

MASTERPARTS

AUTOMOTIVE PARTS SUPPLY

Automotive Parts Catalogue | 4th Edition



INTRODUCTION

HISTORY

MASTERPARTS has been supplying the automotive industry for over 40 years and we have seen our range grow from solely engine parts to include braking, steering, suspension parts and more.

Our aim is not to be the biggest but to be the best and to grow by helping our customers grow. We take pride in being able to keep up with the latest engines and developments, in having good availability and staff with the passion and expertise to provide exceptional service.

Our suppliers are carefully selected to ensure that you receive OE quality with excellent pricing and that you can complete your service or engine overhaul with complete peace of mind.

Due to the volume of our constantly growing range we are unable to list specific part numbers, so please contact one of our salesmen for any and all of your requirements.

This catalogue is a showcase for the groups of products that are available. Where possible, part numbers and additional details are given, however, it is not possible to list all of the part numbers in our range due to their volume.

Masterparts' range of products currently caters for over 90 makes of vehicles, covering 2500 engines and incorporating over 50,000 stocked line items.

An application listing can be in the table to the right. If the required product is amongst the various product groups shown in this catalogue and the vehicle that it is required for is shown in the application listing, then Masterparts is likely to have that component available. If it is not in our range or it is temporarily out of stock, then efforts will be made to obtain the required item.

An alphabetical parts look-up can be found at the back of this catalogue as an alternate method of locating your required item.

APPLICATION LISTING

- ADE
- Geely
- Mitsubishi
- Alfa
- GWM
- Nissan
- Afinta Motor Corp.
- Hafei
- Opel
- Africar
- Hillman
- Perkins
- Audi
- Holden
- Petter
- Austin
- Honda
- Peugeot
- Bedford
- Hummer
- Porsche
- BMW
- Hyundai
- Proton
- Cadillac
- Infiniti
- Rambler
- CAM
- International
- Renault
- Chana
- Isuzu
- Rover
- Chery
- Iveco
- Saab
- Chevrolet
- Jaguar
- Seat
- Chrysler
- Jeep
- Smart
- Citroen
- Kia
- Ssang-Yong
- Continental
- Lada
- Subaru
- Daewoo
- Land Rover
- Suzuki **
- Daihatsu
- Lexus
- Tata
- Datsun
- Leyland
- Toyota
- Dodge
- Lister
- Triumph
- FAW
- Mahindra
- UD Trucks
- Ferguson
- MAN
- Vauxhall
- Fiat
- Mazda
- Volvo
- Ford
- Mercedes
- Volkswagen
- Foton
- MG
- Willy's
- Fuso
- Mini
- Zotye
- Gaz

WARRANTY

All goods are sold in accordance with the specific request of the purchaser. As the seller does not control the model identification, no warranty, whether express or implied, is offered as to the suitability of the article sold. Product failures will be handled strictly in accordance with the warranty of the specific manufacturer in question, details of which can be obtained on request. The warranty is limited to the replacement of the part only and no consequential damage, howsoever caused, is included.

IMPORTANT NOTICE

This catalogue supercedes all former pre-dated catalogues. To avoid any possible misunderstanding, we recommend that reference is made to this new catalogue only. The data listed herein is correct to the best of our knowledge and belief, having been compiled from reliable and official sources of information, however, we cannot assume any responsibility for possible error. If in doubt of any information, please consult a salesman.





"Coming together is a beginning; keeping together is progress;
working together is success." - Henry Ford

MASTERPARTS
AUTOMOTIVE PARTS SUPPLY

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BODY COMPONENTS

Even the most modern and most precisely engineered vehicles suffer from failing body components from time to time. We stock a growing range of boot and bonnet gas springs as well as window winder mechanisms. If we don't have what you need then you are welcome to contact us and we will help source it for you.

BONNET/BOOT GAS SPRINGS



Masterparts stocks a growing range of gas springs for various vehicle makes.



WINDOW WINDER MECHANISMS (REGULATORS)



Power windows are great when they work. Unfortunately, car window regulators sometimes give up the ghost and you're stuck with a car window that won't open or close. Car window regulators and window motors can freeze or get clogged with gunk, rendering them and your power windows useless. Don't give up on your stuck power window regulator or power window motor. We offer a range of regulators for numerous applications.



WINDSCREEN WIPER BLADES



Windscreen wiper blades are as critical to your car's safety as your engine, brakes and tyres.

When driving it is imperative to have a clear, unobstructed view of the road and top performing wiper blades will provide you with the cleanest windshield possible.

Many factors can impede your wipers performance and their deterioration.

- Frequent use will speed up deterioration of the blades as a result of road grime, dirt, and other airborne contaminants.
- Weather has a huge impact on your wiper blades. Hot weather can warp the rubber, whereas very cold temperatures can make the rubber hard and brittle. In both instances, you will find your wiper blade will no longer wipe your windscreens cleanly.
- The age of your blades. No matter how often or seldom they are used they will still lose effectiveness over time as the rubber can harden and the blades will lose their flexibility.

We stock 3 lines of Champion wiper blades;

1. Easyvision standard (bridge-style) wiper blades
2. Easyvision multi-clip wiper blades (a flat blade including 7 different clips in order to allow fitting to a multitude of applications)
3. Aerovantage hybrid wiper blades (suitable for specific applications as per OE design)



We all love high-performance engines and killer bodywork but the fact is that nothing on your car is more important than the brakes. Whether you've got all-wheel disc brakes or an older drum brake configuration, if your brakes can't stop you, that's all that's going to be on your mind.

With newer innovations like anti-lock brakes (known as ABS), keeping your braking system in tip-top shape has never been more essential.

When talking about passenger car brakes and light truck brakes, there are numerous components involved. The hydraulic brake parts include the brake master cylinder, brake calipers and brake wheel cylinders, along with brake lines and brake fluid. The friction brake parts include the brake pads, brake shoes, brake discs and/or brake drums.

Whatever your brake inspection discovers, we have FEBI, Metelli and Stone brake parts as well as lots of other items from top-name brake part manufacturers. And as with every order you place with us, you know you're going to get the best in brake parts for your car, truck, van or SUV. Do the job right the first time!

BRAKE DISCS



Fully CNC machined to OE specifications and electronically balanced to eliminate vibrations. Our brake discs and related components are carefully selected from the major suppliers to the global industry, to make the best possible range available to you. We store all dimensional details in our system, including the minimum disc thickness.



BRAKE DRUMS



On a drum brake, friction is caused by a set of shoes that press against the rotating drum-shaped part called a brake drum. The term "drum brake" means a brake in which shoes press on the inner surface of the drum. When shoes press on the outside of the drum, it is called a clasp brake.



BRAKE MASTER CYLINDERS



Does your brake pedal have a spongy feel when you step on it ? Do you feel like your braking system isn't as powerful as it used to be ? Then check your car's Brake Master Cylinder and make sure that it is in top condition. A failing Brake Master Cylinder can cause the car to lose its braking power.



The brake master cylinder converts non-hydraulic pressure (from a driver's foot) into hydraulic pressure, in order to move other device(s) which are located at the other end of the hydraulic system.

They push the brake pads towards a surface that rotates with the wheel (this surface is typically either a drum or a disc) until the stationary brake pads create friction against that rotating surface .

Please contact us to find out more about our range of brake master cylinders which will keep your braking system in top working order.

BRAKE PADS



When braking in an emergency, every inch counts. This makes it all the more important that the brake parts fitted on your vehicle are of excellent quality and able to cope with any situation.

No matter the make or model of your vehicle, your brake pads should be of the highest quality. This is why we stock Metelli, FEBI and Stone brake pads which offer the quality, safety and reliability you need.



- E** All brake pads supplied by Masterparts have been tested and certified in Europe and have been awarded the prestigious E-Mark. Together with our international manufacturers we are committed to offering brake pads and related components that surpass international safety standards. This is your guarantee to always get the highest quality brake components.

BRAKE SENSOR WIRES



Your car is made up of a number of braking system components that ensure your safety while driving on the road.

The brake pad is among the various braking system components in your car that causes it to stop by applying pressure on the brake disc/drum.

To let you know that your brake pad is in need of replacement, a wire which is connected to the brake pad activates a LED indicator on the dashboard of your car.



BRAKE SHOES



Brake shoes are typically made of two pieces of sheet steel welded together. The friction material is either riveted to the lining table or attached with adhesive.

The crescent-shaped piece is called the Web and contains holes and slots in different shapes for return springs, hold-down hardware, parking brake linkage and self-adjusting components. All the application force of the wheel cylinder is applied through the web to the lining table and brake lining.

The edge of the lining table generally has three "V"-shaped notches or tabs on each side called nibs. The nibs rest against the support pads of the backing plate to which the shoes are installed.

As with all brake components we make sure that we have the best quality available to ensure safety standards are met.



DO YOU KNOW?



Jamaican reggae singer-songwriter and guitarist, Bob Marley owned a BMW, not for prestige but because of the coincidence of initials for Bob Marley and the Wailers.



AUTOMOTIVE PASSION



TRANSMISSION

Products made according to extremely high quality standards in order to guarantee maximum reliability, life and comfort of use.

- Constant Velocity Joints
- Driveshafts
- Boot Kit



BRAKE PARTS

All products within the braking line meet the standard required for safety of parts imposed by the main car manufacturers.

Product line consisting of:

- Brake & Clutch Hydraulics
- Brake Drums & Shoes, Rapidkit
- Brake Discs & Pads



ENGINE PARTS

Main parts of engine heads are traditional company products. They are mostly used as OEM by major companies in the car, motorcycle, industrial and agricultural industries.

A significant part of the range is dedicated also to the Aftermarket.

- Valve guides
- Valve seats
- Valve shims



WATER PUMPS

Wide range of products covering the entire European car park, continually updated to respond quickly to market needs.

- Water Pumps
- Timing Belt Kit with Water Pump



metelli
AUTOMOTIVE PASSION
metelligroup

FREEWHEEL HUBS

AISIN
Dependable for the Future

AVM

WHAT DO FREEWHEEL HUBS DO ?

First we should dispel a few myths – freewheel hubs do NOT engage 4wd (this is done in the transfer case) and they do NOT lock the front differential. What they do is engage and disengage the half shaft or drive shaft from the hub of the wheel. When the device is in the locked position the shaft is engaged and when in the free position it is disengaged.

At the outer end of each front axle is a splined section over which the inner hub fits. Around the outside of this is an outer hub which is connected to the wheel. A clutch separates the two. This clutch can be engaged by oblique grooves cut inside the free wheeling hub control knob that is mounted on the outside. Turning the knob from '2' to '4WD' (or from 'free' to 'lock') moves the clutch so that it locks the inner and outer hubs together. Once this has been done, drive from the axle will reach the wheels. For normal 'on road' or hard surface usage, 4WD is not required and the hubs should be placed in the 'free' position. If 4WD is required or likely to be required, the hubs should be turned to the 'lock' position.

Freewheel hubs allow you to use less force to move your vehicle while in 2 wheel drive. You also get less tyre wear because you are decreasing the drag on the front wheels and decreased wear on the moving parts in the front drive train. If you do run with your hubs free, you have to lock them before you select 4wd. Do not run one in free and one in lock.

AVM hubs are easily fitted and feature a heat treated steel clutch ring for faultless torque transmitting. They are built from corrosion resistant materials and provide positive clutch ring positioning, with engage/disengage springs totally independent.



APPLICATION	PART NO.	SPLINES	BOLTS	PCD(mm)	SERVICE KIT
CHEV K20, FORD PICK-UP	417	19	6	95.25	
CHEVY K30, FORD 1 TON F350 & 450	439	30	INT. MOUNT		
DAIHATSU FEROZA 1.6 & ROCKY 2.7	440	24	5	90	
ISUZU 1.9 (G200Z), 2.5 (4JA1), 2.6 (4ZE1)	433	17	6	83	4433
ISUZU 2.7 (4JB1 & 4JB1T), 3.0 (4JG2T)					
ISUZU 3.2 (6VD1 & 6VD1W)					
ISUZU 1.8 KB (G180Z)	422	24	6	76	
ISUZU 1.9 (G200Z) & 2.2 (C223)	432	24	6	80	
JEEP 2.2 -1971	401	10	6	87.3	4401
JEEP 2.2 -1971	402	27	6	87.3	4401
JEEP CJ UNIVERSAL,SCRAMBLER	426	27	5	87.3	
JEEP COMMANDER J10 & J20, FORD F1000	418	19	INT. MOUNT		
KIA CLARUS/SPORTAGE 2.0	460	26	6	76	
LAND ROVER 2.3 & 2.6 SERIES 2 & 3	405	10	6	95.25	
LAND ROVER 2.3 & 2.6 SERIES 2 & 3	406	24	6	95.25	
LAND ROVER DEFENDER 90, 110 & 130	446	24	5	93.45	
MAZDA B2200 F2 & RANGER BT50	465	27	5	114.3	
FORD EXPLORER 4.0					
MAZDA B2500 WL & WLT, B2600 G6	453	26	6	76	4453
MAZDA B3000 MAGNUM V6	470	27	INT. MOUNT		
MITSUBISHI L200/L300 4G63	443	28	6	88	4443
PAJERO/SPACEWAGON 4G64					
COLT L200 4D56 & 4D56T					
PAJERO/PIONEER 4M40 & 4M40T, PAJERO 2 6G72					

