January 2007

Opel GT: Opel Goes Roadster

- Classic proportions: sleek silhouette, long hood, short overhangs
- Archetypal roadster architecture with front-mounted engine and rear-wheel drive
- High-tech turbo direct injection and twin A-arms
- Roadster fun and performance at affordable price: 264 hp for 30,675 euros

Rüsselsheim. The modern definition of an athletic two-seater finds its form in the new Opel GT. As a classic roadster, it has a powerful front-mounted engine, rear-wheel drive, a cockpit with sporty instruments and a tailor-made fabric roof. With a wide stance, sleek silhouette, long, front-hinged hood and short overhangs, the proportions are typical of this class. The Opel GT also brings new charm to this genre with its own unmistakable personality thanks to its exciting shape, which contrasts sharp edges with curved surfaces to create a dynamic look, and its configuration, which enables a refined driving experience, even on long journeys. The GT' s pricing is also attractive. For 30,675 euros (recommended retail price in Germany incl. VAT), customers get no less than 264 hp from the high-tech turbo engine with gasoline direct injection. Acceleration from zero to 100 km/h takes less than six seconds. The new two-seater carries its legendary name because it continues the tradition of the first Opel GT (1968 – 1973) and, like the original, competes in one of the most exciting vehicle classes.

The new Opel GT also showcases the brand' s passion for dynamic cars, and the conviction that " Opel was never as young as today" . This is underlined by niche models with a high fun factor, such as the Astra GTC with panorama windshield, the Tigra TwinTop

and Astra TwinTop cabrio-coupés, as well as the high-performance OPC family. They enrich the model portfolio and emotionalize the brand.

The development of the Opel GT is a prime example of transcontinental collaboration within GM. It stems from the decision to expand the concern' s portfolio with a compact, rear-wheel drive, sporty vehicle architecture that can be implemented globally. The first step towards realizing this idea was the Solstice concept car in 2002, followed a year later by the Vauxhall VX Lightning concept, which was conceived at the GM Advanced Design Studio in Coventry, England. Strongly inspired by the VX, the Opel GT has been adapted to the current Opel design language at the GM Design Studio in Detroit and the GM Europe Design Studios in Rüsselsheim under the direction of Bryan Nesbitt. The Opel roadster will be built at the Wilmington/Delaware plant in the USA, where its highly successful American GM sister models, the Pontiac Solstice and the Saturn Sky, are also produced.

The new GT' s story is reminiscent of that of its classic predecessor. In 1968, the original Opel GT set an automotive manufacturing precedent in Europe when it became the first car to go into production after being debuted to the public as a concept study. The legendary American sports car, the Corvette, made the same start in 1953 in the USA. The new Opel GT shares some engineering characteristics with the current Corvette, such as part of the architecture.

Crisp, dynamic look with strong face

Sharp lines coupled with taut surfaces give the new Opel GT a crisp, dynamic look. Its strong face is dominated by the fender' s accentuated sweep, the bold chrome crossbar with integrated Opel logo, the elongated hood with brand-typical center crease, chrome-bordered vents and bold 3-D headlamps in clear glass look drawn deep into the side panels. The GT' s especially sporty characteristics include the long air vents in the hood, the grooving in the front fenders with their dynamic, Opel-typical horizontal contours – like on the Antara –, the double-pipe exhaust system and the twin air scoops behind the head restraints, which are reminiscent of designs from roadster and motor sport history. 18-inch aluminum wheels in new five-spoke design fill out the wheelarches, and emphasize the roadster character, as does the fabric roof, which completely disappears beneath a cover for open-top driving fun.

Chrome-ringed instruments in the cockpit clearly display all important information, while black piano lacquer and chrome finishes accentuate the high-tech nuance of the surface structures. These all combine with optional leather seats with visible stitching to highlight the sporty ambience. The short gear stick adds significantly to the driving fun: directly connected straight to the roadster's five-speed transmission, its short gear travel enables quick gear shifts from the roadster-typical seating position.

High-tech turbo engine with direct injection and variable camshaft phasing

The new Opel GT does not just look quick, it is quick! Its longitudinally front-installed 264 hp engine with turbocharging and gasoline direct injection accelerates the roadster to 100 km/h from a standing start in just 5.7 seconds, and up to a top speed of around 230 km/h. "When it comes to high-performance roadsters, there is no better balance between price, driving enjoyment and fun," says Alain Visser, Executive Director Sales and Marketing, Opel. There's no question about it: no other Opel has ever produced 132 hp output per liter. The new Opel GT's engine not only complements the car's dynamic look perfectly, it also far outperforms today's other roadsters and most two-seat sports cars.

