



**HOLDEN**

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GM Holden Corporate Affairs  
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## PRODUCT INFORMATION TM Barina

### Model

- Barina 5-door Hatchback

### Dimensions

Length (mm)	4039
Width (mm) – no mirrors	1735
Height (mm) – no roof rails	1517
Wheelbase (mm)	2525
Front/Rear Track (mm)	1497/1495
Front/Rear Leg room (mm)	1061/881
Front/Rear Shoulder room (mm)	1358/1347
Front/Rear Head room (mm)	995/978
<b>Cargo Volume</b> (litres)	
- Rear seats upright	290
- Rear seats folded (60/40 split)	653

### Engine

- 1.6 litre 4-cylinder DOHC petrol engine
  - Power: 85kW @ 6000rpm
  - Torque: 155Nm @ 4000rpm

### Transmissions

- 5-speed manual transmission
- 6-speed automatic transmission with Active Select

### Fuel Economy (ECE tested on 91 RON)

Vehicle	Engine	Transmission	Combined Fuel Consumption (l/100km)
Barina Hatch	1.6 L 4-CYL	Manual	6.8
Barina Hatch	1.6 L 4-CYL	Auto	7.3

## CO2 Emissions

Vehicle	Engine	Transmission	CO2 Emissions (g/km)
Barina Hatch	1.6 L 4-CYL	Manual	162
Barina Hatch	1.6 L 4-CYL	Auto	174

## Technical Data Overview

Engine:	Family 1, Generation 3, 1.6L, DOHC, DCVCP
Drive axle:	Front wheel drive
Turning circle:	10.06 metres
Fuel tank capacity:	46 litres
Front suspension:	McPherson strut
Rear suspension:	Torsion Beam
Steering:	Hydraulic power assisted
Brakes:	Diagonal dual circuit Front ventilated discs - 256mm dia Rear drums - 230mm dia
Chassis Controls:	ESC, ABS, TCS, BAS, EBD
Kerb weight (kg)	Manual - 1229 Automatic - 1256

### 1.6 L 4-cylinder DOHC petrol engine

The free-revving 1.6L dual overhead cam (DOHC) four-cylinder petrol engine (Family 1, Generation 3) with double-continuous variable cam phasing (DCVCP, also called variable valve timing or VVT) features several technological highlights that include:

- Two continuously adjustable camshafts (DCVCP – Double Continuous Variable Cam Phasing) to optimize the charge cycle – Increases power output and torque characteristics over a wide engine speed range. Reduced emissions and fuel consumption
- Variable intake manifold - Allows lower resistance to air flow, reduced engine weight and improvements to low and high end torque
- A highly efficient oil-water heat exchanger - A module that consists of a heat exchanger and oil filter mounted on the cylinder block, ensures maximum inter-cooling of the oil with a minimum loss of pressure and enables faster heating of oil, thus reducing internal engine friction
- A MAP (Manifold Absolute Pressure sensor) based thermostat with lightweight composite housing for reduced mass and heat dissipation
- Low maintenance applications - A toothed timing belt that requires change intervals every 10 years or 160,000 km (whichever comes first). Piston-cooling oil jets for

enhanced lubrication resulting in increased engine longevity and extended maintenance intervals

- Redesigned cylinder head, block and crankshaft gives greater structural strength, improved heat management and an overall engine weight reduction of 3%.
- Addition of a crankshaft sensor. The anisotropic magnetoresistive sensor (AMR) is integrated into a plastic carrier and as a module is pressed into the cylinder block together with the crankshaft seal to measure crankshaft position at all times (an enabler to smooth, efficient engine operation).

### 1.6L DOHC Specifications

Valve Train:	Overhead camshafts, four-valves per cylinder, double continuously variable cam phaser - intake and exhaust (DCVCP)
Fuel Delivery:	Variable intake manifold, Sequential multi-port fuel injectors with electronic throttle control
Displacement:	1598cc
Power:	85kW @ 6000rpm
Torque:	155Nm @ 4000rpm
Compression Ratio:	10.8:1
Emissions Controls:	Close-coupled catalytic converters, Quick-Sync 58x ignition system, returnless fuel rail, fast light-off O2 sensor
Block Material:	Cast Iron
Cylinder Head Material:	Cast Aluminium
Place of manufacture:	GMK Bupyeong plant, South Korea

### 6-Speed Automatic Transmission

An all-new six-speed automatic front drive transmission, the Hydra-Matic 6T30 enables compact packaging. The gearsets are on the same axis as the engine crankshaft centreline, which makes the entire powertrain unit much shorter fore-to-aft. This provides the ability to enhance crush zones, to increase interior space and lower powertrain height.

Adaptive shift controls include automatic grade braking, which commands the transmission to remain in a lower gear if the vehicle is decelerating or coasting on a downgrade.

Active Select feature via thumb operated controls on the shift lever.

The wide overall ratio spread of 6.00:1 allows a “steep” first gear for maximised acceleration as well as a “tall” overdrive top gear (6<sup>th</sup>) for low-rpm and engine noise levels when highway cruising.

