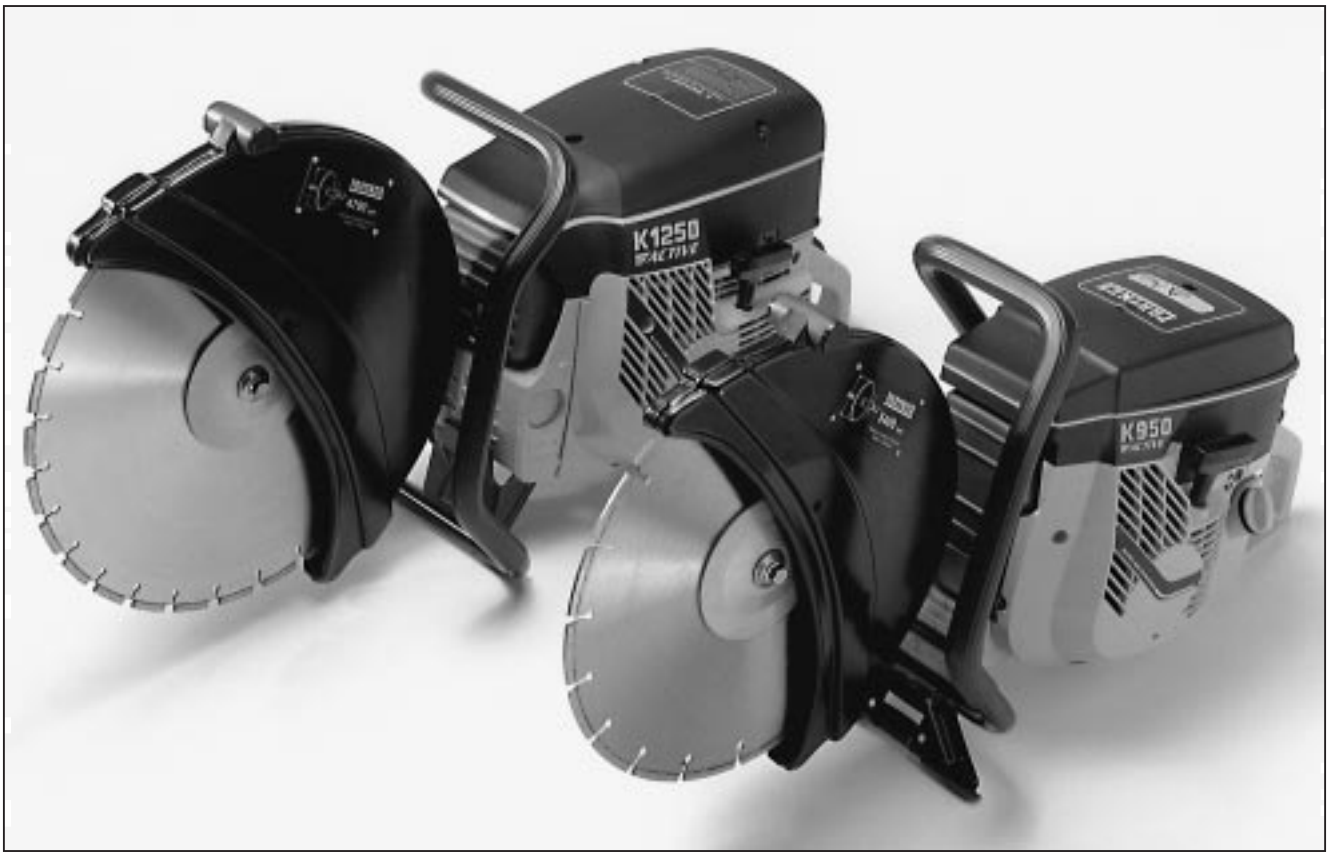
PARTNER TECHNICAL DESCRIPTION



PARTNER K950/K1250 ACTIVE

The Partner K950 Active and K1250 Active are a new generation of cutters in the big-machine class. They are characterised by low weight in relation to power output, allied to ergonomics of exceptional class.

The Partner K950 Active has a power output that places it among the largest machines on the market, but it weighs no more than a medium-class machine. It is available in variants for three blade sizes: 12˝, 14˝ and 16˝.

The Partner K1250 Active has the highest power output among all cutting machines on the market. Its weight/power ratio is also unbeatable. It is available with 14˝ and 16˝ blade sizes.

The Active generation was launched with the K650/K700 medium-class machines. The ideas and equipment concepts developed there have been refined and transferred to the K950 and K1250 Active.

Both machines share the same basic design, and several of their characteristics place these machines in a class all their own:

– Highest power in relation to weight.