High-tech features such as gasoline direct injection, twin-scroll turbocharger with intercooler, double camshaft phasing and twin counter-rotating balance shafts provide the basis for the 1998 cm^3, four-cylinder engine's impressive performance data. Maximum output of 194 kW/264 hp at 5300 rpm and high torque plateau of 353 Nm between 2500 and 5000 rpm ensure plenty of power in all situations. The GT requires an average of 9.2 liters of super unleaded gasoline per 100 kilometers. Jointly developed by GM Powertrain engineers on both sides of the Atlantic, the all-aluminum ECOTEC unit is based on the 2.2-liter direct injection unit available in the Vectra model range since 2004, and on the 2.0-liter turbo induction unit, which debuted in the Vectra GTS in spring 2003.

Chassis with classic sporty configuration

For the Opel GT, engineers designed a classic, sporty configuration based on a rigid chassis, wide track (front/rear: 1543/1561 mm) and long wheelbase of 2415 mm: all four

wheels are suspended from twin A-arms made from forged aluminum, the center of gravity is low, and the weight distribution of 51:49 percent (front/rear) is well balanced.
A manual five-speed transmission with sporty, short gear travel and limited slip differential provide propulsion power. A torque beam between the transmission and rear axle suppresses reactions to acceleration/deceleration effects.

While disk brakes on all wheels, ABS, Traction Control (TC) and the Electronic Stability Program (ESP) monitor safety, the driver can control the level of ESP and use of TC himself. Both systems are fully active after ignition, with the setup providing driving fun but also keeping the vehicle stable within the physical limitations. At the touch of the ESP button in the instrument panel, the Traction Control (TC) is switched off, but ESP remains active and intervenes as soon as the yaw angle exceeds certain thresholds. Two short presses change the ESP' s calibration to a sportier mode and keep the Traction Control (TC) deactivated. Pushing and holding the ESP again for around ten seconds until the " ESP Off" symbol illuminates, completely deactivates ESP and TC. A short press of the button in any mode returns the two systems to their normal states, which also occurs automatically with each new engine start. A display and control light in the instrument panel keeps the driver informed about the current status of both systems.

Stiff vehicle structure with center tunnel and side members

The typical roadster vehicle architecture was designed from the beginning to meet the special demands of an open-top, two-seat sports car without compromise. The vehicle structure, which consists of hydroformed side members and a supporting center tunnel made from drawn sheet steel, provides a solid basis for the car' s precise handling and passive safety. The hydroforming forging technique, in which components are manufactured from steel with the help of high water pressure, is already employed in automobile construction for chassis components in the Opel Vectra and Astra.

Only the legendary American Corvette sports car is also based on hydroformed side members. But the Opel GT also breaks new ground in another regard: the GT model family belongs to the first car line produced in significant numbers to have numerous exterior parts made using a procedure that is relatively time-consuming, but provides designers with greater creative freedom. The hood is one example: thanks to unconventional hydraulic technology – known as super forming – the long hood section with its front hinges

was optimally integrated into the roadster' s silhouette without a gap between the hood and fender.

Extensive standard equipment

Extensive standard equipment in the Opel GT includes:

- 18-inch alloy wheels with 245/45 R 18 tires
- Anti-lock Braking System ABS
- Electronic Stability Program ESP (can be adjusted and switched off)
- Traction Control TC (can be switched off)
- Two-stage airbags for driver and passenger
- Occupant detection for passenger seat (with cockpit display)
- Three-point safety belts with pretensioners and belt-force limiters
- CD-Radio (six loudspeakers, steering wheel remote controls, MP3 player connection)
- Power exterior mirrors
- Power windows
- Power height-adjustable driver' s seat
- Cruise control
- Air conditioning
- Leather steering wheel and gearshift knob
- Manual soft top with heated rear glass window
- Fog lamps
- Remote control central locking, including remote trunk-lid release

The first Opel GTs will be on the road in March 2007 and dealerships have been accepting orders since summer 2006.

New Opel GT: Technical Data Overview

Engine / transmission		
Emissions standard compliance		Euro 4
Fuel		super unleaded
Number of cylinders		4
Bore	mm	86.0
Stroke	mm	86.0
Displacement	cm^3	1998
Max. output	kW (hp)	194 (264)
	at rpm	5300
Max. torque	Nm	353
	at rpm	2500 - 5000
Transmission		5-speed, manual

Driving performance		Fuel consumption in l/100 km			
Maximum speed in km/h	Acceleration from 0 – 100 km/h in seconds	Urban	Extra-urban	Combined	CO_2 emissions in g/km
229	5.7	13.0	6.9	9.2	218

Car dimensions in mm	
Length	4100
Width	1813
Height (at curb weight)	1274
Wheelbase	2415
Track, front	1543
Track, rear	1561
Turning clearance in m	
Curb-to-curb	10.45
Luggage compartment capacity (liter)	
Roof closed	157
Roof open	66
Weight and axle load in kg	
Curb weight excl. driver (according to 70/156/EU)	1331
Gross vehicle weight	1625
Maximum axle load, front	850
Maximum axle load, rear	775

All data refer to the European base model with standard equipment. The consumption data according to 1999/100/EU takes into consideration the vehicle' s curb weight as stipulated by this regulation. The published performance figures are possible with the vehicle' s curb weight excluding driver plus a 200 kilogram load allowance.