APPLICATION	PART NO.	SPLINES	BOLTS	PCD(mm)	SERVICE KIT
MITSUBISHI L200/L300 4G63	428	28	6	90	4443
NISSAN HARDBODY TD25, VG33E & QD32	461	28	6	83	
HARDBODY/SANI VG30E					
NISSAN HARDBODY KA24E	452	27	6	83	4444
HARDBODY/TERRANO TD25, TD27 & TD27T					
NISSAN HARDBODY/TERRANO ZD30DDTI	445	31	6	90	4410
PATROL TD42, TB45E, TD48					
NISSAN HARDBODY/TERRANO TD27 & TD27T	429	27	6	83	4444
NISSAN PATROL 4.2 TB42E	407	10	6	88	4401
NISSAN PATROL MK/MQ,160/260,SAFARI	423	29	6	90	4410
NISSAN PICK UP 720	424	24	6	76	
SUZUKI 970CC SJ410	538	26	6	90	4410
SAMURAI G13A & G13B, VITARA G16A & H20A					
TATA TELCOLINE 483DL	445	31	6	90	4410
TOYOTA LANDCRUISER 3.9 & 4.2 (F & 2F SERIES)	419	30	6	90	
TOYOTA HI-LUX 2L-T, 2L-2, 3RZ-FE, 3L					
HI-LUX 1KZ-TE, 5L, 1GR-FE					
HI-LUX/CONDOR/STALLION 1RZ, HI-LUX/CRESSIDA 22R	413	26	6	90	4404
QUANTAM 1KD-FTV, 2KD-FTV					
LANDCRUISER 1KD-FTV, 1KZ-TE, 1GR-FE					
TOYOTA LANDCRUISER 4.2 1HD-FTE & 4.6 2UZ-FE	455	30	6	92	4456
TOYOTA HILUX/CONDOR/STALLION 1RZ					
HI-LUX 3RZ-FE, 1KZ-TE, 3L & 5L	456	26	6	90	4456
LANDCRUISER 1KZ-TE					
TOYOTA LANDCRUISER 3.4 5VZ-FE & 4.5 1FZ-FE	454	30	6	90	4454
TOYOTA HI-LUX 2L-T	463	30	6	90	
TOYOTA LANDCRUISER 3.9 (F SERIES)	404	6	6	90	4404
TOYOTA LANDCRUISER 4.2 1HZ & 1HD-FTE	421	30	6	90	

WHEEL BEARINGS



Wheel bearings carry the weight of the wheel and allow it to spin without wearing the spindle or shaft. They are typically located right at the spindle of the wheel hub to allow free wheel movement. By minimizing the friction that goes with metal to metal surface contacts as your wheel rotates, the functionality of the part is crucial to the overall performance of your vehicle.

Once this part fails you'll need to replace it immediately. Delaying the replacements of damaged and worn wheel bearings will result in the grinding noises and erratic driving control that can compromise driver safety.



WHEEL BRAKE CYLINDERS



One of the vital components of the braking system, wheel brake cylinders apply brake shoes to the drums in order to bring your car to a stop.

It consists of a cylinder that has two pistons, one on each side. A rubber seal and a shaft are placed on each piston that links the piston to the brake shoe. When pressure is applied, the pistons are pushed out causing the shoes to come in contact with the drum, thus allowing your car to stop.

Ensuring that your vehicle's wheel cylinder is in top shape at all times is essential so you get stoppage in any driving application. Proper maintenance and inspection of the part is vital to ensure its reliable service life. Sooner or later though, your car's wheel cylinder will fail.

A leaking wheel cylinder is often a common sign of failure. A soft pedal due to the brake fluid leaking, is an indication of a worn wheel cylinder.

A good rule to follow is to have your tires rotated every 10 000 km coupled with a brake inspection at the same time. If the inspection reveals that replacement is necessary, do it as soon as possible.



WHEEL HUBS



Maintaining the firm connection of the wheels to your car's chassis is crucial if you want a trouble-free ride. Fortunately, all you need to do this, is a high-quality wheel hub which is located in the middle of the wheels.

Aside from attaching the wheels to the chassis, they also contain the wheel bearings. This function is important because the wheel bearings allow the wheels to move freely.

When you check a typical wheel hub, you'll find that it has different nuts and bolts. These parts are used to keep the wheels stable, capable of handling all of your vehicle's weight. The hub also protects the bearings from getting marred by various elements such as dirt.

Despite its durability, the wheel hub is still prone to damage. When you start experiencing steering wander and grinding noises while you drive, it could mean you need to replace the hub.



WHEEL SPEED SENSORS



A wheel speed sensor or vehicle speed sensor (VSS) is a type of tachometer. It is a sender device used for reading the speed of a vehicle's wheel rotation. It usually consists of a toothed ring and pickup and is used in anti-lock braking systems (ABS).



CAMSHAFTS



The camshaft is used to operate the engine valves by pressing on the valve or on some intermediate mechanism in order to force the valves open. Since the valves control the flow of the intake air/fuel mixture and exhaust gases, they must be opened and closed at the appropriate time during the stroke of the piston. For this reason, the camshaft is connected to the crankshaft either directly, via a gear mechanism, or indirectly via a belt or chain called a timing belt or timing chain.

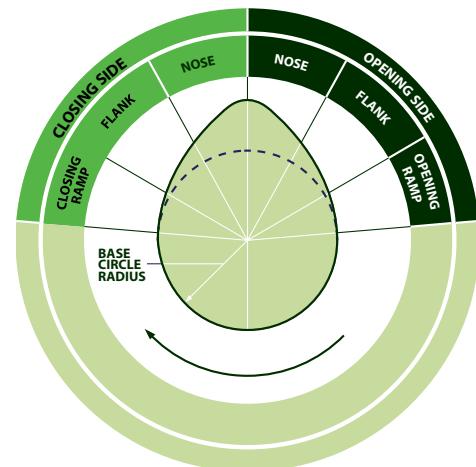
We offer an extensive range of standard replacement camshafts.

Standard refers to the fact that the duration is the same as the manufacturers original specifications (ie not a performance camshaft).

Duration is the number of degrees of camshaft rotation during which the valves are off the seat.



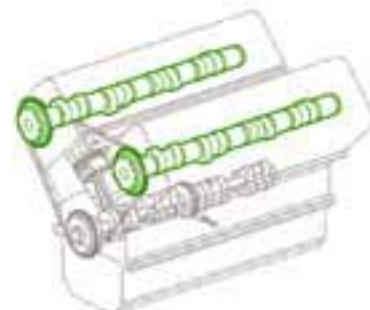
CAMSHAFT CROSS-SECTION



BILLET VS MACHINED

Sometimes the camshaft is incorrectly referred to as a 'billet'. A billet is a semi-finished solid metal form that has been rolled or cast into finished 'long products' such as bars, channels, and rods. In the case of camshafts an example is the blank un-machined bar from which high-performance camshafts are machined.

CAMSHAFTS IN V8 ENGINE



"Driving fast on the track does not scare me.
What scares me is when I drive on the highway and
I get passed by some idiot that thinks he is Fangio."
- Juan Manuel Fangio



CAMSHAFT TRAIN COMPONENTS

CAM BEARINGS



If you're planning to work on an engine block that has been newly reconditioned, you'll definitely need to replace the camshaft bearings, as the old bearings must be removed to allow the block to be properly cleaned.

Quality camshaft bearings will affect the longevity and performance of your engine so be sure to choose from our quality brands.



HYDRAULIC CAM FOLLOWERS



Cam followers come in a vast array of different configurations, however the most defining characteristic is how the cam follower mounts to its mating part. The shape is often cylindrical or shaped like a small bucket, hence the term 'bucket followers'. On most modern overhead cam engines, the camshaft is directly over the valves. When this is not the case, rocker arms are used (see VALVE TRAIN COMPONENTS) as these pivot on a fixed shaft to actuate the valves.

The term 'tappet' is often used although this is actually a term which refers to part of a rocker arm that makes contact with the valve stem. In older cam-in-block engines, the push rod operated a rocker situated on the cylinder head. On the end of the rocker that actuated the valve, was a tappet with its adjusting screw, that was used to adjust the valve lash. Excess lash results in noisy tappets.

Tappets are no longer used on modern engines due to the greater use of overhead camshaft engines and in particular hydraulic cam followers that ensure a constantly correct valve lash.



PUSH-ROD TUBES

We stock standard VW push rod tubes as well as collapsible tubes which can be used for easier/quicker installation.



• COLLAPSIBLE PUSH-ROD TUBE



I think Koenigsegg is Swedish for:
"Oh no, my head has just exploded!"

- Jeremy Clarkson (commenting on the Koenigsegg CCX)



Today's generation of car engines may be more powerful and efficient than ever before but they still need constant care and attention if they are to maintain their peak performance levels. To get the best out of your engine, you need to put the best in it. And there is no better choice than our extensive range of chemical products.



ADDITIVES



DIESEL TREATMENT

Cleans the injection system to maintain performance. Regular use helps to clean injectors, reduce exhaust emissions, restore performance and improve fuel economy.



FUEL INJECTOR CLEANER

Helps clean the fuel injectors which can build up with harmful deposits and reduce the vehicle's performance. Regular use helps to clean injectors, reduce exhaust emissions, restore performance and improve fuel economy.



OCTANE BOOSTER

Maximises performance and acceleration. Increases the octane number of regular unleaded petrol by up to 1.5 numbers. Cleans injectors and removes deposits in the fuel system. Suitable for all petrol engines.



OIL TREATMENT

Formulated to improve the performance of regular and synthetic engine oil to protect the car's engine. Helps reduce oil consumption as well as friction and engine wear.

ANTI FREEZE



Antifreeze is a chemical compound added to water to reduce the freezing point of the mixture below the lowest temperature that the system is likely to encounter and to increase its boiling point. Either the additive or the mixture may be referred to as antifreeze.



Most automotive engines are water cooled to remove waste heat, although the "water" should be an antifreeze/water mixture and not plain water. If plain water (or a poor mixture) were to be used as an engine coolant, it would promote galvanic corrosion.

The term 'engine coolant' is widely used in the automotive industry, which covers its primary function. Corrosion inhibitors are also added to help protect radiators and water pumps.

Your anti-freeze needs to contain 40%-50% ethylene glycol which helps prevent rust and corrosion.

Available in blue, green, red and yellow.

CHEMICAL COMPONENTS

BRAKE FLUID



Brake fluid is a type of hydraulic fluid used in hydraulic brake and hydraulic clutch applications. It is used to transfer force into pressure.

Brake fluids must meet certain standards set by organizations such as the SAE, or local government equivalents. For example, most brake fluid sold in North America is classified by the US Department of Transportation (DOT) under their own ratings such as "DOT 3" and "DOT 4".

Our Total brake fluid and FEBI brake fluid (synthetic) both meet "DOT 4" specifications



CARBURETTOR, BRAKE & CLUTCH CLEANERS



BRAKE AND CLUTCH CLEANER

Removes grease, dirt & brake fluid rapidly.

CARBURETTOR CLEANER

Helps to improve carburettion and engine efficiency. Reduces smoke and fuel consumption. Contains powerful aromatic solvents which dissolve baked-on resins. Product evaporates quickly when engine is started.



CAR CARE



CHAMOIS CLOTH IN HOLDER

Ideal for cleaning stains and dirt off enamel and glass surfaces and drying cars.

SHAMPOO AND SHINE

Lifts ingrained traffic film and gives a brilliant protective shine. Safe for all paint finishes, will not strip wax and is biodegradable. Available in 5lt and 1lt options.

ULTIMOIL DAZZLE

An aerosol polish which cleans and refreshes your car inside and out.



ENGINE & EXHAUST ENAMEL



Enamel paints that dry to a hard, usually glossy, finish, used for coating surfaces subject to hard wear or variations in temperature.

Available in black, blue, grey, red and metallic silver.

The "high heat" sprays can be used on exhausts and manifolds and other hot applications. High heat does not gloss but has a velvet finish. Available in black.



ENGINE & HAND CLEANERS

**ENGINE CLEANER**

Exterior engine cleaner that dissolves grease and dirt. Available in 500ml and 5lt.

**HAND CLEANER**

A safe and easy to use hand cleaner with pumice which effectively removes oil, grease, paint and grime.

EXHAUST PRODUCTS

**FIRE GUM**

Stops small leaks and withstands heat and vibration. Lubricates for fast and easy exhaust assembly. Ideal for making gas-tight seals in exhaust joints.



GASKET MAKERS

**SHELLAC**

A brush-on sealer for paper, cardboard, and felt gaskets. Fast drying and hard setting. Resists most petroleum products and shop fluids.

**CURIL K2**

A non-hardening, temperature-resistant sealing compound. In engine maintenance many sealed joints are required above all to be easily separable or disassembled. It meets this requirement because it does not cure. Joints sealed with Curil K2 remain leak proof under mechanical, chemical and thermal loads and yet are still easy to separate.

DIRKO

A pasty, elastic, cold-vulcanizing sealing compound based on silicone rubber with excellent adhesion to metallic and non-metallic surfaces. It is used to seal surfaces, gaps and cracks, including components that are subject to distortions and motions. It cannot be painted or varnished. Temperature stability is -50°C to +250°C.

**REINZOSIL**

REINZOSIL is a solvent-free, permanently elastic, fast-hardening silicon sealing compound for sealing flat surfaces where there is a sealing gap (can also be applied to assembled components). It does not crack under pressure and is extremely stable at high temperatures.

CHEMICAL COMPONENTS

OILS

ENGINE OILS

Motor/engine oil is used to lubricate moving parts. It also cleans, inhibits corrosion, improves sealing and cools the engine by conducting heat away from moving parts.

The Society of Automotive Engineers (SAE) has established a numerical code system for grading motor oils according to their viscosity characteristics.