– Ergonomic design to ensure that the machine is comfortable and simple to use, and at the same time safe in everyday operation.

– Operating reliability, long service life and minimum service requirements, all of which are crucial to good cutting economy.

– The unique Active Air Filtration system effectively cleans the intake air utilising three different filtration principles, thus promoting long service intervals.

– The SmartCarb™ carburettor maintains a constant blend of air and fuel irrespective of the condition of the air filters. As a result, the machine's performance is virtually unaffected by dirty filters. Unchanged power output between services and lower emissions are two of the benefits of the new carburettor.

– The starter. The Dura Starter is totally sealed from dust and features grease lubrication. The pulley is spring-loaded and is thus not subject to vibration-induced wear. (Applies only to the K950 Active.)

– New cutting blade shield which is automatically adjusted to suit the machine's movement.

– Encapsulated cutting arm protects the transmission from dust and water. This design eliminates belt slip when wet-cutting.

– Partner offers a range of accessories and top-class cutting blades with properties honed specifically for free-hand cutting.

Filter System

Cutting in stone and concrete generates tiny dust particles which must at all costs be prevented from entering the engine. The design of the air filter and its maintenance are the two most important factors governing the service life of the cutter. Designing a good air filter system is a matter of balancing effective filtering with long service intervals.

The development of more efficient filters has improved air-cleaning performance, but service intervals have by tradition still been inconveniently short in cutting machines. Machine rental firms inherit the problems caused by customers who do not carry out the necessary service during the rental period, or are faced with the cost of travelling frequently to various work-sites to carry out the necessary service.

Dust consists of extremely fine particles, generally so small that the individual particle cannot easily be distinguished by the naked eye but which in larger quantities can be seen as a cloud of dust. The stone or concrete dust which generally results from cutting operations generates the most damaging kind of particles for an engine's sliding or rotating components. Together with oil, this dust forms a perfect grinding paste which quickly wears down pistons, piston rings, cylinder walls and engine bearings once it penetrates an engine.

We generally measure dust particles in µm (1 µm = 0.001 mm), thousandths of a millimetre, and the particle sizes which are dealt with by the filter system generally measure between 50 µm and 5 µm. (It takes roughly 2 minutes for a stone particle measuring 10 µm to fall 1 m in wind-still conditions.)

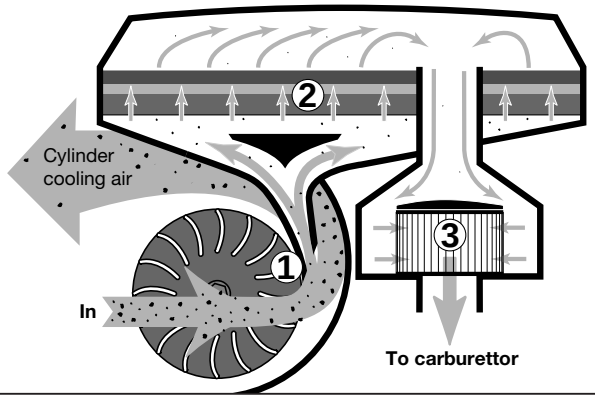
One physical characteristic which is vital to the function of the Partner Active Air Filtration system is the behaviour of dust particles in air currents depending on particle size:

A small particle is more easily affected by a current of air than a larger particle.

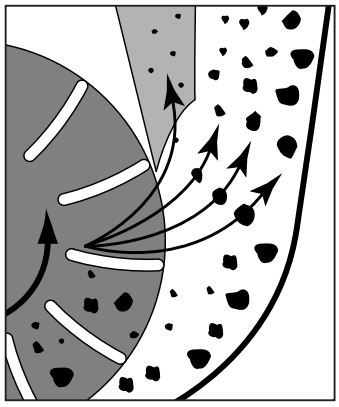
The reason for this is that small particles have a larger surface in relation to their mass. A small particle can therefore be steered and guided more easily by a current of air while a larger particle succumbs to centrifugal force or the force of gravity.

Partner Active Air Filtration is a filter system which effectively cleans the air entering the engine in three separate stages, utilising three different cleaning principles. The most immediate practical benefit of Active Air Filtration is that the service intervals are far longer compared to previous systems.