Text and photos can be downloaded from the Internet at http://media.opel.com.

Opinions on New Opel GT

Carl-Peter Forster,
President General Motors Europe:
" Develop and build cars with passion – nothing better defines what drives our team. And our customers will feel our passion when they start up the new Opel GT. With the new roadster, we now have an impressive and multifaceted large portfolio of niche products, including the Tigra and Astra TwinTops, which all offer open-top driving fun in their own unique way."

Hans Demant,
Managing Director, Adam Opel GmbH and GME Vice President, Engineering:
" The new Opel GT is a prime example of the technology and design potential that our growing global cooperation within GM offers. We can develop products based on joint vehicle architectures, which not only boast brand-specific characteristics and are worthwhile in smaller production runs, but also enhance the Opel image."

Bryan Nesbitt,
Executive Director Design, GM Europe:
" Designing a roadster is one of the treats of the profession. You know from day one it must exude emotion and fashion beyond all else. The Opel GT is more than a car, it suggests a lifestyle."

Alain Visser,
Executive Director, European Opel Marketing:

“ An absolute dream car, and thanks to its attractive, affordable price starting from 30,675 euros, it’ s a dream that can come true. The new Opel GT concept is in line with its legendary predecessor, and with a powerful turbo engine, the purebred roadster enjoys an exceptional place in its segment.”

Chris Pinn,
Chief Engineer, Model Line:
“ In the development division, our enthusiasm for the new Opel GT knew no boundaries: we constantly had to keep an eye on the keys to the prototypes!”
Model and Legend

Opel GT: New Icon in Roadster Scene

- With 264 turbo hp for 30,675 euros, new GT offers plenty of power for the money
- Ample fresh air and driving enjoyment means lots of roadster fun for two
- Legitimate heir to the ’ 68 cult coupé

With a wide stance, long, front-hinged hood, sleek silhouette, bold rear, cockpit for two and a tailor-made fabric roof, which completely disappears under a cover, the new athletic two-seat Opel GT storms into a segment that is charged by emotion more than any other. As a clear commitment to pure driving fun, the GT is a roadster that perfectly fits into the Opel model range, even if its goal is not top marks for luggage compartment space, flexibility or family suitability: the new two-seater continues a tradition first started by the Opel GT in 1968.

The new Opel GT also showcases the passion for building dynamic cars, and the conviction that “ Opel was never as young as today” . This is underlined by niche models with a high fun factor, such as the Astra GTC with panorama windshield, the Tigra TwinTop and Astra TwinTop cabrio-coupés, as well as the high-performance OPC model family. They enrich the model portfolio and emotionalize the brand.

But the GT would not be a true Opel if it did not also appeal to customers' more practical side. " When it comes to high-performance roadsters, there is no better balance between price, driving enjoyment and fun," says Alain Visser, Executive Director Sales and Marketing, Opel. The new GT also follows in the footsteps of its predecessor when it comes to its 30,675 euro price tag. At 10,767 German marks, the first GT also caused a sensation with its price in 1968. At that time, this was equivalent to roughly 10 months' average gross wages; around 490 euros a month today. Almost 40 years later, the price ratio for the new GT is now even somewhat improved. Today, the average wage has risen to 3500 euros, and while buyers no longer get a steel roof, they do get almost three times the power of the 90 hp GT 1900.

The legend lives on

The legend of an affordable sports car lives on. The new two-seater has the advantage of being designed on roadster architecture right from the start. The original GT from the 1960s was based on a pre-existing Opel sedan model. The reason for this was the limited production capacity at the time. In order to undertake assembly at the Bochum plant, the ' 68 model had to be based on the Kadett. The bodies were produced in France, and the sale of one of the plants to a competitor in the automotive industry was a key reason for ceasing production in 1973. Up to that point, 103,000 units had been built. The new 2007 Opel GT will be built in the roadster plant in Wilmington/Delaware in the USA, together with its highly successful American GM sister models, the Pontiac Solstice and the Saturn Sky.

New GT owners enjoy an extensive range of standard equipment, much of which was inconceivable in 1968:

- 18-inch alloy wheels with 245/45 R 18 tires
- Anti-lock Braking System (ABS)
- Electronic Stability Program ESP (can be adjusted and switched off)
- Traction Control TC (can be switched off)
- Two-stage airbags for driver and passenger
- Occupant detection for passenger seat (with cockpit display)
- Three-point safety belts with pretensioners and belt-force limiters

- CD-Radio (six loudspeakers, steering wheel remote controls, MP3 player connection)
- Power exterior mirrors
- Power windows
- Power height-adjustable driver’ s seat
- Cruise control
- Air conditioning
- Leather steering wheel and gearshift knob
- Manual soft top with heated rear glass window
- Fog lamps
- Remote control central locking, including remote trunk-lid release

The only extra apart from brilliant or two-coat-metalic-paint is the Premium package, which costs 1285 euros. It includes leather upholstery in ebony black or cobalt red/black, and a CD-Radio with 6 x CD changer. An original Opel wind deflector and tailored luggage set are also available.

