EV FACT SHEET

Volvo ES90

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Volvo ES90. Image: Volvo Cars.

INTRODUCTION

The Volvo ES90 is classified here as a large passenger sedan – however it is marketed as a 'cross-over' by Volvo who describe it as having *'the refined elegance of a sedan, the adaptability of a fastback, and the spacious interior and higher ground clearance associated with SUVs'*. It is effectively the replacement to Volvo's previous petrol motor based S90 sedan.

Built in China, the ES90 is the second Volvo to be built on their electric-only SPA2 platform, which it shares with the EX90. (As well as its stablemate brand's Polestar 3).

Like the EX90, it uses an 800V architecture to offer extremely high DC charge rates, as well as the flexibility of over-the-air updates to its many IT based systems – including a built-in Google interface and digital key technology.

DRIVING RANGE

Currently, the official Australian ADR 81/02 test cycle is based on the outdated (and highly over-optimistic) European NEDC test cycle. However few manufacturers now give this figure for their new releases. Instead, they generally quote the more achievable ranges found using the newer European WLTP test cycle.

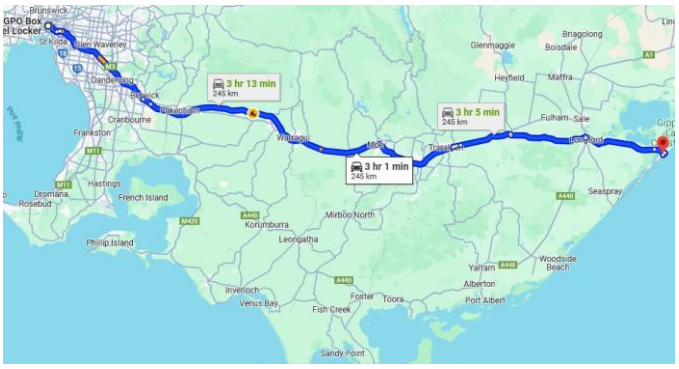
Therefore, to avoid disappointment always check which test cycle has been used when assessing an EV for your needs. As a rough guide, ADR81/02 & NEDC are generally 30% too high, WLTP a good estimate if doing mostly urban and outer suburban driving and US EPA the better guide if doing mostly outer suburban to regional driving.

DRIVING RANGE (continued)

National testing system range estimates:		
NEDC (Aust ADR 81/02)	**WLTP (Euro)**	**US EPA**
Not rated	554 km	TBC

Table 1: Driving range estimates for the Volvo ES90.

Using the WLTP rating (with a roughly 10% discount for extended highway driving), an ES90 should, at its limit, make a round-trip from the Melbourne CBD to Golden beach (east of Sale, on Victoria's south-east coast) – provided the heating or air conditioning are not heavily used. For this sort of trip, a short DC top-up charge in at one of the many DC charger sites popping up on this route would be recommended. For further charging options and availability, see: https://www.plugshare.com/



Example Volvo ES90 return trip range. Image: Google maps

CHARGING SPEEDS/REQUIREMENTS

Charging port

The Volvo ES90 is fitted with a CCS2 socket allowing it to charge via Type 2 AC chargers[1] as well as CCS2 DC fast-chargers.

CCS2 charging plug and socket

Notes:

1. The Volvo ES90 can be charged at any AC EVSE, however an adaptor will be needed to use the (few) remaining older EVSEs fitted with Type 1 (J1772) plugs. In addition, it will only charge at the single-phase rate on a Type 1 EVSE.

CHARGING SPEEDS/REQUIREMENTS (CONTINUED)

AC charging:

Like all new EVs sold in Australia, the Volvo ES90 is fitted with a type 2 AC socket.

Charging rates:

Single phase: maximum of 7.4 kW (32A)
Three phase: 11 kW (16A per phase)

Charging speeds vary on the capacity of the EVSE (Electric Vehicle Supply Equipment) the car is connected to. Approximate AC charging times for the ES90 are shown in table 2.

AC: 0 – 100% time				DC: 0 – 80%	
10 A (power point)	15 A 1 phase (Caravan outlet)	32 A (1 ph. Home EVSE)	16 or 32 A (3 phase public AC EVSE)	DC Fast charge (50kW)	DC Fast charge (300+kW)
92 kWh: 45h	30h	15h	16A: 10h 32A: 10h	90m	25m

Table 2: Approx. charging times for the Volvo ES90.

DC fast charging

The Volvo ES90 uses the CCS2 DC fast-charge connector and can charge at up to 350 kW DC.

V2X capability:

The SPA2 platform has been announced as 'capable' of V2L and V2H/G, however no information has been released about when/if these features will be enabled for the version sold here in Australia.

Notes:
V2X is the generic term covering the options of getting 230V AC power from the battery and supplying it as:

- V2L: vehicle to load (230V power available from car outlet)
- V2H: vehicle to home (supply home via special connection)
- V2G: vehicle to grid (supply home or grid via spec. connection)

HOME CHARGING CONSIDERATIONS

General

To get the shortest home charging time for the Volvo ES90, an 11kW three phase AC charger would be needed.
However, depending on your existing power supply and/or charging needs, it may only be practicable to fit a lower rated EVSE. (See notes below). Lower capacity EVSEs will increase charging times, as shown in table 2.

Important notes for any home EVSE installation:

1. High charging rates are generally not needed for overnight charging.
2. Homes do not normally have three phase AC connected.
3. Switchboard and/or electrical supply upgrades may be needed if your home is more than 20 years old. For more information on this item – see Fact Sheets at EVchoice.com.au or read articles in:
   (a) Renew magazine edition 143. (EVSE wiring)
   (b) Renew magazine edition 156. (EVSE buyer's guide)

SPECIFICATIONS

Seating: 5

Boot volumes in litres (1 litre = 10 x 10 x 10 cm)

- Boot:
  - All seats up: 446
  - Rear seats down, to roof: 1,427
- Froot (front-boot): 27

Dimensions:

- Overall length: 5,000 mm
- Overall height: 1,550 mm
- Ground clearance: 203 mm (TBC)
- Overall width (edge of doors): 2,054 mm
- Overall width (edge of mirrors): 2,120 mm

Battery:

- 92 kWh (88 kWh useable)

Energy consumption: (WLTP test cycle)

- 18.5 kWh/100km

Kerb weight:

- 2,410 kg

Charging:

- 1 phase AC: 7.4 kW max.
- 3 phase AC: 11 kW max.
- DC: 350 kW max.

Charge port location:

- Left-hand rear – above rear wheel.

Drive configuration:

- Rear-wheel drive: (RWD)

Towing: (unbraked/braked)

- 750/1600 kg

Performance:

Version	Max. power/torque (kW/Nm)	0 to 100km/h (Sec)
RWD	245/480	6.6

IMPORTANT NOTE

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