In everyday terms "viscosity" is a measure of the "thickness" of the oil. Thus, water is "thin", having a lower viscosity, while honey is "thick", having a higher viscosity. Put simply, the less viscous the fluid is, the greater its ease of movement (fluidity).

Note that the SAE has a separate viscosity rating system for gear, axle, and manual transmission oils, SAE J306, which should not be confused with engine oil viscosity. The higher numbers of a gear oil (e.g. 75W-140) do not mean that it has higher viscosity than an engine oil.

Multi-grade oil:

The temperature range the oil is exposed to in most vehicles can be wide. A specific oil will have high viscosity when cold and a lower viscosity at the engine's operating temperature. The difference in viscosities for most single-grade oil is too large between the extremes of temperature. To bring the difference in viscosities closer together, special polymer additives are added to the oil. These additives are used to make the oil a multi-grade motor oil. The idea is to cause the multi-grade oil to have the viscosity of the base grade when cold and the viscosity of the second grade when hot. This enables one type of oil to be used all year.

The SAE designation for multi-grade oils includes two viscosity grades; for example, 15W-40 designates a common multi-grade oil.

HYDRAULIC OILS



Hydraulic oils are just as important as your vehicles engine oil, it is also imperative that the correct oil is used as specified by the vehicle manufacturer.

Masterparts stock a comprehensive range of vehicle specific and universal hydraulic oils including, power steering fluid, level control system fluid, transmission oils whether it be manual, automatic, DSG or CVT type gearboxes as well as differential oils.



RADIATOR PRODUCTS



RADIATOR FLUSH

Removes rust and sludge and clears blocked water channels to prevents corrosion.

RADIATOR WELD

Seals small leaks in radiators and is safe to use with all metals.



SPRAYS, LUBRICANTS AND OTHER

**AIR MASS SENSOR CLEANER**

Safely cleans and protects air mass sensors. Improves air/fuel ratio and fuel consumption. Plastic safe, leaves no residue.

CHAIN LUBE

An effective synthetic lubricant, compatible with 'O' ring seal chains. Its high performance anti-fling formula ensures a non-running, non-drip application that stays on the chain.

COPPER SPRAY

Copper gasket sealer is a slow hardening adhesive with a high copper content to promote heat transfer. Use in place of adhesive type products. Allows gaskets to be reused. Available in aerosol only.

**ENGINE FLUSH**

Cleans the whole engine internally, combating engine wear and improving performance.

**Q20**

This product displaces moisture, stops rust in its tracks and protects and lubricates. A useful rust preventive for any exposed metal.

STOP SMOKE

Oil burning and smoke can occur, particularly in older cars. Stop Smoke will help to reduce exhaust smoke, reduce engine wear and oil consumption. Is suitable for petrol and diesel engines, with regular or synthetic oils.

TYREWELD

Provides a safe and rapid temporary repair. Unique formulation re-inflates the tyre and seals the hole caused by the puncture.

VALVE GRINDING PASTE



A superior valve grinding paste for maximum engine efficiency. Coarse for resurfacing but fine enough for polishing.

Used for grinding, lapping and seating valves.

**DO YOU KNOW?**

The AutoTram Extra Grand measures 30.8 metres long. The German vehicle, worth more than a million dollars, can carry 256 passengers in total.

KEEPING YOUR CAR COOL

The cooling system in your car rests largely on the effectiveness of your radiator and its related components. A failed radiator might lead to your engine overheating, possibly damaging it irreparably.

To cool down the engine, a coolant is passed through the engine block where it is heated, then fed into the inlet tank of the radiator which distributes the coolant across the radiator core. It then cools down as it circulates through the radiator tubes to the opposite tank where the cold coolant is fed back to the engine and the cycle is repeated.

Masterparts stocks hundreds of cooling products so whether you are looking for fan blades, radiators or a new thermostat, look to Masterparts to get the job done correctly.

COOLANT LEVEL SENSORS



This electronic sensor notifies the driver if the engine coolant level drops below the minimum level. If the light on the dash comes on notifying you that the coolant level is low and the coolant is actually topped up, you have a failed coolant level sensor. The coolant level sensor usually has a wire connector on the top of the unit and a plastic gland nut that retains the sensor. Do not remove the sensor while the engine is hot as the coolant is under pressure and you might get severe burns.



FAN BLADES & ELECTRIC FANS



Every engine needs to be properly ventilated. While increased air circulation helps to effectively move accumulated engine heat (due to continuous fuel combustion processes), you need to have an efficient cooling fan assembly to do the job. For specific vehicle applications, there is a specific fan blade design to maintain a precision flow of air to keep your engine from overheating. As the part that sucks an increased flow of cool air toward the engine compartment, its great functionality and service could extend the life efficiency of your engine while it minimizes engine wear.



FAN CLUTCHES



A fan clutch is a thermostatic device that is an integral component of the automotive cooling system. When the engine is cool or even at normal operating temperature, the fan clutch partially disengages the engine's radiator fan. It is generally located at the front of the water pump and driven by a belt and pulley connected to the engine's crankshaft. This saves power, since the engine does not have to fully power the fan.



If the engine temperature rises above the clutch's engagement temperature setting, the fan becomes fully engaged, drawing a higher volume of air through the vehicle's radiator, which serves to maintain or lower the engine coolant temperature to an acceptable level.

We cater for hundreds of models so be sure to inquire with one of our salesmen about the right fan clutch for your application and the compatible fan blade.

RADIATOR EXPANSION BOTTLES



The coolant in your engine is essential for a successful operation of your heat transfer. It expands as your engine heats up during the combustion process and your car has therefore been installed with a radiator expansion bottle. Also known as an expansion tank or coolant reservoir, this cooling system part provides an extra space for the coolant. The expansion tank can also remove bubbles from the entire cooling system. Its primary function is to absorb the expansion of the coolant as it gradually increases to full operating temperature. The expansion tank is a see-through plastic container that can be seen mounted onto the overflow tube from the radiator. With a properly working expansion tank, your radiator is always full even if the coolant inside it rises and falls.



RADIATORS & CAPS

The radiator is the essential component of your vehicle's cooling system. Without a properly-functioning radiator, your vehicle is going to overheat. Radiator problems often start slowly as the radiator gets clogged with particles of rust and debris. That debris reduces the radiator's ability to transfer heat and your cooling system slowly loses its ability to do the job it was designed for.

We also stock a large range of radiator caps to suite most applications

**RADIATOR HOSES & HEATER PIPES**

The key function of every car's cooling system is to remove excess heat from the engine, to allow the engine to work at the most efficient operating temperature. Among the vital yet simple parts of the cooling system is the radiator hose. In essence, radiator hoses are rubber tubes that carry the coolant to and from the radiator that keeps the engine cool. It links the engine and the water pump to the radiator. Built from flexible rubbers, these hoses vary in size depending on the type of engine.

**AIR CONDITIONER CONDENSORS**

It's better to think of the condenser's job as removing the heat from the air rather than cooling the air. Refrigerant flows into the compressor as cool gas which is then pressurized and becomes a hot liquid. This hot liquid flows into the condenser which allows heat to escape from the refrigerant via multiple fin-like vents in the condenser casing. When the refrigerant reaches the end of the coils, it is markedly cooler and in liquid form but still under pressure. With this pressure, the refrigerant is forced into a tiny valve and escapes the condenser in a fine mist. The refrigerant mist begins to evaporate while flowing through a set of hollow coils. This evaporating action draws heat out of the air surrounding the coils, thereby cooling it.

**INTERCOOLER**

An intercooler's purpose is to cool air that has been compressed in either a turbo or supercharger. When air is compressed its temperature rises drastically and becomes less dense and less oxygen rich. An intercooler is an essence a heat exchanger, like your radiator. There are 2 main types of intercoolers; an air-to-air intercooler uses outside air to transfer heat, while an air-to-water intercooler uses water to transfer heat.

**DO YOU KNOW?**

Currently, the most expensive production car is the Lamborghini Veneno (Italian for venom). It is a limited edition supercar that boasts staggering power — it's 552kw engine can produce a top speed of 355kph. This low-slung beast can accelerate to 100kph in 2.9 seconds. The privilege of owning the Veneno comes with a shocking price tag — the roadster goes for an astonishing R54 million.

Lamborghini will only produce nine of the cars.



COOLING COMPONENTS

THERMOSTATS & HOUSINGS



All our thermostats are built from high quality stainless steel, brass and copper, to resist the corrosive effects of engine coolant. They meet or exceed O. E. standards and are 100% tested and calibrated to ensure the correct opening temperature. The use of jiggle pins in all offset type thermostats ensures the elimination of trapped air and a reduction in delay of warm-up. Broadly speaking there are three temperature ranges, based on the ambient temperature of regions:

HOT CLIMATE

Middle East and North America where the temperature constantly ranges above 35°C and where a thermostat in the 72-82°C range is required.

NORMAL CLIMATE

In the classical Mediterranean climate like South Africa, the ideal thermostat ranges from 79-95°C.

COLD WINTER

The type of climate in the Northern hemisphere that gets snow and ice in winter requires thermostats typically above 90°C.

Obviously there are exceptions that relate to the design of the engine and cooling galleries and the above is used primarily to illustrate that thermostats are not as simple a component as is sometimes believed. Temperatures in excess of 100°C are becoming more common due to higher under bonnet temperatures. Using only a thermostat with the correct opening temperature for your country/region, will help maximize the life of your engine.

THERMOSWITCHES



A thermoswitch is a device which activates the radiator cooling fan when the coolant temperature reaches a specific level.

WATERPUMPS



Your car's water pump is essential for circulating coolant throughout your vehicle's engine. If your water pump isn't functioning correctly the engine coolant does not flow to the radiator to exchange its heat. No cooling from the radiator results in overheating which leads to warped heads, blown head gaskets and lots of wear and tear on your engine. We offer a huge range of water pumps for all makes of vehicle and as with all our automotive parts, you're guaranteed to get the right water pump for your application quickly and easily. We have fan belts and radiator hoses too, letting you complete a full cooling system repair with one stop.

N.B - It is important to note that good quality anti-freeze must be used in order to prevent a shortened life of your water pump. Your anti-freeze needs to contain at least 40%-50% ethylene glycol to help prevent rust and corrosion.

WELCH PLUGS

You will find these plugs located in the side of the engine block and cylinder head. They seal the ends of the water channels which are cast in the block. We stock metric and non-metric welch plugs, ranging from 14mm to 56mm (metric) and ¾" to 2 ¼" (non-metric).



WE RULE THE COOL...



OIL
COOLERS



THERMOSTAT
HOUSINGS



RADIATOR EXPANSION
BOTTLES



FAN BLADES



FAN CLUTCHES



INTERCOOLERS



THERMOSTATS



COOLANT
FLANGES



WATER PUMPS



RADIATORS

CRANKSHAFT COMPONENTS

CON-ROD BOLTS



The connecting rod has an end which can be 'opened' (called the 'cap') so that the bearings can be fitted. The connecting rod bolts (con-rod bolts) are used to fasten the cap to the connecting rod.



CON-RODS



The connecting rod (or con-rod) connects the piston to the crankshaft. Together with the crankshaft they form a simple mechanism that converts linear motion into rotating motion.

Connecting rods may also convert rotating motion into linear motion. Historically, before the development of engines, they were first used in this way.

As a connecting rod is rigid, it may transmit either a push or a pull and so the rod may rotate the crank through both halves of a revolution, i.e. piston pushing and piston pulling.

In a few two-stroke engines the connecting rod is only required to push.



CRANKSHAFTS



The crankshaft, sometimes casually abbreviated to 'crank', is the part of an engine which translates reciprocating linear piston motion into rotation. To convert the reciprocating motion into rotation, the crankshaft has "crank throws" or "crankpins", (bearing surfaces) whose axis is offset from that of the crank centre, to which the "big ends" of the connecting rods from each cylinder attach.



ENGINE BEARINGS



The con-rod can crudely be described as a steel rod with holes at each end. The smaller hole connects to the piston whilst the bigger hole connects to the crankshaft.

The con-rod bearings fit into the bigger hole on the con-rod, hence the term "big-end bearings" or "big-ends".

The main bearings are the bearings upon which the crankshaft rotates.

Thrust washers are long-life flat bearings in the shape of a washer that transmits and resolves the axial forces of the crankshaft. Flanged main bearings are main bearings which have "built-in" thrust washers whereas unflanged main bearings require separate thrust washers to be fitted.



PISTONS

A piston is the moving component in the cylinder of the engine. Its purpose is to transfer force from expanding gas in the cylinder to the crankshaft via the connecting rod.

**PISTON RINGS**

The piston rings are split rings which fit into the grooves on the piston. The gap in the piston ring compresses to a few hundreds of a millimetre when inside the cylinder bore. The rings make near contact with the cylinder walls (sleeved or sleeveless), riding on a thin layer of lubricating oil – essential to keep the ring from seizing and necessitating a cylinder wall's durable surface.



Three main functions of piston rings are:

- Sealing the combustion/expansion chamber.
- Supporting heat transfer from the piston to the cylinder wall.
- Regulating engine oil consumption.

(CYLINDER) SLEEVES

The cylinders of an engine are the central working parts. It is the space in which a piston travels.

Cylinder walls can become very worn or damaged from use. In such cases the use of a sleeve or liner can restore proper clearances to an engine. Sleeves are made out of iron alloys and are very durable. The sleeves can be pressed into place and are held in by an interference fit. The interference fit is done by boring the cylinder smaller than the sleeve being installed, then heating the engine block and while hot, the cold sleeve is inserted. When the engine block cools, it shrinks around the sleeve, holding it into place. Once a sleeve has been installed the cylinder needs to be finish-bored and honed to match the piston size.