The first GTs will be on the road in March 2007 with prices starting from 30,675 euros (recommended retail price ex works incl. VAT in Germany). Dealerships have been accepting orders since summer 2006.

Spotlight

First Opel GT – The Cult Coupé of the 60s and 70s

" Only Flying is More Exciting" – this slogan has become a classic in advertising history, and even an everyday saying in German-speaking countries. It belonged to a car which has itself long since become a classic – the Opel GT. Its career got off to a flying start in 1965 when, to everyone's surprise, Opel presented an aerodynamic " Experimental Concept" at the IAA in Frankfurt – a car which did not fit into the usual world of central European high volume automobile production. In view of the sensational design, it was no surprise to see the production version on the road three years later. But what few people knew was that Opel had set a precedent: for the first time in Europe, a vehicle went into production that had initially debuted as a concept car.

The story of the original GT's creation mirrors that of one of the best American sports cars. 15 years earlier, the original 1953 Corvette had become the first car in the world to be presented to the public as a concept before going into series production. The 2007 GT has also followed a similar path, and is a prime example of GM's transcontinental cooperation. As a young Opel manager, Bob Lutz played an important role in the original 1968 GT's launch, and initiated the expansion of the product portfolio with an architecture for a compact, sporty two-seater with rear-wheel drive. The motto: " Simple, pure, attractive!" The Solstice concept was created in 2003, followed by the Vauxhall VX Lightning concept, which was developed at the GM Advanced Design Studio in Coventry, England. Finally, in addition to the highly successful Pontiac Solstice and Saturn Sky roadsters in the USA, came the Opel GT. The final Opel GT design was completed jointly at the GM Europe Design Studios in Rüsselsheim and the GM Design Studio in Detroit under the direction of Bryan Nesbitt.

The 1968 Opel Coupé could not deny a certain similarity to the legendary 1968 American Corvette, nor did it want to. It followed a new design style called the " Coke Bottle

Shape", which also outstanding the Stingray. " Besides having a fantastic look, the Opel sports car was primarily designed to impress with sophisticated aerodynamics," explains Erhard Schnell, GT designer at the time. A sleek front end with retractable headlamps that rotate on the longitudinal axis, broad fender, tapered flanks in the door area, then bulky rear fenders which flow into the rear with sharp separating edges and round lamps – these were the Opel GT's key design characteristics.

" Safety belts are standard, please buckle up" – this was the Opel advertisement that promised GT occupants outstanding acceleration. And the driving performance the sporty 90 hp two-seater offered was truly top class in the late 1960s. Its 1.9-liter engine accelerated the GT from zero to 100 km/h in 10.8 seconds, and on to a top speed of 185 km/h. Almost 40 years ago, this was really fast. As a top model in the upper mid-class segment at that time, the Opel Rekord 1.9 had a top speed of 160 km/h, for example. The200 km/h threshold was like the sound barrier, and had just been crossed by the muscle cars of that generation, such as the Mercedes 280 SE 3.5 with a 200 hp V8 engine. A Porsche 912 – which was commonly considered to be a car in the shape of the first 911, with four cylinders and 90hp, just like the Opel GT – also had a top speed of 185 km/h, but took 12.5 seconds from zero to 100 km/h.

The 1968 GT's sporty handling matched its performance figures thanks to a chassis with front twin A-arm axle and rear center-joint rigid axle with bolted springs, longitudinal control arm and lateral track bar.

Did you know that…?

- *… from 1968 to 1973, exactly 103,464 units of the GT were produced? The GT is a permanent collectors highlight, and a well-maintained model can fetch a fortune.*

- *… 85 percent of the entire GT production run was exported, and 70,222 units (around 70 percent) went to the USA alone?*

- *… the GT's body in white was created by French specialists Chausson (Reims), while Brisonneau & Lotz in Creil, north of Paris, took care of lacquering, electrics*

and interior equipment? The final car assembly took place in Bochum, where the body was ‘ married’ to the powertrain and chassis. It was also the production center for the Kadett, upon which the GT was based.

