

# ENVIRO400H

towards **carbonneutral**  
greener and cleaner

## Low Floor Hybrid Double Deck Bus

10.2m - 11.4m



Enviro400H is a hybrid drive double deck derived from the market leading Enviro400 diesel

Both buses share many passenger and operator benefits, supplemented on Enviro400H by reductions in fuel consumption and greenhouse gases around 30%. It is established as the UK's best-selling 'green' bus.

Enviro400H's breakthrough hybrid technology derives from a pioneering partnership between Alexander Dennis and BAE Systems, and is the result of a far-reaching and meticulous development programme involving hundreds of millions of miles of in-service trials and operation.

The Enviro400H introduces a revolutionary hybrid solution designed specifically for buses and brings together cutting-edge innovation with familiar engine, powertrain and axle units. Importantly, the Enviro400H's lithium ion batteries do not need mains recharging during their extended life cycle, providing the ideal solution for operators seeking the ultimate greener and cleaner double deck bus.



**HYBRID**  
TECHNOLOGY

**ALEXANDER**  
DENNIS

Specification

# ENVIRO400H

## Low Floor Hybrid Double Deck Bus

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### CHASSIS SPECIFICATION

#### Engine

Cummins ISB4.5EV4 cylinder turbocharged and intercooled diesel engine certified to EEV emission levels.

Displacement: 4.5litres

Power: 185 PS (138kW)

#### Hybrid Driveline

BAE Systems HybriDrive hybrid driveline incorporating:

140kW continuous power @ 2000rpm compact permanent magnet generator water cooled

195kW peak power @ 500-2000rpm

120kW continuous power @ 650-2485rpm

compact oil to water cooled motor with 5100 Nm peak torque @ 0-3200rpm.

3800 Nm continuous torque @ 0-450rpm.

360kW water cooled intergrated propulsion control system customised for optimum fuel consumption, performance and emissions.

#### Front Axle

Kirkstall NDS80LF deep drop I beam axle.

Capacity 8000 kg. Lock angle 55°.

#### Rear Axle

ZF AV-132 drop centre axle. Capacity 13,000 kg.

#### Suspension

Full air suspension mounted within chassis frame floor contours eliminating component intrusion in passenger saloon areas.

Front: Two 305mm (12") air springs. Multilink location. Anti-roll bar. Two double-acting dampers.

Rear: Four 255mm (10") air springs. Multilink location. Anti-roll bar. Four double-acting dampers.

Features: Fast kneel facility on front suspension, reduces height typically from 325mm to 245mm.

#### Steering Gear

ZF 8098 integrally powered, variable ratio steering gear. 457mm two spoke steering wheel.

Adjustable steering column mounted with driver's binnacle, interlocked with the handbrake for safety.

#### Frame

Welded modular platform.

Material: Steel channel, rectangle and angle sections.

Frame Section: 160mm x 80mm x 8mm thick.

Finish: Two-pack epoxy compliant corrosion-resistant paint applied at Final Finish stages of manufacture.

#### Braking System

Full air operated category 1 Anti-Lock Braking system 430mm disc brakes with separate systems front and rear.

Park: Air-released, spring-actuated on rear wheels.

Hand control valve.

Compressor: Knorr Bremse "Phoenix".

Knorr Bremse air dryer.

#### Wheels and Tyres

Tyres: 275/70R22.5 XZU+ tubeless radial tyres.

Wheels: 7.5" x 22.5" spigot mounted, steel wheels.

#### Cooling System

Rear mounted nearside side by side cooling pack incorporating intercooler with electromagnetically

controlled clutch drive.

Separate coolant header tank with sight glass and offside fill point.

Flyscreen is fitted in front of radiator to minimise dirt ingress.

Rear mounted offside cooling system for the hybrid control system.

#### Fuel tank

Capacity of 275l

22.5l AdBlue tank mounted under staircase.

#### Electrical Equipment

24 volt, single pole negative earth.

Batteries: Two 12 volt maintenance-free, 200 amp/hour capacity. Mounted on 'slide-out' carrier under driver's cab. Battery boost socket supplied.

Alternator: 2x120 Amp. Fast fuse and overvoltage protection.

Actia multiplex system with colour TFT screen on driver's binnacle for driving information and diagnostics.

#### Instrumentation

Stylish instrument and control binnacle with all instruments clearly visible. Colour TFT screen displaying running and diagnostic data.

Speedometer, tachometer and temperature gauge.

Warning lights: air pressure, battery charging, coolant level low, direction indicators, handbrake, main beam and master stop.

Warning buzzers: Air pressure low and coolant temperature high.

All safety circuits wired through master stop lamp.

Warning circuits integrity test system. Instrument panel illumination wired through sidelights.