**SLEEVE KITS**

Sleeve kits consists of a set of sleeves, pistons and rings for an engine.

**SMALL END BUSHES**

The con-rod can crudely be described as a steel rod with holes at each end. The smaller hole connects to the piston whilst the bigger hole connects to the crankshaft.

The smaller hole is sometimes fitted with a bush before it is fitted to the piston pin, hence the term "small end bushes".



CYLINDER HEADS



The cylinder head, which is often informally abbreviated to just 'head', sits above the cylinders on top of the cylinder block. It closes in the top of the cylinder, forming the combustion chamber. In most engines it provides space for the passages that feed air and fuel to the cylinder, and allow the exhaust to escape.



It can also be a place to mount the valves, spark plugs, and fuel injectors and is a crucial part of all combustion engines. It endures a lot of stress due to extreme heat and this heat can be a cause of cracking. Whatever the need for replacing your head, we stock a wide range of cylinder heads for both petrol and diesel applications.

PRECOMBUSTION CHAMBERS



The term indirect injection refers to a fuel injection system where fuel is not directly injected into the combustion chamber. An indirect injection diesel engine delivers fuel into a chamber of the combustion chamber, called a pre-combustion chamber, where combustion begins and then spreads into the main combustion chamber.



These chambers suffer extreme changes in their structure which may result in them cracking. Fortunately we carry a range of pre-combustion chambers for most applications.

CYLINDER HEAD BOLTS



Cylinder head bolts are the connecting elements between the engine block, cylinder head gasket and cylinder head. The bolt tightening force is an important factor for the mutual sealing of the combustion chamber, lubricant and coolant channels and the ambient air.

When tightening (torquing) the head bolts, the force generates the clamp load needed to achieve a perfect seal.

Cylinder head bolts are designed to stretch to their yield point, so that they create both an "elastic" and an even clamping force across the cylinder head. This enables the aluminium cylinder head with its greater heat transfer and thermal expansion to retain its seal against the slower expansion of the cast iron block until they have both reached operating temperatures. Aluminium has a load fluctuation about 8 times that of cast iron and clamp loads can alter by as much as 40% during normal operation, until the initial variances have vanished when temperatures are at operational levels. Because the bolts stretch slightly their threads become distorted, and if re-used the clamp force will lower and will over time diminish until failure occurs. It is common for re-used stretched bolts to break without warning and because they will break in the threaded area, extraction of the broken part can be both time consuming and costly.

For this reason it is recommended that torque-to-yield (stretch) bolts are never re-used.

CYLINDER HEAD BOLT TYPES



HEXAGONAL



ALLEN



12 POINT
(MALE)



12 POINT
(FEMALE)



TORX
EXTERIOR



TORX
INTERIOR



DISTRIBUTOR CAPS & ROTORS

The distributor routes high voltage from the ignition coil to the spark plugs in the correct firing order. The distributor cap has one post for each cylinder, and a central post for the current from the ignition coil coming into the distributor. However in high energy ignition (HEI) systems there is no central post and the ignition coil sits on top of the distributor.

Due to all the high-voltage activity, the rotor needs to be replaced relatively frequently and the cap succumbs to heat and vibration.

We ensure that you get these parts with components that offer better connections and greater resistance to electrical pitting and corrosion resulting in greater life and performance.

**GLOW PLUGS**

A glow plug is essentially a heating element that, when electrified, heats due to its electrical resistance and begins to emit light in the visible spectrum, hence the term "glow" plug.

In older generation diesel-engine vehicles, unlike in petrol-engine vehicles, the operator does not simply turn the key to the "start" position and have the engine immediately start. Instead, the operator has to turn the key to the "on" position for a specified duration.



The glow plug relay switches the glow plugs on and a light on the instrument cluster illuminates. This process is called "pre-heating" or "glowing".

If the car had been running very recently or if the ambient temperature was hot, the "wait to start" light might not come on. In this case, the operator may proceed to turn the key to the "start" position and start the engine without having to wait.

When internal sensors detect that the core of the engine block has reached a certain designated temperature, or when a certain amount of time elapses, the glow plug relay switches off the "wait-to-start" light. A pre-heating cycle usually lasts for 2 to 5 seconds. The operator then proceeds to turn the key to the "start" position, as in a petrol engine. The glow plug relay switches off the glowplugs after the engine is running (or, in older cars, at the same time the "wait to start" light goes out). In some newer cars glow plugs continue to operate for up to 180 seconds after the engine starts to keep the engine within emission regulations, as combustion efficiency is greatly reduced when the engine is very cold.

GLOBES

Having difficulties driving around at night? Even if you have 20/20 vision you need all the help you can get to improve night time road visibility. We offer a range of H1, H3, H4, H7, H11 and HB4 globes that covers most vehicles, including late models with bi-xenon headlights.

**DO YOU KNOW?**

Ferrari produces a maximum of 14 vehicles per day.

Toyota produces 13,000 vehicles per day.



IGNITION COILS



EUROMANN

To deliver quick ignition your engine employs a high grade ignition coil to amplify the voltage of electricity supplied through your car ignition system. To prevent misfires, you need to keep the component near perfect working conditions to prevent misfires and minimize fuel wastage. Fortunately high quality replacement coils are conveniently available as practical solutions to maintenance. While the part handles a tremendous amount of voltage of electricity, it is prone to damage due to the rigors of sustaining smooth and powerful engine performance. When you need to effectively restore or re-establish the performance and responses of your engine, powering up with performance grade ignition coils will help your engine achieve its peak performance.

WHAT DOES AN IGNITION "COIL-ON-PLUG" DO?

In Coil-on-Plug technology, since each cylinder has a coil, the ECU (electronic control unit) controls individual cylinder firings for more precise ignition timing, reduced emissions and better fuel economy.

WHERE ARE THESE SENSORS LOCATED?

The Coil-on-Plug (COP) coil is usually mounted on the top of the cylinder head just above the spark plug. The coil is connected to the spark plug with a stainless steel spring connector and protective insulating boot.

WILL A MALFUNCTIONING COIL-ON-PLUG ILLUMINATE THE CHECK ENGINE LIGHT OR AFFECT VEHICLE OPERATION?

Yes, a failing Coil-on-Plug can illuminate the warning light, and is likely to create an engine misfire condition.

WHAT ARE THE COMMON CAUSES OF FAILURE?

Typically, coils fail due to exposure to high heat, moisture and oil as they are mounted on top of the engine. The coil windings can fail due to the large flow of ampage.



IGNITION LEADS



The ignition leads on your vehicle are responsible for harnessing thousands of volts and delivering that 'juice' to the spark plugs every time, without fail. As spark plug wires age, the insulation gets brittle and the core develops cracks which is not good news. Any breakdown in the spark plug wire gives the electricity somewhere else to go, and the result is engine misfiring, fouled spark plugs and rough running. The problem is, spark plug wire problems can be hard to detect, since spark plug wire insulation and core problems can hide just below the spark plug wire surface. A new set of spark plug wires will restore the ignition performance of your vehicle. We have hundreds of part numbers of leads in stock for a wide range of vehicles and if you're looking for something that can deliver a little more spark we also have high performance spark plug wires. Don't forget when replacing spark plug wires, to check the other ignition system components as well. We also stock spark plugs for most vehicles as well as marine engines, lawnmowers, chainsaws, generators, motorcycles, etc.



IGNITION MODULES



EUROMANN



The ignition module of your vehicle controls the timing of the spark plugs by opening and closing the ignition coil ground circuit. It has a direct impact on the performance of the engine. The module resembles a small electrical box with a wire harness and is located either on or in the distributor housing , or on the firewall or wheel-well. Like all automotive components, the ignition module will eventually deteriorate and break.



Overheating is a common cause of ignition module problem. You will observe a distinct pattern of symptoms if the module is overheating. The car will start and run normally, but stall after a few minutes of intense operation. However, if you wait a short time, the overheated ignition module will cool off and you can start the car again. This situation is fairly unique to overheating problems. Overheating will also cause electrical shorts, engine stuttering, lower fuel mileage, power loss, stalling, and fuel odours in the exhaust. Ignition modules that are overheating will soon cease to function.

If you are caught with an overheated module in an emergency situation, you can cool it down with ice water, engine coolant, or refrigerant fluid. This is a temporary solution and should only be used as a last resort.

Ignition modules can also stop working abruptly because of loose or corroded electrical connections. In this case the vehicle will stall unexpectedly during operation and not start again. Check the switch. Clean the oxidized terminals and replace any broken wires if necessary. The circuits may also be critically damaged by overheating if the problem is not addressed after the first or second occurrence.

Before you attempt to replace the control module, you must rule out other ignition system component faults such as the coils, plug wires and plugs.

If your ignition module does need to be replaced, we have a wide range of the highest quality modules available for you.

SPARK PLUGS



A spark plug is an electrical device that fits into the cylinder head of some internal combustion engines and ignites compressed fuels by means of an electric spark that jumps the gap between electrodes.

Spark plugs have an insulated central electrode which is connected by a heavily insulated wire to an ignition coil or magneto circuit on the outside, forming, with a grounded terminal on the base of the plug, a spark gap inside the cylinder.

Reciprocating internal combustion engines can be divided into spark-ignition engines, which require spark plugs to initiate combustion, and compression-ignition engines (diesel engines), which compress the air and then inject diesel fuel into the heated compressed air mixture where it auto-ignites (see glow plugs).



DO YOU KNOW?



"It's a Doozy!"

This phrase has its origins in Duesenberg automobiles which were regarded as the most luxurious cars in the world in the 1920's.



LET POWERTEC IGNITE YOU



A LEGACY OF QUALITY

Powertec Ltd has years of experience as a specialist manufacturer of ignition lead sets. Thanks to improved technology, years of experience and reliable suppliers we manufacture high quality ignition lead sets including resistive and copper core cables.

TECHNOLOGICALLY ADVANCED MATERIALS

Powertec makes use of Silicone to obtain the best electrical isolation properties, high temperature resistance and a longer life time.

Our kevlar core cable is extremely reliable ensuring maximum spark power every time. Replacing your old ignition lead set will give a more efficient fuel consumption and a cleaner spark.



The number of electronic components is constantly growing and vehicles are becoming more and more high-tech – safer, more comfortable, more convenient and more environmentally friendly.

This is the increasing trend and there is hardly any part of today's car which does not require electronics, which are becoming a greater portion of a car's value.

Masterparts is able to offer you a constantly growing range of quality electrical parts. Our product range includes those used in engine electrics, body, braking and even ventilation components.



AIR MASS SENSORS



To achieve the correct air/fuel ratio you need to ensure that you have properly working fuel injection system components. Among the indispensable parts that comprise your entire fuel injection system is the air mass sensor. This component can be usually seen adjacent to the air filter assembly inside your engine compartment. Also known as an air flow meter, the air mass sensor serves a basic role of measuring the mass of air entering the engine system so that the air/fuel mixture can be regulated. It sends an electronic signal to the onboard computer of your car as a response to the amount of flow into your engine.

We also stock an air mass sensor cleaner which will help to keep your sensor in top working order . Please contact one of our salesmen if you are interested in this cleaning product.



CAMSHAFT POSITION SENSORS



The Camshaft sensor determines which cylinder is firing to establish injector synchronization and coil firing sequence in DIS (direct ignition system). Crankshaft sensors set ignition timing, supply the RPM signal, and determine engine speed.

WHERE ARE THESE SENSORS LOCATED ?

The Camshaft Position sensor is typically located in the cylinder head of the engine and has a cylindrical portion that inserts into the head. The Crankshaft Position sensor is normally located in the timing cover or on the side of the block with a cylindrical portion that inserts into the block.



WILL A MALFUNCTIONING CAM OR CRANK SENSOR ILLUMINATE THE 'CHECK ENGINE' LIGHT OR AFFECT VEHICLE OPERATION ?

Yes, a failing sensor can illuminate the warning light, and may cause vehicle stalling or a no-start condition.

WHAT ARE THE COMMON CAUSES OF FAILURE ?

Typically these sensors fail due to exposure to high heat.



CRANKSHAFT POSITION SENSORS



This sensor monitors the position or rotational speed of the crankshaft. The information is used by the engine management systems to control ignition system timing and other engine parameters. Before electronic crank sensors were available, the distributor would have to be manually adjusted to a timing mark on the engine.

The crank sensor can be used in combination with a similar camshaft position sensor to monitor the relationship between the pistons and valves in the engine, which is particularly important in engines with variable valve timing. This method is also used to "synchronise" a four stroke engine upon starting, allowing the management system to know when to inject the fuel. It is also commonly used as the primary source for the measurement of engine speed in revolutions per minute.

Common mounting locations include the main crank pulley, the flywheel, or on the crankshaft itself. This sensor is the most important sensor in modern day engines. When it fails, there is a chance the engine will not start, or will cut out while running.



EGR VALVES



The EGR (exhaust gas re-circulation) valve helps your car burn fuel more efficiently by re-circulating a portion of your exhaust and running it through the combustion process again. This results in a cooler, more complete burn of the fuel which decreases your car's noxious emissions by prohibiting the formation of some harmful gases.

The EGR valve consists of a poppet valve and a vacuum diaphragm. When vacuum is applied to the EGR valve diaphragm, it pulls the valve open allowing exhaust to pass from the exhaust manifold into the intake manifold. The diaphragm modulates the action of the valve and prevents the valve from opening unless there is a certain level of exhaust backpressure in the system. EGR valves are calibrated for specific engine applications. The wrong valve may flow too much or not enough exhaust and cause emission, driveability and detonation problems. Back pressure can be drastically altered by the use of a non-standard exhaust system.