- *… space for the 1.9-liter engine, which was also used in the Rekord, was so small that the hood had to be power domed and the cylinder-head cover skewed in the front section? The “ Power dome” was not just for show!*

- *… the Aero GT concept with removable targa roof was presented in 1969 at the IAA? One of the two prototypes can be found today in Opel’ s classic collection.*

- *… the company founder’ s grandson, Georg von Opel, reached 188 km/h in mid-1971 at Hockenheim in a converted Opel GT with electric propulsion? The following year, a team of motoring journalists and race car drivers set 20 world records at the Opel Test Center in Dudenhofen in the “ Diesel World Record GT 1972” .*

- *… many reasons led to the end of production in August 1973? These included demands from the USA – the most important export market – to fit bulky safety bumpers, which did not match the style of the car, and the fact that Brisonneau & Lotz was bought by Renault, signaling the end of the contractual relationship with Opel.*

- *… Robert A. Lutz, “ car guy” , GM Vice Chairman, Global Product Development, was a sort of godfather to both Opel GTs? In 1968, in his position as Manager at Opel, he played a decisive role in speeding up the decision on series production, and he also gave the green light to the new General Motors roadster troop – Solstice, Sky and GT.*

Spotlight

Saturn and Opel partner for new vehicles in North America, Europe

The integration of transcontinental thinking and resources within General Motors grows every year. One example is the increasingly important bi-lateral design and technology alliance between Opel in Germany and Saturn in the United States. The latest examples of this trans-Atlantic collaboration are the Opel GT and the Saturn Astra.

The Saturn Astra will be manufactured alongside the Opel in Antwerp and will share nearly all its componentry. While the Astra is bound for North America, the Opel GT may literally cross its wake in the Atlantic since it will mirror that program, sharing a manufacturing facility in Wilmington, Delaware, and componentry with the Saturn Sky roadster.

Saturn is one of the newest GM brands, marketing vehicles exclusively in the United States and Canada. The brand focuses on innovative products with high technological quality, solid value and excellent customer service. Formed in 1985 with a mission to bring new buyers to GM, Saturn took its name from the rocket that powered American astronauts to the moon during the space race with the USSR in the 1960s.

The brand' s first car left the production line at 10:57 a.m. on July 30, 1990 at a new plant in Spring Hill, Tennessee. Sales began on October 25, 1990, as did the brand' s innovative sales philosophy. Saturn retailers have stores dedicated only to selling Saturn vehicles, offering attractive " no-hassle, no-haggle" prices and a consumer-friendly sales and service experience.

The launch of the mid-size L-Series in 1999 marked the first cooperative effort between Saturn and Opel, with the new vehicle derived from the platform and powertrains of the Opel Vectra of that time. Since then, the cooperation between the two brands, which are both solidly positioned in their own home markets, has steadily increased. Today, the two

brands share the technological basis and numerous components for the new Opel Antara and Saturn Vue crossovers, Opel Vectra and Saturn Aura sedans in the mid-size class, as well as the previously mentioned Astra, GT and Sky. When the Astra debuts late in 2007, no Saturn model will have been in the market more than 20 months, giving the brand one of the freshest product lineups in the industry.

" The Astra is the perfect addition to the Saturn range," says GM Vice Chairman Bob Lutz. " It is another example of how General Motors can strengthen our individual brands through cross-continental cooperation. Saturn and Opel are a natural fit. They share similar demographics and brand positioning in their respective markets. Their collaboration means that each brand will have strong, broad product lineups that will attract buyers to the brands in North America and Europe."

Design

Dynamic Look Is New Interpretation of Roadster

- Classic proportions – wide stance with sleek silhouette and short overhangs
- Unmistakable personality with impressive front and strong features
- Archetypal roadster shape with tailor-made fabric roof

With its exciting, sharply sculpted design, the new Opel GT embodies the quintessential roadster in modern, contemporary form. Clear-cut edges contrast with muscular arched surfaces, creating an extraordinarily dynamic look that gives the GT its own unmistakable personality. And the characteristic proportions – wide stance with sleek silhouette, long hood and short overhangs – make it the ultimate example of its class. 18-inch aluminum wheels in new five-spoke design emphasize the roadster character, as does the tailor-made fabric roof, which completely disappears beneath a cover for open-top driving fun, and seamlessly integrates into the car' s shape when closed.

The new roadster' s face displays archetypal characteristics of its genre, as well as Opel-typical design elements in bold form:

- Wide, long front-hinged hood; sleek, short overhangs
- Striking front with large air intake in honeycomb design
- Wide chrome grille crossbar with integrated Opel logo
- Hood with distinctive center crease and air vents
- Bold 3-D headlamps in clear glass look drawn deep into the side panels
- V-shaped front end with prominent lamp units
- Powerfully sculpted fender with grooving and roadster-typical contours
- Tailor-made fabric roof

The GT' s especially sporty characteristics include the long chrome-bordered air vents in the hood, the grooving in the front fenders with their dynamic, Opel-typical horizontal signature lines – like on the Antara –, the double-pipe exhaust system and the twin air scoops behind the head restraints. These are not just reminiscent of classic motor sport and roadster design, but also fulfill an aerodynamic function by reducing air turbulence. Both in silver, the windshield frame and the trim around the roof stowage compartment further accentuate the car' s distinctive look. The GT is available in seven colors, including colorful shades such as sunshine yellow and Eifel blue.

