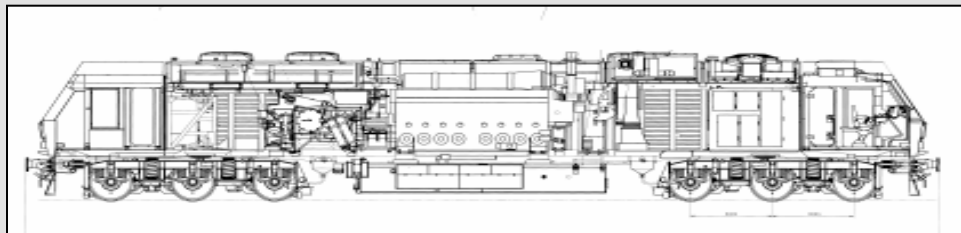


# Diesel-Electric Locomotives

## S/333

Customer: **Renfe (Spain)**  
 Contract Date: 2000-2005  
 Number of units: 32+32+28



### Basic Characteristics

#### Locomotive

Axle arrangement	Co' Co'
Gauge	1.668 mm
Locomotive Weight	120 Tn
Maximum speed	120 km/h
Nominal power	UIC 3000 HP
Brake system	Electropneumatic
Carbody	Monocoque/Energy
Number of cabs	2
Coupler	UIC
Max. tractive effort	341 kN
Cont. Tractive effort	320 kN at 20 km/h
Min. Curve negotiable	100 m
Fuel capacity	6000 l
Multi unit control	Yes
Track wheel-base	2m

#### Diesel Engine

Manufacturer	GM
Model	16-645 E3
UIC rated output	3300 HP
Number of cylinder	V 12 (45°)
Bore and stroke	230,19 mm x 279,4mm
Rated speed	900 rpm

#### Electrical Transmission

Traction generator	AR10 + D14
Auxiliary generator	Rated 18 kW
Traction Motor	D78
T. Motor connection	6P