Since the EGR system re-circulates a portion of exhaust gases, over time the valve can become clogged with carbon deposits that cause it to stick or prevent it from closing properly. Clogged EGR valves can sometimes be cleaned but replacement is often necessary if the valve is defective.

A properly operating EGR can theoretically increase the efficiency of gasoline engines via several mechanisms:

Reduced throttling losses. The addition of inert exhaust gas into the intake system means that for a given power output, the throttle plate must be opened further, resulting in increased inlet manifold pressure and reduced throttling losses.

Reduced heat rejection. Lowered peak combustion temperatures not only reduces NOx formation, it also reduces the loss of thermal energy to combustion chamber surfaces, leaving more available for conversion to mechanical work during the expansion stroke.



KNOCK SENSORS



The knock sensor creates a voltage signal based on the vibrations caused by detonation. The computer uses this signal to retard timing when spark knock occurs. It can typically be located in the lower engine block, cylinder head or intake manifold.

Knock sensors are designed to respond to knock frequencies up to 1000 Hz accommodating shifts in engine knock frequency, making it a more flexible sensor responding to correct engine knock over a broad range of vehicle conditions.



LAMBDA (OXYGEN) SENSORS

Lambda (oxygen) sensors are required to perform a critical function on your vehicle in the harshest of environments. They measure the oxygen content of the exhaust gas just after it leaves the cylinders. The oxygen sensor has to accurately check this red-hot exhaust gas hundreds of times per minute and send that data to the vehicle computer. This data is then used to obtain the most efficient fuel/air mixture. You might be familiar with the symptoms of a bad oxygen sensor - black smoke from the exhaust, a rotten-egg odour and poor performance and fuel consumption. A new oxygen sensor will restore like-new performance to your vehicle.

**THROTTLE POSITION SENSORS**

The throttle position sensor moves with the throttle and sends a voltage signal to the computer indicating throttle angle and speed of movement data. The computer uses this data to measure engine load, adjust timing, fuel delivery, EGR, converter clutch operation and clear flood mode.

Typically these sensors fail due to the constant contact of the movable arm over the sensor element and the exposure to the high under bonnet temperature.

**WATER TEMPERATURE SENSORS**

A water temperature sensor or engine coolant temperature (ECT) sensor is screwed into the engine's block, cylinder head or radiator and is used to determine the temperature of the engine coolant. The sensor is basically a thermistor that changes resistance with temperature. When the ECT is high (hotter), the resistance is low and when the ECT is low (cooler) the resistance is high. This resistance reading is sent to the vehicle's onboard computer and is used to regulate various ignition, fuel and emission control functions and to turn the radiator-cooling fan on and off as needed.

Typically these sensors fail due to corrosion within the coolant system. They may also leak coolant through the wiring connector.

**WHEEL SPEED SENSORS**

The vehicle speed sensor or VSS, can be typically located at the transmission or transaxle and measures transmission/transaxle output or wheel speed. The ECU uses this information to modify engine functions such as ignition timing, transmission shift points and to initiate diagnostic routines.



CRANKSHAFT PULLEYS



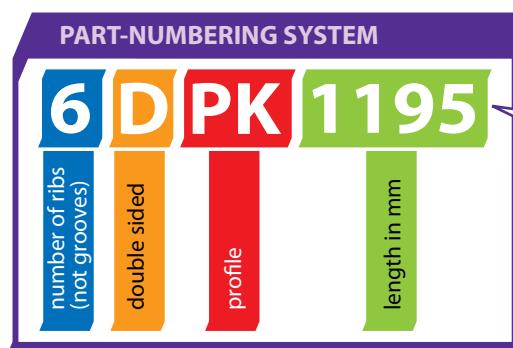
A crankshaft pulley (also called a crankshaft damper, torsional damper, or vibration damper) is a pulley which is connected to the crankshaft of an engine to reduce torsional vibration and serves as a pulley for drive belts.



MICRO-V BELTS



We stock a full range of belts which are specifically designed to replace original equipment belts. Their truncated (shorter) profile gives them increased flexibility, reduced heat build up and allows them to operate at extra high speeds on smaller diameter sheaves.



MICRO-V BELT TENSIONERS & IDLER WHEELS



We stock an incredibly wide range of air conditioner and crankshaft pulleys, timing belt and micro-v belt tensioners (including hydraulic tensioners) and idler pulleys. We have well over 1000 part numbers across our range so go ahead and contact one of our salesmen for any of your timing component requirements.



ENGINE MOUNTINGS

To dampen the effects of vibrations and oscillations while your vehicle constantly adapts to road irregularities, these mountings secure your engine in place to prevent serious damage. Over time, the part will give in to wear and tear due to prolonged usage. Keeping track of the working conditions of the part is crucial to eliminate the risks of total engine breakdown due to failure. The parts main function is to cushion the engine assembly against shaking and shifting. Aside from dampening the effects of the rigour of daily commutes and long drives, the part also minimizes the noise and engine vibration that reaches the interior cabin.

Failure to your engine mounts could seriously damage your engine due to imprecision. Cabin comfort and dependable engine assembly support best explains the need to invest with precision fitting and quality engine mount replacements at the first sign of damage.

**CRANK VENTILATION VALVES**

Every car has a crankcase ventilation system that should suppress oil from making it into the intake ports and combustion chamber. A good functioning system will separate oil from the atmosphere and return it to the oil pan (or collect it in a catch can) while allowing the leftover vapours to burn in the combustion chamber or recirculate through the system.

This has always been known as a Positive Crankcase Ventilation system (PCV) but there are other names for it such as oil separator, crankcase vent (CCV), and cyclonic separator.

Failures in the system will allow raw oil to enter the intake and eventually into the engine itself which can have disastrous effects on engine performance and longevity. As emission regulations have become more stringent, the PCV systems also become more complex and prone to potential failure.

The CCV is intertwined with other systems so any problem can result in rough running, loss of power, higher oil consumption, misfiring, stalling, or other annoying issues. There is no replacement interval for these so we recommend inspecting your crankcase vent system as part of your regular maintenance routines.

Symptoms of a bad crankcase vent are: whitish or yellowish film on the underside of the oil cap, whistling/squealing noises (not caused by a belt), suction on the oil cap that makes it hard to unscrew, large amounts of white smoke from the exhaust, and excessive oil consumption.

EXHAUST COMPONENTS**HEADERS**

Each component attached to your ride performs a variety of functions that are directly related to the performance of your vehicle. One of these is the exhaust header. The function of this exhaust system component may not be complex but your vehicle would definitely not perform properly without them. Exhaust headers are a network of passages that route the exhaust gases from the various exhaust ports toward the silencers and catalysts of the exhaust system. The number and design of the exhaust manifolds depend on the cylinder heads to which they are attached, for efficiency in gathering exhaust gasses from each of the individual exhaust ports. A single exhaust manifold can be found on vehicles with in-line engines. On the other hand, v-shaped engines are equipped with two exhaust manifolds, one mounted to each cylinder head. A ticking, popping or tapping sound can be an indication of a leaking exhaust manifold. Do not take this for granted because more serious damage to your vehicle may result if you do not find an immediate replacement.



WIX
FILTERS®

AUTOMOTIVE FILTERS



Your engine's superhero.

Your Filtration system works to keep various components of your car clean and running smoothly.

KEEP YOUR CAR CLEAN UNDER THE HOOD

Various factors - dust, mold, sand - can contribute to your filters becoming clogged. After all, that is their job: to catch dirt before it gets to your engine, or in the case of a pollen filter, to your lungs.



AIR FILTERS



Did you know that the average air filter needs to be replaced on a yearly basis, regardless of how dirty it looks? That air filter replacement interval drops even more if the vehicle is used in dusty areas or extreme-use situations. Your air filters surface area gets clogged and gradually loses its efficiency over time, flowing less and less air until your car is literally choked.

The result is poor fuel economy and sluggish performance even though your air filter may not look that dirty. The answer is to choose from our range of air filters from renown OE suppliers.

If you would like to extract more power from your vehicle, a high-performance air filter, sometimes called a high-flow air filter, is the quickest way to start. High-performance air filters from K&N flow more air with less restriction than standard paper air filters. K&N air filters are also washable and re-usable.

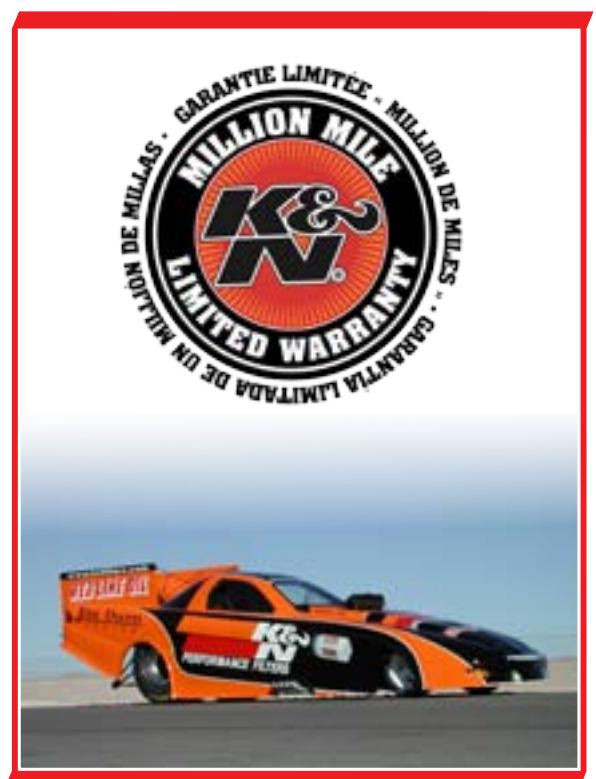


WHY ARE K&N THE WORLD'S BEST AIR FILTERS?

- They have a high air flow with exceptional filtration.
- They are specifically designed to increase horsepower (up to 4%) and acceleration
- They are washable and re-useable
- They last up to 50,000 km before cleaning is required, depending on driving conditions.
- They are economical – a K&N air filter can last the life of your vehicle.
- They are environmentally friendly – K&N filters are re-usable, reducing the volume of disposable air filters that end up in the nations land fills.

WE TAKE AIR FILTERS SERIOUSLY

K&N air filters consist of four to six sheets of cotton gauze layered between two sheets of aluminium wired mesh. This media is then pleated and oiled to enhance its filtering capabilities and overall performance. The result is an air filter designed to increase horsepower and acceleration.



REPLACEMENT PANEL/ROUND FILTERS

K&N replacement filters are designed to achieve high, virtually unrestricted air flow whilst maintaining filtration levels critical to ensure long engine life. The secret to success lies in the unique characteristics of the filter medium that was originally developed by K&N in the dust, sweat and tears of desert motocross racing. The high flow cotton gauze air filter is washable, reusable and built to last. K&N air filters consist of four to six sheets of cotton gauze layered between two sheets of aluminum wire mesh. This media is then pleated and oiled to enhance its filtering capabilities and overall performance. The result is an air filter that allows dramatically more air into an engine, is washable and reusable, and will protect your engine for the life of your vehicle. We have hundreds of K&N panel filters so please contact one of our salesmen for a price on the correct filter for your application.



BREATHER FILTERS



Air breather filters allow for the flow of clean air to and from a closed chamber where balanced atmospheric pressure is required, such as in gear boxes, bearings operating at high speed and hydraulic power packs.

Air breather filters ensure that there is no dangerous build up of pressure or vacuum due to temperature or volume changes. The high quality sintered element prevents the ingress of airborne foreign particles.

PART NO.	TYPE	PIPE DIAMETER	OUTSIDE DIAMETER	LENGTH	BASE DIAMETER	PRE-CHARGER
62-1340	CLAMP-ON	16	51	102	89	
62-1060	VENT TUBE	14	76	51	76	RU-0150PK

PART NO.	PIPE DIAMETER	BASE DIAMETER	HEIGHT	TYPE	
M240155-12	12	49	36	CLAMP-ON	
H3-12	12	56	35	CLAMP-ON (FOAM)	
H3-25	25	56	35	CLAMP-ON (FOAM)	
KW122-30	30	65	63	CLAMP-ON	
KP810	32	75	63	PUSH IN	
KL3-35	35	87	53	CLAMP-ON	

PART NO.	PIPE DIAMETER	BASE DIAMETER	HEIGHT	TYPE	
KM803-30	35	61	49	CLAMP-ON	
KM803-35		61	49	CLAMP-ON	
KL5-42	42	87	53	CLAMP-ON	
KL302-46	46	79	75	CLAMP-ON	
K302S-48	48	84	53	CLAMP-ON	
KT9C-48	48	79	74.5	CLAMP-ON	
KL302-52	52	79	75	CLAMP-ON	
KL3-54	54	87	53	CLAMP-ON	

UNIVERSAL / CONE FILTERS

PART NO	PIPE DIAMETER	BASE DIAMETER	HEIGHT	TYPE	
M2107R15-63.5	63.5	89	130	INDUCTION FILTER	
HF070	70	130	160	INDUCTION FILTER	
MBM107-76	76	89	130	INDUCTION FILTER	
HF077	77	130	160	INDUCTION FILTER	
M201S180-89	89	155	180	INDUCTION FILTER	
HF100	100	130	160	INDUCTION FILTER	

UNIVERSAL FILTERS

Even a K&N replacement air filter is limited by the size of the original air box but once the airbox is removed you have plenty of room to work with. Now the high-flow technology can be applied via a large conical open element air filter, providing more surface area for huge increases in airflow that turn into horsepower you can feel. The oversize air filter also captures and holds more dirt. This increases the service life before cleaning is required.

