the increased demand for lower emissions, new technology, more capacity and cost-effective assets, this new partnership with Clayton Equipment will serve to meet this demand.



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SHUNTER LOCOMOTIVES CASE STUDIES

BATTERY-DIESEL HYBRID+™

CBD80 Hybrid+™ Locomotive for Sellafield Ltd

To enable Sellafield Ltd, a wholly-owned subsidiary of the Nuclear Decommissioning Authority, to realise significant commercial benefits from reduced operation and maintenance costs Clayton Equipment are to supply two innovative Hybrid+™ Diesel CBD80 locomotives.

The CBD80 locomotive is an 80 tonne Hybrid+™ Bo-Bo Locomotive, self-contained, with on-board battery charging. Battery charging is undertaken from a 3-phase supply, providing 100% emission free solutions or from the low emission, EU Stage V Diesel engine.

Additional benefits from their investment in greener technology include reduced emissions, reduced noise levels, greater haulage capacity and increased reliability.



CBD30 Hybrid Locomotive for Snowdon Mountain Railway

To offer Snowdon Mountain Railway a new era of fuel efficiency and emission reductions Clayton Equipment have supplied the first locomotive of its type designed and built in the UK for over 27 years.

The new 800mm gauge battery-Diesel hybrid locomotive operates on an Abt Rack and Pinion Railway. The traction and braking is all taken through the pinions. As the locomotive descends from the mountain summit the Diesel generator will be switched off while regenerative service braking recharges the battery.

The hybrid locomotive is configured to deliver significant maintenance and fuel savings. Quieter than a conventional locomotive and with lower carbon emissions.



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