The ergonomically perfect cockpit with high-grip sport steering wheel, chrome-ringed dials and contoured sport seats is tailor-made for sporty driving. The short gear stick considerably adds to driving fun with its crisp, uncluttered operation; short gear travel enables quick gear shifts from the roadster-typical casual seating position. Customers who choose the Premium package, which includes leather seats with visible stitching and leather trim in the doors, have the choice between classic black leather upholstery or a bold two-tone combination of cobalt red and black. The high-tech look of the surface structures, accented with black piano lacquer and chrome finishes, underline the sporty ambience, while the chrome-ringed ventilation and lighting controls are further evidence of the GT designers' careful attention to detail.

The roadster' s design was inspired by the Solstice concept car from 2002 and the Vauxhall VX Lightning concept car (2003) from the GM Advanced Design Studio in Coventry, England. The development of the new Opel GT is a prime example of transcontinental collaboration within GM. It stems from the decision to expand the portfolio with a compact, rear-wheel drive, sporty vehicle. The final Opel GT design was completed jointly at the GM Europe Design Studios in Rüsselsheim and the GM Design Studio in Detroit under the direction of Bryan Nesbitt.

" Sporty Silhouette with Short Overhangs"

Three Questions for Bryan Nesbitt, Executive Director, GM Europe Design

The first Opel GT was a milestone in the history of automobile design. Doesn' t that make it very difficult for a designer to create a successor?

Certainly the market landscape has changed from the original GT' s introduction. Image vehicles have become increasingly dramatic. Our intent is to capture some of the emotional imprints of the original GT. You should recognize similarities like the leaping front fenders and long hood proportions, but interpreted in a modern perspective relevant to todays Opel portfolio. Importantly, not unlike the original, the new GT visually communicates that this is a vehicle made for enjoying the drive.

Now, there can be advantages to creating a niche model such as a roadster: You typically have more freedoms due to the more singular image intent of the product versus a volume model.

What are the Opel GT' s classic sporty roadster characteristics?

Proportions play the major role in establishing a car' s foundational appeal. The GT is broad and flat. Its elongated silhouette, long dash-to-axle with short overhangs and 18-inch wheels pushed far into the corners, are the proportional ingredients.

Where was the Opel GT design created?

In Europe. The Opel GT design takes its inspiration from the Vauxhall VX Lightning concept car, which was developed in May 2003 at the GM Advanced Design Studio in England to celebrate the brand' s hundredth anniversary. The GT' s final execution took

shape at the GMs Design Center in Detroit and the GM Europe Design Center in Rüsselsheim. With an international approach to design, we are using the best ideas from a diverse, talented workforce to create fresh, contemporary vehicles that resonate with our customers and stimulate their passion for driving a roadster and for the brand Opel.

Bryan Nesbitt was named Executive Director, GM Europe Design in February 2004. In this capacity, he is responsible for all Opel/Vauxhall, Saab and certain Saturn design activities. He was born in Phoenix, Arizona, U.S.A. on January 24, 1969. Bryan Nesbitt studied Architecture and Industrial Design at the Georgia Institute of Technology and holds a Bachelor of Science degree in Automobile Design from the Art Center College of Design in Pasadena, California, U.S.A.

Body

Innovative Production Processes

- Rigid vehicle structure with hydroformed side members à la Corvette
- Production according to " GM Global Manufacturing System"

The Opel GT' s roadster architecture, which it shares with its successful American sister models Pontiac Solstice and Saturn Sky, was designed from the beginning to meet the special demands of a sporty two-seater of this classic genre. The chassis is assembled using a number of different fabrication processes and assembly methods: Hydroformed steel frame tubes - with their high strength-to-weight ratio - and conventional stampings are joined using spot welding, MIG welding and adhesive bonding to produce the extremely rigid chassis structure needed in a convertible sports car.

The Opel GT is built at the Wilmington/Delaware plant in the USA according to the quality focused " GM Global Manufacturing System" (GM GMS). Implemented worldwide, the system is based on five key concepts: Built-in-Quality, Standardization, Continuous Improvement, Short Lead Time and People Involvement including shared responsibility for quality management.

The hydroformed tube structure, which runs from the front bumper, through the left and right-hand frame tubes all the way to the rear bumper, provides the vehicle with an extremely strong foundation. The only other car that uses this kind of complete hydroformed frame is the Chevrolet Corvette – for the same reason: The high strength-to-weight ratio of a hydroformed frame greatly benefits a powerful sports car.

