

SD70ACe/LC STANDARD GAUGE

Diesel Electric Locomotive



The SD70ACe heavy haul AC traction diesel electric locomotive represents the latest development in locomotives for the harsh environment in the Pilbara region of Western Australia.

These locomotives were manufactured by Downer EDI Rail's technology partner Electro Motive Diesels Inc (EMD) at their facilities in London, Ontario, Canada with components from various United States sub-contractors and EMD facilities in Chicago, USA. Supply of parts and on-going service support is the responsibility of Downer EDI Rail.

The locomotive contains many new features which are now incorporated as standard on EMD's North American locomotives as well as being fitted with a number of BHP specific modifications.

The SD70ACe standard gauge locomotive is powered by the 16 cylinder EMD 16-710G3C-T0 engine utilising EMDEC electronic fuel injection for optimum fuel efficiency and emission control. The cooling system has also been reconfigured for the high ambient temperatures experienced in the Pilbara region.

The electrical traction equipment includes a TA17 traction alternator with a CA9 companion alternator and six heavy duty EMD type A3432 traction motors with roller bearing suspension.

The design requirement for the cab included a central HVAC climate control featuring dual air conditioning units and the fitting of a "tropical" roof to help reduce the solar load on the cab.

The locomotive has a mass of 195 tonnes, top speed of 113 km/hr, and continuous tractive effort of 698 kN at 14 km/hr, making it well suited to the Pilbara heavy haul applications.

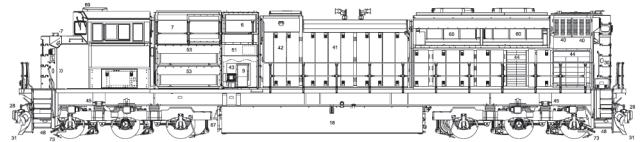
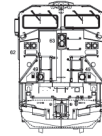
The SD70ACe locomotive utilises EMD Gen 2 FIRE (Functionally Integrated Railroad Electronics) system and the EM2000 microprocessor control system. These systems were developed through a rigorous design, validation and field testing program to ensure high reliability. Thousands of locomotives are equipped with these systems worldwide, attesting to their outstanding performance.

Features include comprehensive fault display and diagnostics capability, ability to conduct self test of locomotive components and systems, user friendly display and a 'snapshot' feature allowing monitoring of critical parameters before and during fault conditions. Integration of all third party computer systems into the EM2000 has resulted in a more robust and reliable operating system.

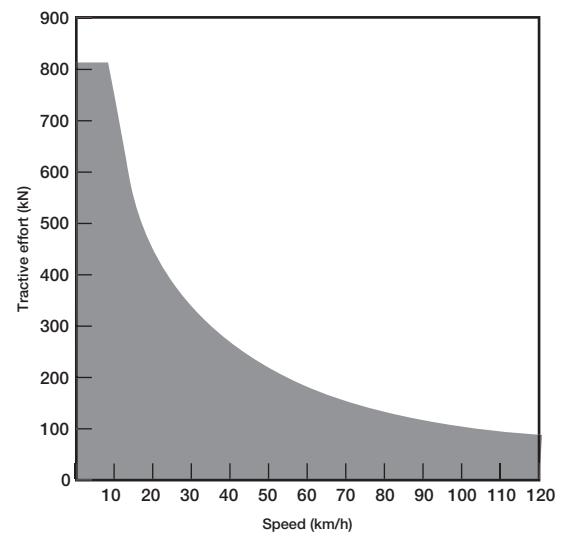
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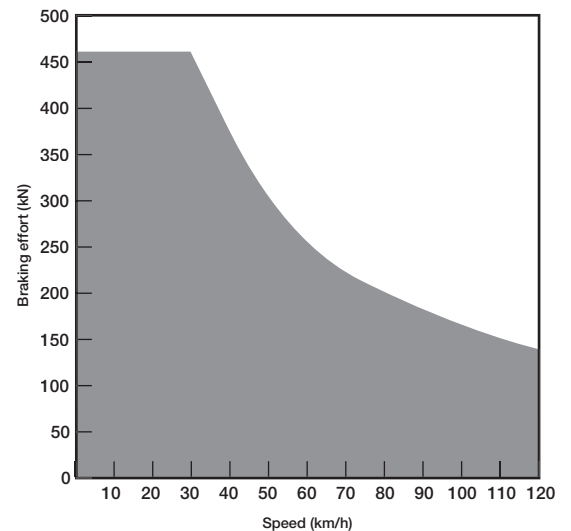
Model	SD70ACe
Power	3207 kW (Nominal) for traction
First locomotive delivered	2005
Number in service/on order	23
Tractive effort – continuous	698 kN at 14 km/h
Rail gauge	1,435 mm
Mass	195 tonnes
Axleload	32.5 tonnes
Wheel arrangement	Co-Co
Maximum speed	113 km/h
Power per driving axle	377 kW
Gear ratio	83:18
Wheel diameter	1,067 mm
Fuel capacity	18,550 litres
Dimensions	
Length over headstocks	22,630 mm
Height over rail level	4,850 mm
Width over cab gutters	3,170 mm
Bogie wheelbase	3,810 mm
Engine	EMD 16-710G3C-T0
Main generator	EMDTA17/CA9
Traction motors	EMD type A3432
Air compressor	Gardner Denver WLN 3 cylinder two stage
Brakes – air	Integrated Wabtec “FastBrake”
Brakes – dynamic	High capacity radial segmented package
Cooling system	Dual, two speed cooling fans
Drivers’ controls	New style Control Stands for improved ergonomics
Cab	Single
Special features	<ul style="list-style-type: none"> • EMD Gen 2 FIRE computer display • EM2000 series microprocessor • EMD “Intellitrain” equipped for remote diagnostics • Central HVAC climate control with dual air conditioners • Collision protection • EMD HSTC-2 semi-steer bogie • 240V Refrigerator and microwave • Integrated distributed power • Equipped with Automatic Train Protection (ATP) system



Tractive effort - speed curve



Dynamic Braking effort - speed curve



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