

Bravo 1.9 D

Technical Specification

Engine

Main features

No. of cylinders	4 in line
Position	front transverse
Cycle-stroke	Diesel-4, indirect injection
Bore x stroke	82.6 x 90 mm
Displacement	1929 cc
Compression ratio	21 : 1
Max. power output - EC at rpm	65 bhp (48 kW) 4600
Peak torque - EC at rpm	12.1 kgm (119 Nm) 2000
Fuel required	Diesel

Structure

Model	160A7.000
Cylinder spacing	91 mm
Main bearings	5
Cylinder block	cast iron
Cylinder head	light alloy

Timing gear

Valve position	overhead in line
Timing	SOHC
Timing control	toothed belt
Valve gear timing	with 0.5 mm tappet play
- Inlet	{ opens closes
- Exhaust	{ opens closes
	10° BTDC 42° ABDC 50° BBDC 2° ATDC

Fuel feed

Type	direct induction
Diesel pump	with Lucas rotary distributor
Air filter	dry-type with paper cartridge

Injection

Type	indirect, with pre-combustion chamber
Fire order	1-3-4-2
Atomisers	RDNSDC6888D - BDNSDC6888D
Atomiser holders	LCR67342 - LRC67342

Lubrication

Type	forced-feed, with geared pump
Oil filter (on main circuit)	cartridge type, total flow

Cooling

Type	liquid cooling, with radiator, centrifugal pump and supplementary expansion tank
Control	with "controlled by-pass" thermostat
Fan	electric, with engagement governed by thermostat on radiator

Transmission

Drive	to front wheels
Clutch	dry, single plate, with disc engagement spring, mechanical control and contact bearing
Diameter of driven plate	200
Clutch lining dimensions (OD x ID)	200 x 134 mm
Gearbox	5 speeds
Transmission ratios	1st 3.909 : 1
	2nd 2.238 : 1
	3rd 1.444 : 1
	4th 1.029 : 1
	5th 0.816 : 1
	Reverse 3.909 : 1
Differential assembly	in gearbox
Final drive	cylindrical, helical
	ratio (no. of teeth) 3.562 : 1 (16/57)

Chassis

Braking system	front discs, with floating calipers; rear drums, with self-centring shoes and automatic wear adjustment. Pedal control, with vacuum servo, split-line diagonally linked hydraulic circuits, and brake regulator on rear brake hydraulic circuit. 4-channel, 4-sensor ABS on request
Front discs	
– diameter	257 mm
– total lining area	156.8 cm ²
Rear drums	
– diameter	180 mm (203 mm with ABS)
– linings: width x length	30 x 146 mm (38 x 165 mm with ABS)
– total lining area	176 cm ² (248 cm ² with ABS)
Parking brake	acting on rear wheels, with manual control and mechanical transmission
Front suspension	independent wheel MacPherson struts, with transverse lower wishbones anchored to an auxiliary cross member, offset coil springs and anti-roll bar
Flexibility at the wheel	0.51 mm/kg
Wheel wobble	70 mm
	85 mm
Dampers	hydraulic, telescoping, dual action
Front wheel geometry unladen:	
– camber	-7' ± 30'
– caster	2°50' ± 30'
– toe-in	+1 to -1 mm
Rear suspension	independent wheel, with trailing arms anchored to an auxiliary cross member, coil springs and anti-roll bar
Flexibility at the wheel	0.56 mm/kg
Wheel wobble	80 mm
	110 mm
Dampers	gas with vulcanised bushes
Rear wheel geometry unladen:	
– camber	-1° ± 30'
– toe-in	-2,5 ÷ +1,5 mm
Steering	rack and pinion with power steering
Steering column	collapsible, energy absorbing with angular adjustment
Turning circle	10.4 m
Steering wheel turns (lock to lock)	3

Wheels

Rims	5 1/2 J x 14"-37, in pressed steel
Tyres	175/65 R 14 82T

Inflation pressure

- front	2.3 bar	2.3* bar
- rear	2.2 bar	2.5* bar

(*) at constant high speed fully laden

Mini spare wheel

Rim	4 B x 14"-43
Tyre	105/70 R 14 84M
Inflation pressure	4.2 bar
Max. speed permissible	80 km/h

Electrical equipment

Voltage	12 V
Alternator: DC supply	65 A (85 A with climate control)
Starter motor	2.2 kW
Battery: capacity	60 Ah

Weights

Kerb weight (DIN) (*)	1100 kg
Distribution	<div> <div>{</div> <div>front</div> <div>62.7%</div> </div> <div> <div>{</div> <div>rear</div> <div>37.3%</div> </div>