Sheet hydroforming uses water pressure to help create the vehicle' s skin. The process is slower and more precise than traditional body stamping and offers the advantage of providing a much deeper " draw," which enables the designers to use a greater creative freedom. Hydroforming alone made possible the Opel GT' s large, curvaceous

clamshell hood, doors and rear quarter panel. Conventional stamping processes could not yield the same results.

Composite construction similar to Corvette

In the body shop, the underbody - including a large, enclosed central tunnel - is welded to the frame tubes. Floor panels are spot-welded above the corrugated sections to provide a flat passenger footwell area for both seats in a composite construction process similar to the one used on the Corvette. Unique assembly methods are employed during production to achieve the highest possible rigidity, such as adhesive bonding and MIG welding technology. Metal Inert Gas (MIG) welding technology is a special electric arc welding process whereby the welding point is sprayed with a protective gas. MIG welding is employed on the Opel GT for the brackets and other chassis and body structures. Accessibility was the key here and was partly necessitated by the use of the hydroformed frame tubes, whose box sections do not allow for access to the inside of the tube.

The front dash structure and windshield frame - created from molded steel components that are spot welded together as a complete unit - are built up separately from the rest of the chassis. Although they have no supporting function, they do increase torsional rigidity. After painting, the unit is fitted with the instrument panel, steering controls, pedals and other related components. This dash/windshield sub-assembly is mated to the chassis during the vehicle' s general assembly process when it is lowered over the chassis hinge pillars and bonded in place using industrial adhesive - a process which is also used in modern aircraft construction - applied at the lower edge. Locating bolts on the hinge pillars hold the assembly in place during the curing process. Using similar modular designs, the upper rear partition well and luggage compartment well are pre-assembled from fiberglass-reinforced composite material.

In the event of damage to a car, technical adhesive bonding can be used for a range of low-cost repair procedures. The new Opel GT is a repair-friendly representative of its class, and is favorably classified by insurers despite its high level of driving performance. The body' s modular design, clever arrangement of components (a radiator situated far behind the large impact limiter, for example), the possibility of sectional repairs and the repairable hydroformed steel frame all contribute to the car' s favorable insurance rating.

Complex processes for exact finishes

All exterior body components are painted separately from the chassis structure prior to assembly. The parts are lacquered in groups on a “ painting buck” to ensure color match. This off-line painting process makes possible the special accent-color body parts, such as the silver-colored windshield frame and tulip panel behind the driver and passenger seat headrests Wilmington assembly's body shop consists primarily of manual operations. Many of the around 1800 employees are well-trained, experienced specialists in precise manual body construction. Apart from a few robot stations, the roadster is completely produced by complex manual workmanship.

Engine and Chassis

Plenty Of Power In All Situations Thanks To High-Tech Engine

- Innovative features include direct injection, camshaft phasing and turbocharging
- Classic configuration: Twin A-arm and perfect weight distribution

No other Opel engine has ever produced 132 hp output per liter. The new Opel GT' s engine is the perfect complement to the car' s dynamic look. The 1998 cm^3, four-cylinder all-aluminum engine also boasts impressive performance data compared with competitor engines thanks to high-tech features such as gasoline direct injection, twin-scroll turbocharger with intercooler, double camshaft phasing and two balance shafts. Maximum output of 194 kW/264 hp at 5300 rpm and high torque plateau of 353 Nm between 2500 and 5000 rpm ensure plenty of power in all situations. The roadster accelerates to 100 km/h from a standing start in just 5.7 seconds and reaches a top speed of around 230 km/h, which for a roadster is more of a notional value. It requires an average of 9.2 liters of super unleaded gasoline per 100 kilometers (MVEG-mix). Jointly developed by GM Powertrain engineers on both sides of the Atlantic, the ECOTEC engine is based on the 2.2-liter direct injection unit available in the Vectra model range since 2004, and on the 2.0-liter turbo induction unit, which debuted in the Vectra GTS in spring 2003.

Perfect combination: Direct injection and turbocharging

The Opel GT' s direct gasoline injection ensures considerably more intensive combustion of the fuel mixture than an induction injection engine. Driven by the camshaft, a high-pressure gasoline pump increases fuel pressure to up to 155 bar – when the engine is idling, injection pressure is 50 bar. The fuel itself is drawn from the tank by an electric pump. The multi-port injection nozzles are arranged underneath the four-cylinder' s intake ports. The special shape of the piston head causes the fuel mixture to swirl around the centrally located spark plug. Controlled and complete combustion allowed for the

compression ratio to be set especially high for a high-performance turbo engine at 9.2:1, which is beneficial for consumption in the partial-load range.