#### General Options

- Ramp interlock
- Tachograph
- Left hand drive
- Driver's cab air-conditioning
- Hubodometer
- Full vehicle "squat"
- Pressure release radiator cap
- Ferry lift
- Spare wheel and tyre
- Fuel System: Identic/Posilock
- Identic AdBlue fill system
- Stainless steel fuel tank
- Cooling pack induction filter
- Gel batteries
- Alloy wheels

#### Other Options

- Audible trafficators
- Retarder off warning buzzer
- Self cancel indicator cam
- LH indicator stalk
- Spiral Staircase

#### Body Build Integration

- Clean frame joints for simple body frame interface
- Chassis frame outriggers for body pillars
- Riser frame section to rear seat
- Radiator air intake ducting
- One-piece integrated instrument panel with plug and sockets
- Driver seat mounting frame and footplate
- Slide-out battery carrier

## BODY SPECIFICATION

### Structure

The structure is jig built from aluminium extrusions and stress panels to ensure full structural integrity. Dissimilar metals are treated with dielectric paint and the completed vehicle is undersealed upon build completion.

### Exterior Panels

Aluminium panels are used, butt jointed and bonded to the frame. The side skirt panels are easily detachable for speedy replacement. The roof is aluminium sheet and bonded to the frame. The front and rear domes and glazing surrounds are GRP mouldings. The low-level front and rear panels are ABS mouldings with bumpers in three sections designed for quick removal and/or replacement.

### Glazing

The vehicle is available with bonded or gasket glazing with single piece windscreens offering first class visibility. Hopper windows, tinted glass and heated windscreens are available.

### Doors

The entrance is fitted with a 1200mm wide twin leaf glider door with active seals to improve sealing. The two-door variant has a twin leaf sliding plug door providing a clear exit platform.

### Interior Trim

The interior is wipe clean laminates tailored to the users requirements and to match seat moquette and floor colouring.

### Floor Covering

A hard-wearing vinyl floor covering is offered as standard in a variety of colours and patterns.

### Heating and Ventilation

The standard vehicle is supplied with blown air heating in both saloons with forced air ventilation from the front dash area in the upper saloon. Integrated driver's air conditioning system supplies cool or warm air directly to the driver. Systems which comply with the very latest TfL vehicle specifications can also be supplied: A variable rate powered air extract which provides over one hundred air changes per hour in the upper saloon. Upper saloon air chill system providing cool air via roof ducting over the full length of the saloon. The optional systems can be supplied independently or together as a fully integrated heating and ventilation system controlled to preset vehicle temperatures by the vehicle system.

### Electrical System

The electrical system is fully multiplexed with the electrical centres located behind the driver's area and in the upper saloon 5-way seating area, with large access panels for easy maintenance. The system provides on-board vehicle diagnostics via the driver's screen. Marker lights, side/tail, indicators, stop lights, fog and reverse lights are all supplied as LEDs as standard. CCTV and Real Time information systems are available as options.

### Seating

Various seat types can be fitted from bus seats to coach seats, plus belted options.

### Destination Gear

For London, TfL blinds are fitted. Mobitech electronic destination gear is standard on non-London vehicles. Alternative electronic destination gear is available.

### Entrance Ramps

The two door has a powered ramp at the middle door as standard with a choice of suppliers. The single door vehicle is fitted with a manual ramp as standard with optional powered ramps available.

## DIMENSIONS

Model	Overall Length	Wheelbase	Front Overhang	Rear Overhang
10.2m (2 door)	10200mm	5250mm	2650mm	2300mm
10.9m (2 door)	10900mm	5950mm	2650mm	2300mm
10.9m (1 door)	10900mm	5950mm	2650mm	2300mm
11.4m (1 door)	11400mm	6450mm	2650mm	2300mm

## WEIGHT DATA

Model	10.2m	10.9m	11.4m
Front Axle plated weight	6300 kg	6300 kg	6300 kg
Rear Axle plated weight	11500kg	11500kg	11500kg
Gross plated weight	17800 kg	17800 kg	17800 kg
Design gross weight	18000 kg	18000 kg	18000 kg

## Low Floor Hybrid Double Deck Bus

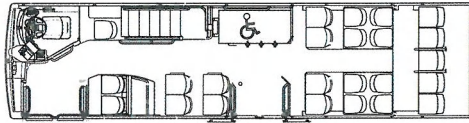
10.2m - 11.4m

### SEATING CONFIGURATIONS

#### Capacities

##### Lower Deck

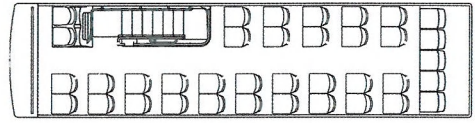
###### 10.2m (Two Door TfL)



Overall length 10.2m • Seated 24 + 1 wheelchair

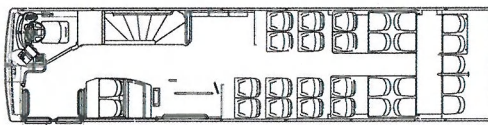
##### Upper Deck

###### 10.2m (Two Door TfL)



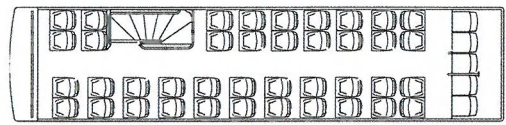
Overall length 10.2m • Seated 37

###### 10.9m (Single Door)



Overall length 10.9m • Seated 33 or  
32 + 1 wheelchair

###### 10.9m (Single Door)



Overall length 10.9m • Seated 45

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Alexander Dennis' policy is one of continuous development. The right is reserved to change specifications of the models and items described. For the latest details always consult Alexander Dennis. 09/11