Air filtration principle

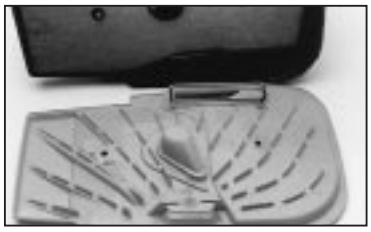


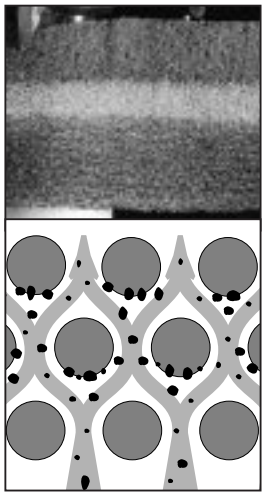
1. Centrifugal force is the first stage in cleaning the intake air of the K950/K1250 Active. Centrifugal cleaning was previously only used on larger engines in dusty environments, for example for construction machines (cyclone air filter).



The fan vanes on the flywheel supply the cylinder with cool air at the same time as they act as the active part of the centrifugal filtering system for the engine's intake air. An intake nozzle is fitted just beside the fan vanes. Under centrifugal force, the larger particles do not follow the curved current of air to the nozzle but are instead thrown against the outside of the nozzle. Only very small dust particles will be able to follow the current of air leading into the intake. Tests show that up to 80% of all dust is removed by the centrifugal cleaning process.

2. The foam filter is the next stage of separation in the filtration process. This filter covers the housing's entire surface, thus offering a filter surface of no less than 3.5 dm^2 (K950), 3.7 dm^2 (K1250). The filter's base distributes air across the entire filter surface, so the filter performs uniformly.



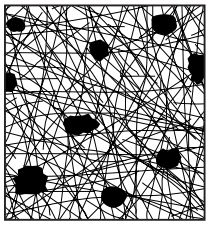


The filter is immersed in oil and is made up of three layers, each intended for a different pore size.

Inside the filter, the air flows through a structure pretty much like a labyrinth. Dust particles which strike against the filter sides do not bounce off but instead fasten to the sticky oily surface. A dry foam filter offers far less efficient cleaning performance than an oil-soaked filter.

An oiled foam filter is by far the most effective filter for cleaning of stone dust, since the entire filter volume is used as a "dust trap", not just the surface. The total dust-absorbing filter area is accordingly enormous. The foam filter absorbs about 95% of the total dust volume remaining after centrifugal filtering. It can be washed clean and must be oiled at each service.

3. The paper filter deals with the small amount of dust particles which, more by chance than anything else, may manage to slip through the foam filter. Only a tiny amount of extremely small dust particles will ever get as far as the paper filter. The filter's dense network of cellulose fibres traps all incoming particles. The paper filter also serves as a protective barrier during filter services. The paper filter should be changed at every service.



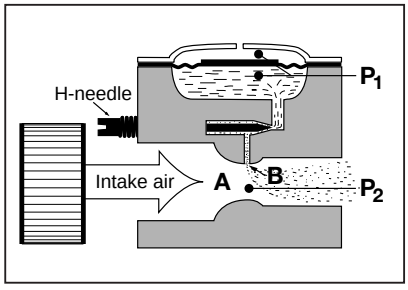
Carburettor

SmartCarb™ – carburettor with integrated filter compensation

With the SmartCarb™ carburettor, the machine always operates with the correct air/fuel mixture, virtually irrespective of how soiled the filters are. This design results in:

- high and more uniform engine power
- better filter economy, longer service intervals
- lower fuel consumption
- lower emissions

Carburettor operating principle

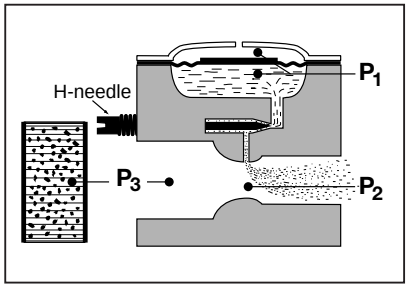


To understand the way in which the SmartCarb™ carburettor operates, we will first describe how a conventional carburettor works.

The carburettor's main job is to supply the right mixture of fuel and air to the engine. Every carburettor has a Venturi tube (A), in which the high speed jet (B) for petrol supply is fitted. When the engine sucks in air through the carburettor, the fuel is sucked down into the Venturi tube and mixed with the air.

A more detailed explanation is that *when the air flows through the Venturi tube, air velocity increases, thus causing pressure to drop in the Venturi* (the Bernoulli theorem). The pressure differential between the carburettor's fuel chamber (P_1) which operates under constant air pressure (atmospheric pressure), and the Venturi tube's negative pressure (P_2), causes the fuel to flow out through the jet.

Dirty filters



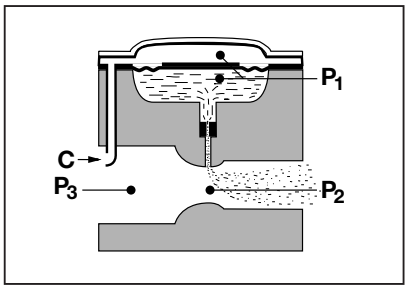
One problem with the conventional carburettor is that the air/fuel ratio gradually changes as the filters become increasingly blocked with dirt.