The four-cylinder engine' s turbocharger operates according to the twin-scroll principle. In the exhaust manifold and turbocharger, the geometry of the first and fourth, as well as of the second and third cylinder channels keeps them separated from each other. The pulsating mixture columns are directed into scrolls and merge directly in front of the turbine. Separating the exhaust-gas streams until they reach the turbine inlet enables optimal use of their dynamics. Pressure already starts to build up at around 1400 rpm, and gas pedal movements are translated into powerful acceleration just as quickly. Maximum turbo pressure is 1.38 bar. Other important features of the extremely compact turbocharger include an electro-magnetic overrun air valve, vacuum control and a turbine rotor optimized for efficiency. At a defined vacuum pressure, a valve is opened which directs the air back to the compressor inlet, keeping the charger' s rpm at a high level. With renewed acceleration, turbo pressure is immediately available again. To increase charging efficiency in the combustion chambers, the pre-compressed air is cooled by 100 degrees Celsius in an intercooler before entering the combustion chambers.

Opel' s second-generation, reinforced aluminum engine block is used in the GT; in particular, the main crankshaft bearing supports and cylinder walls have been strengthened. The high-performance engine' s high thermal load capacity facilitates the piston end' s oil-spray cooling and backs up the cylinders' wet liner, which extends far downwards. The cast aluminum pistons transfer power via forged piston rods to the forged crankshaft.

Clever double camshaft phasing

Both of the four-cylinder' s camshafts can be adjusted via an electro-hydraulic rotary disk to match valve opening times to the engine load level via the engine control unit. With higher overlap at lower rpm, continuous variable camshaft phasing also ensures that the turbocharger responds more quickly. The exhaust valves are filled with sodium, and exhaust gases are released to the tailpipe via a stainless steel manifold. All valves are operated via low-friction roller valve levers.

The engine block also features two counter-rotating balance shafts, a low-maintenance chain drive for the camshafts and a cast-on oil filter housing, which is easily accessible from above. Only the cartridge needs replacing when changing oil, and the appropriate time for this is indicated by an interval display. Sensors measure the usage rate of the fully synthetic oil based on parameters such as the number of cold engine starts and the ignition sparks produced by the spark plugs. The plugs themselves only need changing after 160,000 kilometers and the coolant after 240,000 kilometers.

Chassis with classic sporty configuration

For the Opel GT, engineers designed a classic, sporty configuration based on a rigid chassis, wide track (front/rear: 1543/1561 mm) and long wheelbase of 2415 mm: all four wheels are suspended from twin A-arms made from forged aluminum, the center of gravity is low, and the weight distribution of 51:49 percent (front/rear) is well balanced. A manual five-speed transmission with sporty, short gear travel and limited slip differential provide propulsion power. A torque beam between the transmission and rear axle suppresses reactions to acceleration/deceleration effects.

While disk brakes on all wheels, ABS, Traction Control (TC) and the Electronic Stability Program (ESP) monitor safety, the driver can control the level of ESP and use of TC himself. Both systems are fully active after ignition, with the setup providing driving fun but also keeping the vehicle stable within the physical limitations. At the touch of the ESP button in the instrument panel, the Traction Control (TC) is switched off, but ESP remains active and intervenes as soon as the yaw angle exceeds certain thresholds. Two short presses change the ESP' s calibration to a sportier mode and keep the Traction Control (TC) deactivated. Pushing and holding the ESP again for around ten seconds until the " ESP Off" symbol illuminates, completely deactivates ESP and TC. A short press of the button in any mode returns the two systems to their normal states, which also occurs automatically with each new engine start. A display and control light in the instrument panel keeps the driver informed about the current status of both systems.

Spotlight

Town, Country, Highway – Tough Practice Test

Rolling hills and dense forests, picturesque castles, quaint half-timbered houses – it's not surprising that the idyllic Odenwald forest is one of the most popular places to visit in southern Hesse. However, the Opel development team members are less interested in tourist attractions and more in the varying demands of the roads when they test a new model to its limits along a standardized 200-kilometer course – a rite of passage every new Opel model has had to pass for the last two years.

As with all Opel cars, the GT's ambitious target was to cover 100,000 kilometers in only around 26 weeks. The average driver would take between four and seven years to travel the same distance. " During this long-term testing, we thoroughly evaluate the cars on a continuous basis from the viewpoint of our customers", explains Michael M. Meyer, Manager, vehicle endurance and long-term quality. Two Opel GTs were in operation from 6:15 a.m. to 10 p.m., Monday to Friday, covering four circuits for a total of around 800 kilometers per day and car.

The GTs return to the Development Center between circuits, so that the specially trained drivers can give immediate feedback. At the end of the shift, the engineers analyze how the circuits went. " Because of the proximity to our Development Center, we have up-to-the-minute data," says Meyer. " The varied nature of the course was also important." Highway and country roads made up the majority of the circuit, each accounting for 40 percent of the course, while a four kilometer stretch was purposely driven on very poorly maintained roads. " One thing must be made very clear about this testing process: being a test driver has nothing to do with racing around. Safety and strict adherence to all traffic regulations and speed limits are an integral part of testing," adds Meyer.