PART NO.	NECK DIAMETER (mm)	DIAMETER (BASE) (mm)	DIAMETER (TOP) (mm)	LENGTH (mm)	PIPE RANGE	PRE-CHARGER	K&N
RB-0710	63	89	89	127	-69mm	RU-0510PK	
RC-2600	73	102	76	127	70mm-79mm	25-3900	
RB-0910	68	114	114	127	70mm-79mm	25-3900	
RC-3250	79	127	89	152	80mm-89mm	25-3900	
RU-3610	70	149	121	178	70mm-79mm	25-3906	
RE-0920	89	152	117	228	80mm-89mm	25-3900	
RF-1015	102	152	114	178	90mm	25-3903	
RC-1200	52	89	51	102	46mm-60mm	RC-1200PK	
RC-1250	57	89	51	102	46mm-60mm	RC-1200PK	
RC-2820	79, 89, 102	127	127	165	MULTI-FIT 76mm-102mm	25-3900 22-8044PK	
RG-1001	79, 89, 102	152	121	140	MULTI-FIT 76mm-102mm	25-3900 22-8044PK	

DCOE CARBURETTOR FILTERS

K&N Custom Air Filter kits are designed to allow the maximum performance from your carburetors, yet keep the dirt on the outside where it belongs. These assemblies come with custom chrome top and base plates and the famous K&N High-Flow washable air filter.

PART NO.	LENGTH	WIDTH	HEIGHT	SHAPE	BASE PLATE OPENING	FILTER ELEMENT	APPLICATION	
56-9106	182	120	45	OVAL	ROUND X2	E-3320	DCO/DCOE	
56-9105	182	120	56	OVAL	ROUND X2	E-3330	DCO/DCOE	
56-9104	182	120	67	OVAL	ROUND X2	E-3322	DCO-DCOE	
56-9265	182	120	86	OVAL	ROUND X2	E-3340	DCO-DCOE	
56-9107	182	120	101	OVAL	ROUND X2	3-3344	DCO-DCOE	
56-9075	225	134	63	OVAL	RECTANGLE (LENGTH)			

WHAT IS THE BIG DEAL ABOUT AIR FLOW?

Simply put, EVERYTHING! At its most basic level, an engine is an air pump. More air entering the engine increases the efficiency of the combustion process creating more horsepower and torque. Horsepower is a measure of the engines maximum power while torque measures how quickly you can accelerate. Our long life filters are designed to increase engine performance in both horsepower and throttle response by reducing air flow restriction.

DO YOU KNOW?



Volkswagen owns Bentley, Bugatti, Lamborghini, Audi, Ducati, Porsche and Scania.



FILTRATION COMPONENTS

MOTORCYCLE FILTERS

We have a growing range of motorcycle filters and can source any available K&N motorcycle filter which is not listed here.

AIR & OIL FILTERS

PART NO.	INSIDE DIAMETER	OUTSIDE DIAMETER	HEIGHT	APPLICATIONS	K&N LOGO
BM-0400	76	111	86	BMW850 / R1100/ R1150	
KN138	-	71	77	SUZUKI VARIOUS	
KN153	-	78	85	DUCATI 750/900/916/ MONSTER	
KN164	-	55	78	BMW F600/800/R1200/S1000	

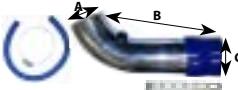
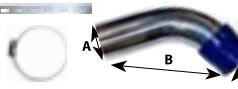
PANEL FILTERS

PART NO.	LENGTH	WIDTH	HEIGHT	
BM-6501			64	BMW F650 / G650 
BM-6507	124	79	40	BMW G650 
BM-1299	211	98	49	BMW K1200 
BM-1205			116	BMW K1200 / K1300 
BM-1204	149	89	32	BMW R900 / R1200 
BM-1010	232	156	29	BMW S1000RR 

REDUCERS

PART NO.	A	B	
MCR-02	76mm	60mm	 A B
MCR-03	76mm	70mm	

AIR INTAKE PIPES

PART NO.	A	B	C	
PPO02	72mmID 75.5mm OD	300mm	70mm	
PP003	72mmID 75.5mm OD	300mm	70mm	
PP009	-	-	-	
MFH-70	70mm	FLEXIBLE HOSE		
MFH-76	76mm	FLEXIBLE HOSE		

FUEL FILTERS



Any unfiltered fuel may cause rapid wear to your engine components when it enters the system. This is the main reason why tight-tolerance engine fuel systems have made fuel filters to be one of the most indispensable parts in vehicles. The fuel filter aids in trapping several kinds of harmful contaminants like paint chips, small pebbles and dirt.



It is necessary to check on this component once in a while, because a clogged fuel filter can limit the flow of fuel from your electric fuel pump that would cause it to break down. It would be best to replace your fuel filter every 2 years, or after every 30,000 km of driving to prevent this from happening. We can provide the perfect fuel filter for whatever vehicle model you own.

OIL FILTERS



The oil pump sends oil from the oil sump and through the oil filter, which distributes it through the engine. Once the oil enters the oil filter, it is pushed through holes on the outskirts of the base plate. At this point, the dirty oil is sent through a filter media where it is cleaned. From there, the oil flows through the central tube and back to the engine through a hollow centre mounting stud.



Without the oil filter, your oil would quickly saturate with contaminants and wear the internal parts of your engine down. Although your owner's manual will recommend a timeframe for you to replace your oil filter, a good rule of thumb is to replace it during each oil change. When it's time for you to purchase a new oil filter, shop with us - we've got a wide selection of oil filters for almost all makes and models of vehicle.

CABIN FILTERS



Vehicle comfort is one of the factors that you must always consider when going on long-distance trips. However, the presence of fumes and dust inside the cabin is not a sign of a comfortable passenger compartment. These elements won't be able enter your ride if the ACC Cabin Filter is working well.



Since dirt is always present in the air, don't be surprised if the cabin filter gets clogged after a period of time. It is for this reason that cabin filter replacement is recommended after 20,000km of travel. We offer replacement cabin filters from the best aftermarket suppliers in the world.

KEEP YOUR FUEL PUMPING

Older model cars rely only on gravity to drive fuel to the fuel bowls of the carburetor from the fuel tank. Modern cars require a fuel pump for this purpose.

MASTERPARTS' RANGE OF FUEL COMPONENTS

Whether your vehicle uses a mechanical fuel pump, or a more sophisticated electrical fuel pump, Masterparts stock a wide range of components that are sure to suit your vehicle.

ELECTRIC FUEL PUMPS



If oil is the lifeblood of your car, then fuel is the adrenaline. However, fuel will not reach the cylinders unless the fuel pump is operating correctly. Whether you need a mechanical or electric fuel pump, we have the range capable of meeting your needs and to deliver the performance your car is capable of.



MECHANICAL FUEL PUMPS



Clean fuel is essential. When replacing a fuel pump in vehicle, ensure that you also install a new fuel filter. Cars with a mechanical fuel pump may need just a filter, but vehicles with an electric fuel pump may need both a fuel filter and a fuel pump strainer. This is an essential step to keep contaminants out of your fuel system.



DO YOU KNOW?

The average car is made with about 30,000 parts. This number obviously includes every screw, bolt and washer.





Keeping all the moving parts in your vehicle properly lubricated will make them last longer, as well as help them operate to their full capacity.

STAY LUBRICATED

If you leave your vehicle for too long without making sure your engine is properly oiled, it may not run as smoothly as it should. Sometimes just replacing the oil is not enough, as it may have been left with little or no oil for too long, which would lead to damaged oil pumps.

MASTERPARTS LUBRICATION COMPONENTS

We stock a range of components (including gears, pumps and switches) for proper lubrication. No matter what vehicle you drive, Masterparts has the right stock for you.

OIL FILLER CAPS



We stock a growing range of oil filler caps to fit most applications.



OIL PRESSURE SWITCHES



It is important to have the right amount of oil and oil pressure in order for the engine to run smoothly. Most, if not all cars, have a gauge that is connected to the oil pressure switch. In case of a problem (ie low oil pressure), it cuts out flow of power in the circuit and turns on a warning light. One must immediately stop and turn off the engine.



OIL PUMP GEARS



It is sometimes possible to service your oil pump by just replacing the gears and not the entire pump, which of course is a cost saving. Please speak to one of our salesmen to find out if this is an option on your application.



OIL PUMPS



The oil pump is a vital component in your engine because an oil pump failure can cause engine failure and even seizure. Its function is to pump oil to various areas including the bearings, pistons and camshaft in order to lubricate them.

We stock various types of oil pumps including those with gears, those with pick-ups and pumps that form part of the timing cover.

NB - Many modern engines use oil flow control valves in the oil gallery feeding the upper section of the engine. It is recommended that this valve be replaced when replacing the oil pump.



SEALING COMPONENTS

If you are running your vehicle with worn out sealing components, you are at risk of leaks and other potentially damaging outcomes.

TOP QUALITY SEALING COMPONENTS FROM MASTERPARTS

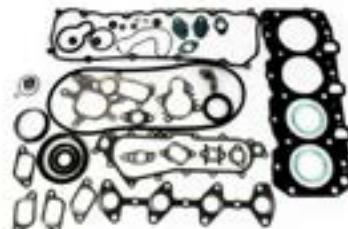
Need a new gasket? Or maybe you're looking for an oil seal for your front and/or rear crankshaft ? Masterparts has the stock you need to get your car running in tip-top shape again.

GASKET SETS



We stock overhaul, decole (head) and conversion sets for all makes and models.

Please remember that when the cylinder head is removed to replace gaskets, the cylinder head bolts also need to be replaced.



GASKETS



We stock a range of loose gaskets for most vehicles, including cylinder head gaskets, intake and exhaust manifold gaskets, valve cover gaskets and sump gaskets.

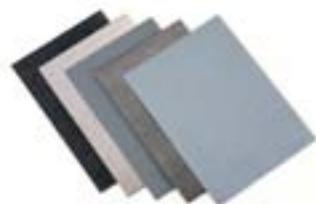


GASKET MATERIALS



For your convenience we stock gasket materials in different thicknesses and types. 'Flexoid' can be used for intake manifolds, thermostat housings and carburettors amongst others. Heavy duty 'Sealcor' sheets are perfect for exhaust manifold gaskets and we also stock rubber and cork material for use on valve covers and sumps.

Sizes available: 500mm x 500mm, 500mm x 200mm and 1000mm x 200m



OIL SEALS



We stock an extensive range of front and rear crankshaft seals, camshaft seals and valve stem seals for all European and Asian applications.



"You know how to drive a tractor, but you'll never learn to drive a Ferrari"

If Enzo Ferrari hadn't made that crack one day early in the 1960's when I was complaining for the nth time about the insoluble clutch problems I was having with his car, I might never have built my Lamborghinis.

-Ferruccio Lamborghini



BALL JOINTS

When you turn the steering wheel on your vehicle you set a number of parts into motion, ending with the tie rod and ball joint at each of your front wheels. Together, these two parts make sure your car can steer left and right at the same time it's hitting bumps that might cause the wheel to travel up and down.

The ball joint wears out due to stress and can cause significant handling problems. We stock a full range of ball joints for all makes of vehicle in order to meet your requirements.

**DRAG LINKS**

If your steering feels like it has a mind of its own then your centre drag link may need replacing. Connected to both the pitman and idler arms at either end, the drag link is joined to the inner tie rod ends. The job of drag links is to manoeuvre your inner tie rod ends so that your wheels turn properly when you move the steering wheel. We offer quality drag links for your specific application.

**IDLER ARMS**

The Idler arm is the partner of the Pitman arm, which connects the steering box to the steering gear. The job of the idler arm is to hold the right side of the steering linkage. Between them, the centre link is supported in the proper position so that the left and right wheels work in unison.

As Idler arms have an integral pivot function it makes them more susceptible to wear than the Pitman arms.

**POWER STEERING PUMPS**

If your steering wheel is difficult to turn then you may need a replacement power steering pump. Usually found in the engine bay, the sole purpose of power steering pumps is to make steering easier by using hydraulics to push fluid into the steering gear box. Power steering pumps for any car, make high speed driving safer and prevent over correction accidents as well as making driving easier and more enjoyable.



With our range of power steering pumps you can be sure to continue in safety.

TIE ROD ENDS

As part of the steering system, the main function of tie rod ends is to serve as a flexible coupling point for steering which helps in quicker manoeuvring. By religiously greasing the part, impurities and debris may be efficiently flushed out. Be sensitive to the signs which indicate that damage is already brewing on the tie rod ends. A worn part normally causes feathering or excessive tire wear.

**TIE ROD / RACK ENDS**

As the name suggests the rack end is at the end of the steering rack and is sometimes called an inner tie rod end. The rack end is always connected to the steering rack and always covered with a rack boot to help avoid dirt and debris from damaging the steering rack.

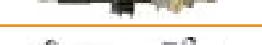


STEERING RACKS



It stands to reason that if your car is equipped with rack and pinion steering that you have both a steering rack and a steering pinion. These are enclosed in one unit commonly referred to as the steering rack which is connected to your steering wheel via a set of shafts and joints. When you turn the steering wheel, it moves the pinion, which pushes the steering rack either to the left or to the right. The steering rack is permanently lubricated and can sometimes last the life of the vehicle. Most of us, however, have a power steering rack and that adds a whole new level of complexity to the system. A power steering rack uses an engine-driven pump to supply high-pressure hydraulic fluid to the steering rack when you turn the wheel. While this makes it much easier to turn the steering rack, it also means o-rings, seals and hoses that contain hydraulic fluid, can leak. Contact one of our salesmen to find out about our range of steering and power steering racks.

