



MAN CLA 18.220 BB

DIMENSIONS in millimeters (mm)

- Wheelbase (A) 6200
- Front Overhang (B) 2150
- Rear Overhang (C) 3384
- Overall length (D) 11734
- Front Track (E) 2075
- Rear Track (F) 1816
- Min Ground clearance at front/rear (G). 260/230
- Turning circle Diameter-meter (H).....22.6

Weights in kilograms (kg)

	Unladen (Kerb Weight)	Laden
• Front Axle	3100	7500
• Rear Axle	2600	11500
• Total	5700	18000

MODEL: MAN Bus CLA18.220 4X2 Chassis, LHD

ENGINE: MAN D-0836

- Six-cylinder in-line diesel engine with direct injection
- Turbo charged and intercooled
- Displacement 6.9 Liter
- Power output 220 hp (162 kW) @ 2400rpm
- Torque 800 Nm @ 1300-1700 rpm
- Economie speed range..... 1200-1700 rpm
- Emission 8511 / Euro II

ENGINE FEATURES AND EQUIPMENT:

- Rotary fuel Injection pump
- Oil Cooler, Piston Cooling, Fuel Filter and Water Separator
- Air intake system on RH side with Dry Air Filter
- Exhaust with tail pipe Outlet Left (through silencer)

CLUTCH:

- Single dry Plate Push type power assisted Asbestos free clutch
- Clutch plate diameter 395mm

GEAR BOX: Eaton 65 - Overdrive with Retarder

- 6 speed synchronized gear box with reverse gear..

GEAR RATIOS:

- Rev gear 6.75:1
- 1st gear 7.05:1
- 2nd gear 4.13:1
- 3rd gear 2.52:1
- 4th gear 1.60:1
- 5th gear 1.00:1
- 6th gear 0.78:1

FRONT AXLE: MAN FM 08 Drop Forged Type

REAR AXLE: Meritor Hypoid Axle

- Rear Axle ratio 4.89:1

CHASSIS FRAME:

- Ladder type frame with C-Channel rolled section and cross members made of high strength steel
- Halogen Twin Head lights H7



STEERING:

- Power steering - ZF8046(130bar).Height adjustable & Telescopic
- Steering wheel height adjustable by 45mm and inclination by 7.50 degrees.
- Steering Wheel Diameter 480mm
- Steering Gear Ratio..... 26.2:1

BRAKES:

- S-cam, Dual-Circuit drum brake with Compressed air brake system.
- Engine Brakes with MAN patented Exhaust Valve Brakes(EVB)
- ABS (Antilock Braking system)
- Automatic Slack adjuster and asbestos free brake linings
- Load sensing valve on rear axle to regulate axle brake force distribution
- Parking brake acting on rear axles
- Brake drum diameter..... 410mm

FUEL TANK:

- Right - hand side mounted 33Slitre capacity steel tank with lockable Fuel cap.

SUSPENSION:

FRONT

- Semi Elliptical 10 Leaf springs
- Length-1700mm,Width- 80mm
- Double Acting Shock absorbers & Anti Roll bar

REAR

- 14 leaves
- Length-1700mm,Width -80mm
- Two stage semi Elliptical leaf springs with Anti Roll bar

Driver Platform:

Instrument console in sheet metal with clearly arranged instruments with switches and levers within easy reach and short lever travel.

- Easily operated suspended pedals within reach of drivers of all statures
- Two pressure gauges for brake circuits I and II
- Panel of lamps with visible symbols for check functions, including central warning lamp for oil pressure, coolant temperature.
- Gauges for temperature, Oil Pressure, fuel reserves & reservoir pressure in air circuits 1 & II.
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- Large speedometer, Engine crankshaft revolution counter with colour coding to guide the driver optimal operation zones at any gear.

DRIVERSEAT:

- Temporary seat with Chassis

WHEELS AND TYRES:

- Disc Wheel size 8.25 X 22.5
- Tyre standard.....295/80R22.S
- Twin mounted tyres on drive axles. Spare Wheel with tyre.

