



PR22L BRANCH LINE LOCOMOTIVE AND DERIVATIVES

The PR22L is the initial Branch line lower axle load locomotive being introduced to meet a demand to replace ageing rollingstock throughout Australia. It ticks all the boxes with regards to restricted outline gauge yet has very competitive tractive and dynamic effort characteristics and impeccable environmental credentials.

Tailored to meet the specific operating conditions on many of Australia's lighter axle load branch lines, these locomotives are manufactured by Downer Rail's technology partner Progress Rail Services (PRS) a subsidiary of CAT Pty Ltd.

The PR22L series of locomotives is a new product for the Downer brand and is a PRS design based on the GT26 EMD model locomotive upgraded with the well proven Caterpillar 3512CHD engine.

The locomotive contains many new features which are incorporated as standard in many of the CAT and PRS repower projects in North America.

The PR22L locomotive is initially designed to comply with very restrictive outside gauge to fit through tunnels in Tasmania and will comply with all key TasRail requirements, that will lay the foundation for an efficient and reliable branch line operation.

A unique requirement has been met by offering a single locomotive design configurable with two different axle loads i.e. 16TAL and 18TAL. These configurations allow the locomotive to operate on lines with various axle

load ratings with high levels of haulage performance. A fabricated bogie frame can be offered for axle loads lighter than 16TAL.

The design concept provides the optimum balance between overall cost, operational flexibility and locomotive availability with one locomotive type potentially capable of operating on many branch lines in Australia. A Standard Gauge bogie is also available.

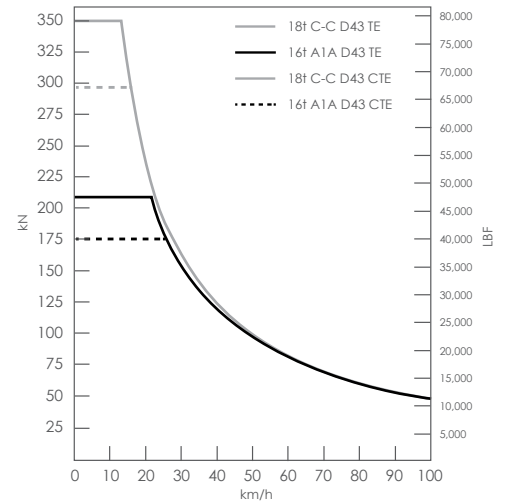
The CAT3512 engine and controls give exceptional power to weight ratio and fuel efficiency. Specific design of the cooling system will give the locomotive impeccable credentials to work in harsh Australian environments and difficult tunnel conditions. The design of the locomotive and its components includes positioning air intakes as low as possible and providing increased engine cooling capacity to ensure full continuous tractive effort in hot environments.

The Zeit (CAT Company) microprocessor control of the traction system and auxiliary devices includes fault handling and diagnostics, AESS functions, GPS tracking and remote telemetry, AAR style customer programmable alerter and vigilance.

Model	PR22L
Power	1,700kW (2280hp) gross 1,492kW (2000hp) traction
Tractive effort	272kN
Rail gauge	1067mm or 1435mm
Mass	102 or 108 or 120 tonnes
Axleload	17 or 18 or 20 tonnes
Wheel arrangement	A1A or Co-Co
Maximum speed	80 or 100 or 110 kph (subject to TM's, gear ratio and a xle configuration)
Power per driving axle	283kW
Gear ratio	2 x 25kW
Wheel diameter	Total Capacity 172
Fuel capacity	1,600km
Dimensions	
Length over couplers	18,140mm
Height over rail level	3,840mm
Width over walkways	2,900mm
Bogie wheelbase	1,816mm
Engine	Caterpillar 3512C HD 12cyl
Main generator	KATO AC 1.6MW
Traction motors	D31 or D43BTR or D77
Air compressor	Atlas Copco GAR37 Electrical Drive
Brakes – air	Wabtec FastBrake
Brakes – dynamic	180kN
Cooling system	Dual AC powered fans
Drivers' controls	Single, Right Hand
Cab Single	Single, air conditioned
Special features	
<ul style="list-style-type: none"> • Certified USEPA Tier3 • EMD GHC Cast Bogies • Progress Rail Zeit Control Screen Based Instrument Displays • Electronic fuel injection • Split cooling system • Cab equipped with fridge, microwave oven and kettle 	<ul style="list-style-type: none"> • Buff load 2900kN • Optional, Remote Control • Optional, Auto Engine Start Stop • Optional, GPS Tracking and remote telemetry • Optional, Wireless Download of Data Logger • Locomotive Digital Video Recorder (LDVR)

Tractive Effort PR22L narrow gauge

D43 motors, 3512C engine @ 1490TKW
108t C-C D43 CTE 296kN @ 16km/h
98t A1A D43 CTE 175kN @ 25km/h



Assumes AAR conditions / dry rail / new wheels
D43 motors / 73:16 gearing / 40in wheels

Braking Effort vs. Speed

TasRail PR22L