To save space compared to “freewheeling” gear change mechanisms, the shifts are accomplished by applying and disengaging clutches simultaneously during each gear change. Sophisticated electronics help enable the precision needed to time the clutches for each shift. The first-to-second gear shift uses a freewheeling mechanism, however, which tends to be

smoother during shifts between gears with large ratio differences, such as first and second gears.

The torque converter in 6T30 uses a single plate lockup clutch (which enables a purely mechanical coupling with no slippage, and virtually no power loss) and features an oval cross-section shape, called “hyper-elliptical”. This shape reduces the thickness of the torque converter, reducing the space it needs and keeping the overall width of the engine and transmission as narrow as possible for packaging advantages. The single-plate lockup clutch makes use of GM’s electronic controlled capacity clutch (ECCC) technology to help dampen engine vibrations and ensure smooth operation.

The 6T30 is filled for life with DEXRON®-VI premium fluid, which during normal use need not be replaced. DEXRON®-VI is validated to improve durability and shift stability over the life of the transmission. It was developed to have a more consistent viscosity profile, a more consistent shift performance in extreme conditions and less degradation over time.

### 6T30 Automatic Transmission Specifications

Type:	Hydra-Matic. Six-speed transverse, electronically controlled, automatic overdrive transmission
Gear Ratios (:1):	
First	4.449
Second	2.908
Third	1.893
Fourth	1.446
Fifth	1.00
Sixth	0.742
Final drive ratio	3.720
Case material:	Die-cast aluminium
Shift pattern:	6 variable bleed solenoids
Torque Converter Clutch:	Electronic Controlled Capacity Clutch (ECCC)
Converter Size (mm):	220
Fluid Type:	DEXRON® VI
Fluid Capacity (kg):	6.8
Weight (kg)	71.5 (wet)
Place of manufacture:	GMK Boryeong plant, South Korea

### 5-Speed Manual Transmission

The new Barina comes standard with the D16 Five-speed manual transmission.

Transmission Highlights:

- Synchronesh System incorporates triple cone synchronizers for first and second gears resulting in enhanced low-gear engagement for smooth and easy launch/shift characteristics

- Needle bearings for all gears ensure low friction gear meshing for better shift quality
- New rod and cable system ensures more precise shifting and quality driver interface
- One-piece housing enables a compact, lightweight design

## D16 Manual Transmission Specifications

Type:	Fully synchronized 5-speed manual
Gear Ratios (:1):	
First	3.818
Second	2.158
Third	1.481
Fourth	1.121
Fifth	0.886
Final drive ratio	4.176
Place of manufacture:	GMK Bupyeong plant, South Korea

## Vehicle Dynamics

The all-new Barina derives much of its confident road feel and driving comfort from its solid, stable foundation. It features:

- A body-integral structure with main underbody rails running continuously from front to rear, providing exceptional strength
- A long, *six-mount engine cradle* which contributes to the exceptional noise and vibration performance, and ride/handling dynamics. Specifically tuned engine mounts with hydraulic mount are tailored to the engine's inherent torque axis, effectively damping transfer of vibration and noise in the process
- Enhanced chassis-to-body structure interface (i.e. suspension brackets/cradle attachments) design to ensure high stiffness at those points, thus retarding low frequency noise into the cabin. The result is excellent chassis tuning capability, isolation, durability and vibration/noise suppression
- A stable footprint with a wheelbase of 2525 mm combined with a wide stance (front and rear track 1497/1495 mm) enables an inherently balanced steering and handling feel
- The front stabiliser bar is a 21mm diameter hollow unit. The "non-slide" type light-weight bar is mounted to the front section of the engine cradle with each end of the bar connected to the front strut via a direct acting link rod to maximise its effectiveness

## Electronic Stability Control

The ESC system uses electronic brake and traction control capabilities to provide more precise, controlled anti-lock braking performance as well as exceptional traction and yaw stability. The system also provides driver's support during emergency braking and emergency handling.

The ESC incorporates a number of safety functions that include:

- Four channel Anti-lock Braking System (ABS)
- Traction Control System (TCS)
- Electronic Brakeforce Distribution (EBD)
- Brake Assist System (BAS) - This system automatically applies rapid brake booster pressure when emergency braking is detected.

## **Safety and Convenience**

The Barina 5-door Hatchback offers an impressive level of standard features that include:

- Six airbags (dual front, front side and side curtain)
- Electronic Stability Control (ESC)
- Traction Control System (TCS)
- Anti-lock Braking System (ABS)
- Electronic Brakeforce Distribution (EBD)
- Brake Assist System (BAS)
- Pedal release system
- Seatbelt pretensioners (driver and front passenger)
- Air conditioning
- Cruise control
- Engine Immobiliser
- Bluetooth connectivity and audio streaming
- USB audio interface (iPod compatible)
- 15-inch alloy wheels

## **Wheels and Tyres**

- 15 x 6 inch alloy wheels and 195/65 R15 tyres
- Spare - Tyre inflator kit. No cost option, 15 x 6 inch full size steel wheel and 195/65 R15 tyre

## **Servicing**

Servicing is at 3000km (no cost inspection), First Major Service at 15,000km and then every 15,000km or 12 months, whichever comes first.

## **Place of Manufacture**

GM Korea, Bupyeong, South Korea