PART NO.	MAKE	APPLICATION	NOTES	
PR10638	AUDI	A3, 1.8 20V	POWER STEERING RACK	
MR18506	BMW	316I/318I E30 M40	FOR MANUAL TRANSMISSION	
PR10636	BMW	316I/318I/320I/323CI/325I/325TDS/328I E36	POWER STEERING RACK	
MR16086	FIAT	UNO 100 F.I.R.E		
MR16050	FORD	CORTINA CROSSFLOW	FOR MANUAL TRANSMISSION	
PR18539	FORD	ESCORT 1.6 & 1.8 ZETEC	POWER STEERING RACK	
PR10722	FORD	FIESTA/BANTAM ROCAM, FYJA, FYJB	POWER STEERING RACK	
MR16200	FORD	LASER/METEOR F6, B6, FE	FOR MANUAL TRANSMISSION	
PR18533	FORD	RANGER 3.0 BT50	POWER STEERING RACK	
MR18512	HONDA	BALLADE 1.3, 1.4, 1.5 & 1.6 "E" SERIES ENGINES	FOR MANUAL TRANSMISSION	
MR18513	HONDA	BALLADE 1.5 & 1.6 "D" SERIES ENGINES	FOR MANUAL TRANSMISSION	
PR18146	HYUNDAI	GETZ, 1.4, 1.5, 1.6	POWER STEERING RACK	
MR16314	HYUNDAI	H100 D4BF, D4BB, D4BH	FOR MANUAL TRANSMISSION	
MR16200	MAZDA	323/626/RUSTLER B3, B5, B6, FE	FOR MANUAL TRANSMISSION	
PR18533	MAZDA	DRIFTER 3.0 BT50		
PR18500	MERCEDES	E200, C230, E230, E320 (W210/W211)	POWER STEERING RACK	
PR18532	MITSUBISHI	COLT 2.5 4D56/T - 4X2	POWER STEERING RACK	
PR18531	MITSUBISHI	COLT 2.5 4D56/T - 4X4	POWER STEERING RACK	
PR18535	NISSAN	NAVARA	POWER STEERING RACK	
MR16026	NISSAN	SENTRA / PRIMERA GA14, GA16, SR20DE	FOR MANUAL TRANSMISSION (SHORT PIN)	
MR16206	NISSAN	SENTRA/PRIMERA E13, E16, GA14, SR20DE	FOR MANUAL TRANSMISSION (LONG PIN)	

PART NO.	MAKE	APPLICATION	NOTES	
HRA3802K	OPEL	CORSA 1.6, CORSA UTILITY 1.4, 1.6 & 1.8	POWER STEERING RACK	
MR16358	OPEL	CORSA 1.6, CORSA UTILITY 1.4, 1.6, 1.7 *& 1.8	FOR MANUAL TRANSMISSION	
MR16186	OPEL	CORSA/CORSA UTILITY 1.3, 1.4 & 1.6	FOR MANUAL TRANSMISSION	
MR18508	OPEL	KADETT/ASTRA/MONZA 1.3, 1.4, 1.6 & 1.8	FOR MANUAL TRANSMISSION	
PR18056	TOYOTA	AVANZA 1.3, K3-VE2	POWER STEERING RACK	
PR18520	TOYOTA	AVANZA 1.5, 3SZ-VE	POWER STEERING RACK	
PR18521	TOYOTA	COROLLA / RUN-X / AURIS 1ZZ, 2ZZ, 3ZZ & 4ZZ	POWER STEERING RACK	
MR16094	TOYOTA	COROLLA 1.3, 1.6 & 1.8 1996 ONWARDS	FOR MANUAL TRANSMISSION	
PR10606	TOYOTA	COROLLA 1.3, 1.6 & 1.8 1996 ONWARDS	POWER STEERING RACK	
PR18190	TOYOTA	COROLLA 1.3, 1.6 & 1.8 (UP TO 1996)	POWER STEERING RACK	
PR18012	TOYOTA	CRESSIDA/VENTURE 2Y & HI-LUX 2L-2, 2L-T	POWER STEERING RACK	
PR18524	TOYOTA	HI LUX 2.7 3RZ	POWER STEERING RACK	
MR16010	TOYOTA	HI-LUX / HI-ACE 4Y	FOR MANUAL TRANSMISSION (17MM RACK END)	
PR18525	TOYOTA	HI-LUX 2.0 1RZ & HI-LUX/VENTURE 2.4 2L	POWER STEERING RACK	
PR18092	TOYOTA	HI-LUX 2.0, 2.5, 2.7 & 3.0 4X2	POWER STEERING RACK	
PR18118	TOYOTA	HI-LUX 2.0, 2.5, 2.7 & 3.0 4X4	POWER STEERING RACK	
PR18524	TOYOTA	LANDCRUISER 3.0 1KZ-TE & 3.4 5VZ-FE	POWER STEERING RACK	
PR18132	TOYOTA	QUANTAM 2.0, 2.5, 2.7 & 3.0	POWER STEERING RACK	
PR18523	TOYOTA	QUANTAM 2.5 & 2.7 - NARROW BODY (1153MM)	POWER STEERING RACK	
PR18522	TOYOTA	QUANTAM 2.5, 2.7 & 3.0 - WIDE BODY (1336MM)	POWER STEERING RACK	
MR16095	TOYOTA	CONQUEST / COROLLA 1.3	FOR MANUAL TRANSMISSION	
MR16108	VW	GOLF / JETTA 2	FOR MANUAL TRANSMISSION (FINE THREAD)	
MR18538	VW	GOLF / JETTA 3	FOR MANUAL TRANSMISSION	
PR10638	VW	GOLF 4/JETTA 4 1.6, 1.8, 1.9D & 2.0	POWER STEERING RACK	
MR16106	VW	GOLF/POLO 1,2 & 3	FOR MANUAL TRANSMISSION	
MR16098	VW	KOMBI 2.3, 2.5 & 2.6	FOR MANUAL TRANSMISSION	
PR10652	VW	POLO 1/2 1.4	POWER STEERING RACK	

THE FUTURE OF STEERING & SUSPENSION IN YOUR HANDS



www.sidem.com



Since 1933, Sidem is the European reference in high quality steering and suspension parts. Customers in both the automotive after market and the original equipment market choose for Sidem as preferred supplier. Being a brand with a rich past, Sidem has the know-how to meet tomorrow's challenges in a rapidly evolving spare parts industry.

With Sidem, you have the future of steering and suspension in your hands.

SIDEM
Steering in safety



Driving a vehicle with damaged suspension can cause not only an uncomfortable ride, but also vibration damage to other components.

ENSURE THAT YOUR VEHICLE HAS A FUNCTIONAL SUSPENSION SYSTEM

Suspension in your vehicle is made to take a knock or two. However, after driving for long enough, or driving constantly on badly maintained roads, your suspension is going to need some attention. If your car is making a lot of rattling sounds and you can feel every bump on the road, you should look into replacing some components.

MASTERPARTS STOCKS AN EXTENSIVE RANGE OF SUSPENSION COMPONENTS

Whether you are looking for a fresh set of springs, bushes or control arms, Masterparts will have the right part for your vehicle.



AIR CELL FOR LEVEL CONTROL



The function of Level Control Systems is to maintain the height of the vehicle as closely as possible to a predetermined level under all load conditions. This constant level allows the suspension system to maintain the alignment geometry.

The system can be hydraulic or pneumatic and in the case of a pneumatic system we can provide the air cells to keep your system in perfect working order.



CONTROL ARM BUSHES



Soft, ageing or failing suspension bushes can cause a range of handling problems. Used to connect the various moving components to your vehicle's chassis, suspension bushes act much like human joints. During every journey each suspension bush inevitably takes a pounding. It's no surprise that they need replacing from time to time. The better quality suspension bushes you use, the longer they will last. Contact us for the best quality suspension bushes for cars of every make and model.



CONTROL ARMS



No matter what the brand, we have the greatest range and quality of control arms for your vehicle to keep your suspension system in the best working order, keeping you safe on the road.



SUSPENSION COMPONENTS

STABILISER LINKS



Your stabiliser links connect several parts of your suspension that take much of the punishment as you pass over pot holes and other road imperfections. Whether for European or Asian applications, we have a full range of stabiliser links available for you.



STRUT MOUNTINGS



As the name implies, the strut mounting attaches the suspension strut to the vehicle. In addition, it insulates the tire noise and vibrations from the vehicle.



WHEN TO REPLACE THEM?

A simple rule of thumb is that if the struts or coil springs are being replaced because of age or wear, then also replace the mounts. A worn or damaged mount can cause a variety of symptoms so they should be inspected by a qualified technician. Disassembly of the entire strut and spring assembly is required to remove and replace the mount. Therefore replacing all worn components at the same time could save you from doing the work a second time. Our salesmen can offer you mountings from our incredibly wide range.

SUBFRAME KITS



A subframe, usually constructed from welded steel tubing and attached to a vehicle unit-body by bolts, houses the engine and the vehicle's steering system. A component of the vehicle's chassis, subframes run from the front bumper to just under the front seats. As a single sub group component of the overall chassis, subframes are quick, easy and inexpensive to replace as well as offering safety benefits in the event of an accident. We offer a range of FEBI kits covering dozens of applications.



SUSPENSION BUSHES



Most joints in the suspension system have rubber bushes. The constant movement of the suspension parts causes the bushes to wear, soften and perish. Oil contamination can also cause deterioration which can cause them to become loose, resulting in less roadholding.

It is essential to make regular checks on the condition of all joints in the suspension system.



DO YOU KNOW?

British luxury car marque Aston Martin's name came from one of the founders, Lionel Martin who used to race at Aston Hill.



You may take your engine's smooth running for granted but if its components are out of sync it could spell trouble.

STAYING IN SYNC

If your engine's timing is out, the valves in your engine will not open and close at the proper times, which may cause serious damage. It may cause the valves to crash into the pistons, which could make your engine stop running altogether.

CHOOSE MASTERPARTS FOR YOUR TIMING COMPONENTS

We stock timing components made only to the highest international standards, giving you the assurance that you need to drive comfortably.

CAMSHAFT/ CRANKSHAFT SPROCKETS & GEARS



Gear and chain systems are used to connect the crankshaft to the camshaft at the correct timing. It is not advisable to use a worn timing chain with a new sprocket or vice versa which is why buying a complete timing kit is recommended when replacing your timing components.

We have a large range of timing kits, catering for hundreds of applications.



TIMING BELT TENSIONERS & IDLER WHEELS



To ensure that the timing belt is operating at optimum tension at all times, a belt tensioner is needed. This rotating pulley prevents the belt from becoming slack and operating inefficiently or incorrectly. The tensioner may have to be adjusted manually during fitting though many, known as automatic tensioners, have springs which automatically adjust the tension.

From European to Asian applications, our range of tensioners and idler wheels covers thousands of applications to cater for your needs.



TIMING BELTS / KITS



In your motor, timing is everything. That's why your timing belt is so vital to the operation of your entire vehicle. Without a properly installed and adjusted timing belt, the valves on your engine don't open and close at the appropriate times. A broken timing belt can cause your engine to stop running or, on an interference application, cause your valves to crash into your pistons.

We supply FSD (full service distance) timing belts that are designed to last the distance between your service intervals as specified by the vehicle manufacturer.



TIMING COMPONENTS

TIMING CHAIN DAMPERS



The timing belt damper, works in conjunction with idler pulleys to maintain tension in the timing belt. Often fitted with a spring, timing belt dampers are an essential part of the belt system. We stock chain dampers for a wide range of applications and dampers are also included in many of our timing chain kits.



TIMING CHAIN GUIDE RAILS



The timing chain guide rail provides an additional protection to keep the chain on its pulleys. If you can hear a noise from the timing chain guide rail, this can be an early indication that the timing chain is losing tension and needs tightening or replacing. Although it is a relatively cheap component, it is an important part because if it were to break it could cause problems in the engine. We have a great choice of timing chain guide rails for the widest range of applications.



TIMING CHAIN TENSIONERS



Our stock of timing and camshaft chain tensioners (including hydraulic tensioners) covers thousands of models and are sourced from the best suppliers in the industry to ensure that your chain is kept properly tensioned.



TIMING & OIL PUMP CHAINS



In your motor, timing is everything. That's why your timing chain is so vital to the operation of your entire vehicle. Without a properly installed and adjusted timing chain, the valves on your engine don't open and close at the appropriate times. A slack timing chain can result in poor running, chain clatter and loss of power.

We supply timing chains as well as full timing kits (chain/s, tensioner/s, sprocket and rails).

To avoid excessive wear it is advisable to replace the timing chain sprockets when replacing the timing chain and vice versa.



TIMING CHAIN KITS



With modern engines sometimes using multiple chains, tensioners, sprockets and guide rails, the most convenient option is to buy a complete timing kit. Our timing kits cover hundreds of applications and can also offer savings over buying the individual timing parts.



GETTING YOU GOING

The transmission components in your vehicle work together to ensure the proper functioning of the car, and specifically, its gears. The entire system that holds your gearbox and clutch together is imperative to your car's overall performance. If just one sprocket fails or a single joint is out of place, you could put your car at risk of serious damage.

QUALITY TRANSMISSION COMPONENTS

Masterparts stock a range of industry-leading transmission components. Whether you need your clutch master cylinder replaced or a new gearbox mounting fitted, as well as a host of other components, Masterparts have the part for you.