TOOLS, ACCESORIES& LITERATURE:

- Standard tool kit
- Hydraulic jack
- Operators manual in English
- Towing pin at front

ELECTRICAL SYSTEM :

- Double pole wiring system with separate ground wire harness enclosed in safe sheathing/ casing with battery main switch
- Battery capacity..... 2x12v,100Ah
- Alternator capacity..... 80Amp

PERFORMANCE DATA:

- Max Grade ability 1st gear..... 26%
- Max start ability 1st gear..... 20%
- Max speed in top gear..... 100kmph
- Economy speed range on top gear ... 60-80kmph

BUS COACHWORK SPECIFICATION

1) STRUCTURE:

The structure is composed of tubular profiled tubes (ST37) of different dimensions:

- **Floor** that is made out of crosspieces as steel tube of 70x50x3mm reinforced by 8 mm steel gussets for the bodywork. These crosspieces are braced by other crosspieces of tube. The uprights and cross bars will be 3 mm thick. The rest of the structure will be 2 mm for the robustness and rigidity of the body without weighing it down.

- **Side parts** are in steel tube of 60x40x3mm and 50x50x3mm.

- **Pavilion** is in steel tube of 40x27x2mm.

The welding process will be MIG. This structure provides rigidity and safety to the entire body. It is subjected to anti-corrosive exterior treatment with epoxy paint after cleaning and degreasing.

2) BODYWORK:

The elements used in the external coating of the bodywork are:

- Roof: made of 3 mm thick polyester

- Sides: galvanized sheet 2275 1 mm thick stretched.

- Front and back: polyester reinforced with metal structures .

- Front and rear bumper: made of polyester reinforced with metal structures.

3) THERMAL AND ACOUSTIC INSULATION:

The parts exposed to noise and heat will be carefully insulated by the use of the neto climaver and polyesterine of 40 and 50 mm allowing the reduction of noise and heat, emitted by the engine, as well as by the insulation. which will cover the whole body (floor, roof, sides ...) to maintain the interior temperature of the regular vehicle.

4) DOORS:

- The doors, front and rear, will be simple and fitted with electropneumatic control

5) WINDOWS AND WINDSHIELDS:

- A panoramic windscreen at the front in three laminated glass elements, laminated and tinted according to international safety standards.

- The side windows and the rear window are tinted and made of safety glass.

- An emergency exit from each side with safety glass and equipped with a safety hammer.

- The mounting method of the windscreens, the side windows and the rear window will preferably be glued.

- The bus will be equipped with 2 safety hammers.

- Two easy-access windscreen wipers guarantee good windscreen wiping at two different speeds.

6) SEATS:

- The number of seats is 49 fixed seats of gray color with two-point safety belt.

- They will be arranged in pairs on both sides of the bus

7) COCKPIT:

- Ergonomic distribution of the driver station

- Driver seat

- Upper cabinet locked to keep documents, put radio cassette, radio transmitter ...

- Two 6 kg fire extinguishers placed in the driver compartment..

8) INTERNAL LINING:

- Side ribs and 3mm thick polyester hom.
- Floor will be 15 mm bakelised wood covered with a carpet: moisture resistant and non-slip. Color and "standard" interior configurations.
- The floor will be equipped with the inspection hatches to facilitate maintenance and repair of the engine, gearbox, shock absorber etc ...

9) EQUIPMENT:

- Fixed seats with 2-point safety belt.
- An air conditioner.
- Ventilation duct.
- Two luggage racks.
- Two import vents.
- Luggage racks
- A bunker with a spare wheel.
- Two manual rearview mirrors (1 right x 1 left).
- A set of curtains
- A CD player.
- A pharmacy box.
- Two fire extinguishers of 6 kg.

10) ELECTRICITY :

- The electrical installation of the bodywork will be independent of that of the chassis.
- The electrical installation of the right side part will be independent of that of the left side part.
- Lighting of the independent driver station.

11) EXTERIOR LIGHTING:

Respecting Moroccan and European standards.

12) VENTILATION :

- Two (2) panoramic aerators are provided at the front and rear of the vehicle for ventilation.
- These aerators will be perfectly watertight.

13) PAINTING:

- Exterior covering of the structure and the cladding of the epoxy-based bus .
- Logo and vinyl fleet numbers

14) SOUND/ VIDEO

The vehicle will be equipped with:

- Sound system, CD radio, good quality loudspeakers, will be distributed along the length of the vehicle.

15) AIR CONDITIONER:

- An air conditioner,
- The compressor is driven directly by the motor using belt transmission .
- The unit collecting condenser and evaporator is mounted on the roof.
- The refrigerant gas used freon 134 A.