Weight fully laden

Distribution	<div> <div>{</div> <div>front</div> <div>850 kg</div> </div> <div> <div>{</div> <div>rear</div> <div>850 kg</div> </div> <div> <div>{</div> <div>total</div> <div>1600 kg</div> </div>
Max. payload (including driver)	500 kg
Max. load towable	1200 kg
No. of seats	5

(*) Car ready for the road (full fuel tank, liquids, spare wheel and accessories)

Performance

Top speed	155 km/h (in 5th)
Speed with engine at 1,000 rpm	28.8 km/h (in 4th)
Weight/power ratio	<div> <div>{</div> <div>kg/bhp-EC</div> <div>16.9</div> </div> <div> <div>{</div> <div>kg/kW-EC</div> <div>22.9</div> </div>

Max. gradient negotiable (fully laden)	35%
---	-----

Acceleration (2 adults + 20 kg) (secs.)

- 0 to 100 km/h	17.3
- 0 to 1000 m	38.1

Pick-up from 40 km/h (2 adults + 20 kg) (secs.)

- over 1000 m	37.8 (in 4th)
---------------	---------------

Conventional fuel consumption (l/100 km)

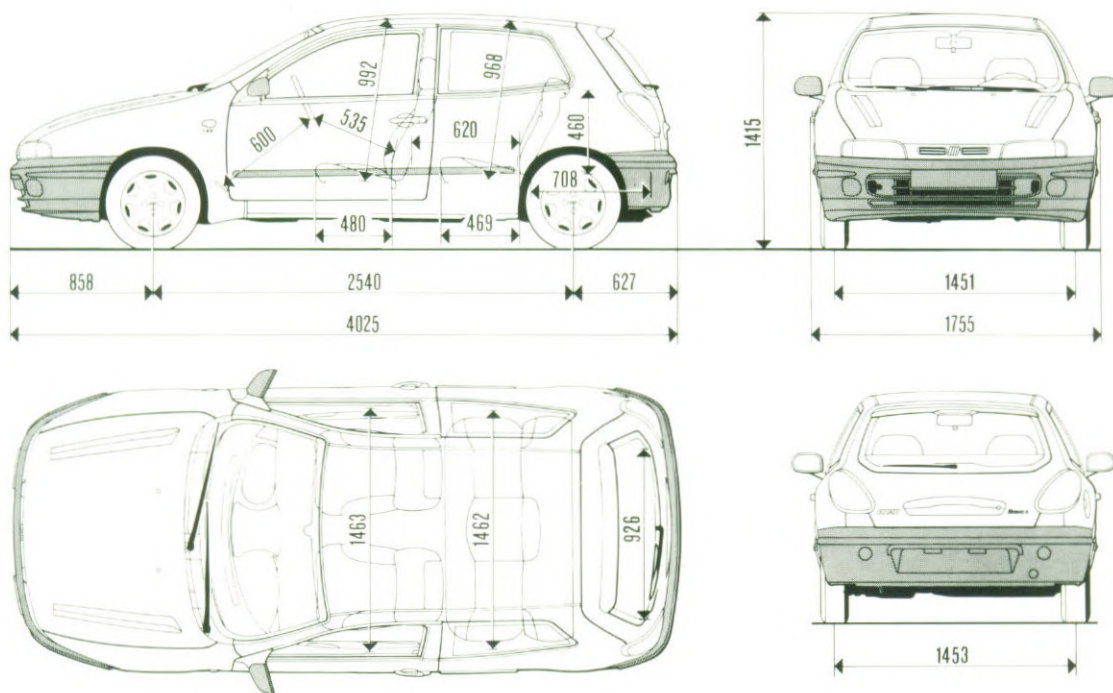
- at 90 km/h	4.9
- at 120 km/h	6.9
- urban cycle	6.5
- ECE average	6.1

Supplies

Fuel tank	dm ³ (litres)	kg
including a reserve of:	60	-
Radiator, engine, expansion tank	7	-
and heating system fluid	7.6 (7.4 with clim.contr.)	-
Engine sump and filter oil	4.9	4.4
Total engine sump, filter and circuit oil	5.5	4.9
Gearbox and differential oil	1.98	1.8
Steering and power steering oil	-	0.8
Braking circuit oil	0.40 (0.45 with ABS)	-
Screenwasher bottle (front and rear)	2.5 to 5 (6.4 with headlight washers)	-

Bravo 1.9 D SX dimensions

* unladen



Luggage capacity (VDA): 280 to 1030 dm³

Engine curves (EC)