AUTOMATIC GEARBOX FILTERS & GASKETS



Contaminants can enter your gearbox oil through vents or the fill tube during checking/filling. Most of the time, however, contaminants are the result of normal wear. The gearbox filter protects against these contaminants which helps improve gearbox life.

We stock a range of industry-leading gearbox filters for a multitude of applications.



CLUTCH MASTER CYLINDER



The master cylinder converts non-hydraulic pressure, from a driver's foot on the clutch pedal, into hydraulic pressure in order to disengage the clutch. Our range of clutch master (and clutch slave) cylinders will keep your system in top working order.



CLUTCH SLAVE CYLINDER



In the clutch system, the device which the master cylinder operates is called the slave cylinder. It moves the throw out bearing until the high-friction material on the transmission's clutch disengages from the engine's metal (or ceramic/carbon) flywheel.



CONCENTRIC SLAVE CYLINDERS



Concentric slave cylinders are on an ever increasing number of vehicles and replace the traditional setup of a separate hydraulic cylinder , release arm , fork , cable and release bearing.

The concentric slave cylinder is centrally mounted and directly integrated into the gearbox allowing a smoother and lighter pedal action.



CV JOINTS



One of the most important components of your suspension system is the CV joint. This car component accommodates the up and down motions of the suspension by transferring the torque at a stable speed to your car wheels. Partial seizures and vibrations at certain speeds are an indication of a worn out CV joint. You will also hear some cracking or clicking noise when lifting the throttle or when applying power.

Do not wait longer to replace them with our wide range of Gibson CV joints.



TRANSMISSION COMPONENTS

GEARBOX MOUNTINGS



As the name implies, the gearbox mounting/s support the gearbox. They also dampen vibrations and noise so they will not be felt by the car's driver or passenger.

We have an extensive range of gearbox mountings to cater for a wide range of makes and models.



PROPSHAFT CENTRE BEARINGS



The propshaft transmits the drive force generated by the engine, to the axles. The centre bearing supports the rear part of the propshaft just before it connects to the differential. We have a wide range of centre bearings, specifically on German applications.



PROPSHAFT COUPLINGS



Between the gearbox output shaft and the propshaft is a flexible coupling which joins the two together. This rubber, reinforced coupling isolates vibration from the rest of the drivetrain whilst transferring power from the engine.

As the car ages and is exposed to the elements, these discs develop cracks and begin to disintegrate. Choose the coupling for your vehicle from our selected brands.



PROPSHAFT VIBRATION DAMPERS



Propshaft vibration dampers eliminate overlying rotational vibration that is transferred from the engine to the drive shaft.

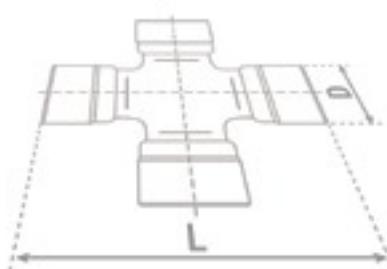


UNIVERSAL JOINTS

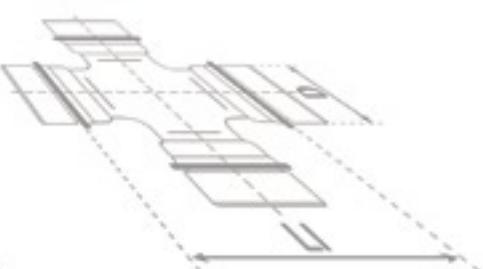


Universal joints are couplings which connect two rotating shafts. They connect the propshaft to give it flexibility which saves wear and tear on the transmission. We stock GMB "u-joints" which are of the highest quality available.

EXTERNAL CLIP TYPE



INTERNAL CLIP TYPE



CLUTCH KITS

AISIN
Dedicated to the Future**TITAN****Valeo**

When your car or truck is stopped, the brakes aren't the only things keeping your car wheels from rotating. If you have a manual transmission you will know this because you if you take your foot off the brake whilst in neutral, the car does not idle forward. The essential device that engages and disengages the rotation of your vehicle's wheels is the clutch (and yes, they are present on automatic transmission vehicles as well).

This component is what allows your engine to spin all the time without constantly spinning the wheels. It is accomplished through the use of friction discs. In a manual transmission, pressing the clutch pedal disengages the clutch and breaks the link of engine to wheels. Releasing the clutch when in gear is what engages the engine and the wheels. In an automatic transmission, the car performs this action for you.

Since your old clutch disc (plate) has had a direct relationship with the engine's flywheel over many kilometres, inspecting the flywheel when everything is apart, is essential. The most important thing to check is the flatness of the flywheel because any small degree of warpage (or "runout") will cause problems. It's a safe bet that any runout over 0.0125mm creates the risk of clutch failure from extreme vibrations, uneven clamping, etc.

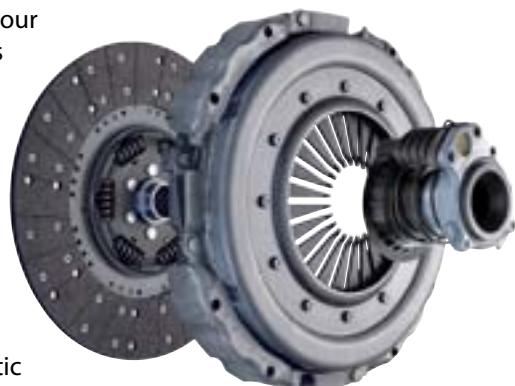
Inspect the flywheel for cracks – especially around holes for mounting bolts. If cracks are deeper than surface scratches, the flywheel should be replaced in order to avoid the likely possibility it will shatter at high rpms and damage the transmission itself.

We do not recommend replacing only part of the assembly which is why we only stock clutch kits. We have 3pc (clutch plate, pressure plate and release bearing) and 4pc (the aforementioned 3 items plus a flywheel) kits.

Most of our 4pc kits include a solid flywheel which is a replacement for the DMF (dual mass flywheel). However we also have a few kits which include the DMF.

We also stock concentric slave cylinders on the newer applications that do not use a release bearing.

Replacing a clutch is a big job requiring a certain level of skill and we recommend that the job is only undertaken by qualified technicians.



DO YOU KNOW?



"When Henry Ford decided to produce his famous V-8 motor, he chose to build an engine with the entire eight cylinders cast in one block, and instructed his engineers to produce a design for the engine. The design was placed on paper, but the engineers agreed, to a man, that it was simply impossible to cast an eight-cylinder engine-block in one piece."

Ford replied, "Produce it anyway."



VALVE TRAIN COMPONENTS

Valve train components encompass all the parts that control the valves, which in turn are used to control the air and fuel flow into and out of the cylinders, facilitating combustion.

The valve train of your vehicle houses some of its most important components, especially the valves themselves. If these become bent or cracked, your engine may start to make rattling noises, and your car might not move at all. You should settle for nothing but the best. That's why we stock only the best quality brands, to get your car running smoothly and to keep it that way!



LASH PADS

Lashpads allow you to obtain the correct spacing between the camshaft and the rocker arm.



MECHANICAL CAM FOLLOWERS



As the name suggests, the mechanical cam follower, follows the movement of the cam. In turn, the follower acts upon the valves allowing them to open and close. We have a range of mechanical followers to cover your needs.



ROCKER ARMS



The rocker arm conveys the movement of the camshaft in order to open the valves. One end is raised and lowered by the rotating lobes of the camshaft (either directly or via a lifter and pushrod) while the other end acts on the valve stem.

Contact one of our salesmen to find out more about our range of rocker arms.



ROCKER SHAFTS



Rocker shafts are simply the shafts onto which the rocker arms are fitted. We have a wide range of rocker shafts for most applications that take rocker arms.



VALVE GUIDES



The valve guide is a tube shaped piece of metal which is pressed into the cylinder head. It locates the valve so that it can make proper contact with the valves seat and it also serves to conduct heat away from the combustion process.

Our range of valve guides is extensive and caters for thousands of models so be sure to contact us for any of your requirements.



VALVE SEAT INSERTS



We have a range of valve seats from 29mm OD and 8.5mm in thickness to 59mm OD and 11mm in thickness.



VALVE SHIMS



Our valve shims range from 25mm to 37mm in diameter and 1.80mm to 4.25 in thickness.



VALVES



Valves are an incredibly important component of the engine since they act as the gatekeepers for fuel and air to enter and exit the combustion chambers in your car's engine.

Our range of valves extends to thousands of numbers and as OE suppliers to various manufacturers you can be sure that you are getting the highest quality valves.



DO YOU KNOW?



Bloodhound SSC is a supersonic land vehicle currently in development. Its goal is to match or exceed 1,000 miles per hour (1,609 km/h) achieving a new world land speed record.

The pencil-shaped car, powered by a jet engine and a rocket engine is designed to reach 1,050 miles per hour (1,690 km/h). It is being developed and built with the intention of breaking the land speed record by 33%, the largest ever margin.

Bloodhound SSC will then be tested on the Hakskeen Pan in the Mier area of the Northern Cape, South Africa where a track 19km long and 3.2km wide has been cleared.



Air cell for level control	49	Exhaust headers	33	Power steering pumps	45
Air filters	35	Expansion bottles	18	Pre-combustion chambers	24
Air intake pipes	41	Fan blades	18	Propshaft centre bearings	54
Air mass sensor cleaner	16	Fan clutches	18	Propshaft couplings	54
Air mass sensors	29	Fire gum	15	Propshaft vibration dampers	54
Anti vibration dampers	54	Freewheel hubs	7	Push rod tubes	12
Antifreeze	13	Fuel filters	41	Radiators	19
Automatic gearbox filters	53	Fuel injector cleaner	13	Radiator caps	19
Big-end bearings	22	Gas springs	4	Radiator expansion bottles	18
Brake and clutch cleaner	14	Gasket maker	15	Radiator flush	16
Brake discs	5	Gasket material	44	Radiator hoses	19
Brake drums	5	Gaskets & sets	44	Radiator weld	16
Brake fluid	14	Gearbox filters	53	Reducers	40
Brake master cylinders	5	Gearbox mountings	54	Rings	23
Brake pads	6	Globes	25	Rocker arms	56
Brake sensor wires	6	Glow plugs	25	Rocker shafts	56
Brake shoes	6	Guide rails	52	Rotors	25
Breather filters	36	Hand cleaner	15	Shampoo and shine	14
Cabin air filters	41	Head bolts	24	Sleeves	23
Cam bearings	12	Head sets	44	Small end bushes	23
Camshaft position sensors	29	Headers	33	Spark plugs	27
Camshaft sprockets	52	Headlight globes	25	Stabiliser links	50
Camshafts	11	Hydraulic cam followers	12	Steering racks	46
Car care	14	Idler wheels	51	Stop smoke	17
Carburettor cleaner	14	Ignition coils	26	Stretch bolts	24
Centre bearings	54	Ignition leads	26	Strut mountings	50
Chain tensioners	52	Ignition modules	27	Subframe kits	50
Chamois cloth	14	Intake pipes	41	Suspension bushes	50
Clutch kits	55	Knock sensors	30	Tensioners	52
Clutch master cylinders	53	Lambda sensors	31	Thermostat housings	20
Clutch slave cylinders	53	Lash pads	56	Thermostats	20
Coils	26	Liners	23	Thermoswitches	20
Con-rod bolts	22	Main bearings	22	Throttle position sensors	31
Con-rods	22	Mechanical cam followers	56	Thrust washers	22
Control arm bushes	49	Mechanical fuel pumps	42	Tie rod ends	45
Control arms	49	Micro-v belt idler wheels	32	Tie rods	45
Coolant level sensors	18	Micro-v belt pulleys	32	Timing belt tensioners	51
Copper spray	17	Micro-v belt tensioners	32	Timing belts	51
Crankshaft position sensors	30	Micro-v belts	32	Timing chain guide rails	52
Crankshaft pulleys	32	Motorcycle filters	40	Timing chains & kits	52
Crankshaft sprockets	51	Octane booster	13	Tyreweld	17
Crankshafts	22	Oil	16	Universal joints	54
Crank ventilation valve	33	Oil Filler Caps	43	Valve guides	56
CV joints	53	Oil filters	41	Valve seat inserts	57
Cylinder head bolts	24	Oil pressure switches	43	Valve shims	57
Cylinder heads	24	Oil pump chains	52	Valves	57
Cylinder liners	23	Oil pump gears	43	Vibration dampers	54
Diesel treatment	13	Oil pumps	43	Water temperature sensors	31
Distributor caps	25	Oil seals	44	Waterpumps	20
EGR valves	30	Oil treatment	13	Welch plugs	20
Electric fuel pumps	42	Overhaul gasket sets	44	Wheel bearings	8
Engine bearings	22	Oxygen sensors	31	Wheel brake cylinders	9
Engine cleaner	15	Pipe reducers	40	Wheel hubs	9
Engine enamel	14	Piston rings	23	Wheel speed sensors	9
Engine flush	17	Pistons	23	Wheel speed sensors	31
Engine mountings	33	Plug leads	26	Window winder mechanisms	4
Exhaust enamel	14	Plugs	27		

THE PARTSMAN'S LAMENT

I work behind the counter in an automotive store,
Sometimes I'm called a genius, sometimes I'm called much more.

I claim I'm no mechanic but when the job goes sick,
The mechanic comes and asks me, what makes the darn thing tick.

I'm supposed to know the numbers of nuts and bolts and gears,
For every engine ever made, for more than forty years,
I'm an engineer and machinist and a what-not o' my Lord,
I'm supposed to be an Edison combined with Henry Ford.

But life would be a pleasure and I'd grin from ear to ear,
If the customer would only tell me the model, make and year.

WESTERN CAPE

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