Dirty filters increase air resistance and promote a drop at (P_3) which is added to the pressure drop in the venturi (P_2), so that the pressure differential compared with the carburettor's fuel chamber (P_1) increases. As a result, the carburettor enriches the mixture, supplying more fuel in relation to air, which in turn impairs the engine's performance.

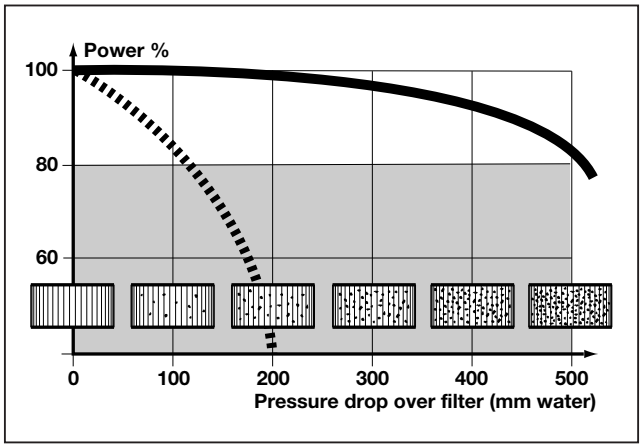
One way of compensating for dirty filters is naturally to reduce the amount of fuel being supplied by adjusting the high-speed needle in the carburettor.

SmartCarb™

The SmartCarb™ filter-compensating carburettor has an air duct (C) which links the carburettor's fuel chamber with the intake, which is directly connected to the filter chamber. (Note the fuel chamber's sealed lid and the fixed high-speed nozzle.)



The air duct (C) ensures that the air pressure in the fuel chamber (P1) and the filter chamber (P3) remains constant at all times. Only the pressure drop created by the venturi tube (P2) determines the amount of fuel which is to be mixed with the intake air. Therefore, irrespective of whether the filter system is clean or dirty, the relationship between air and fuel will remain constant at all times.



The above diagram (showing a laboratory test) demonstrates the considerable effect of SmartCarb™ on engine power. Air pressure is measured at the carburettor's inlet and the figure 0 is set for brand-new filters and with the engine running at normal speed. As the filters accumulate dirt, the pressure drops owing to the increased build-up of air resistance.

At a pressure drop of just 100 mm Vp, the standard carburettor provides such a rich fuel/air mixture that the filters must be replaced or the H-needle has to be adjusted. The SmartCarb™ carburettor offers excellent engine performance all the way to 500 mmVp.

With the standard carburettor, the engine loses power mainly because it is having to work with the wrong air/fuel ratio, while the power drop with the SmartCarb™ – which only becomes apparent once the filters are severely polluted – stems from the fact that the engine receives less air and fuel owing to the air resistance caused by the blocked filters.

Long service intervals

In practical terms, the pressure drop in the diagram can be translated into corresponding operation times, where we can see that the SmartCarb™ engine offers many times the standard operating duration between filter service!

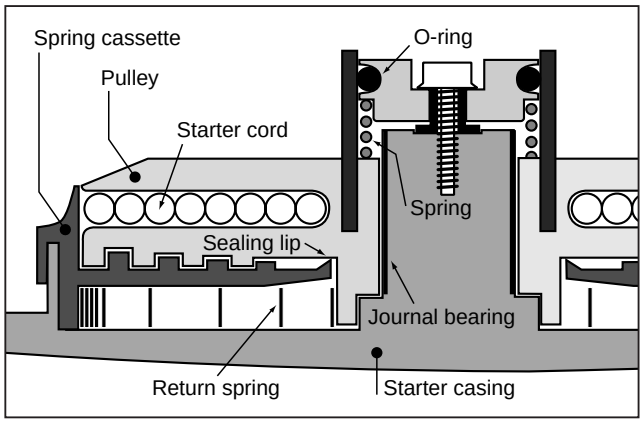
Vibration and heat-insulated carburettor
Every engine gives off a certain degree of vibration. The carburettor has a number of moving parts such as the control valve with its lever and diaphragm and the carburettor's throttle spindles. Their function is affected by vibration, with the effect growing in proportion to the mass (weight) of the parts. (Light parts have a greater ability to follow vibration-induced oscillation than do heavy parts.)

The carburettor and its moving parts are larger in large machines, so the K950 and K1250 Active feature a vibration-damping element between the cylinder and carburettor.

This element also serves as a heat insulator and prevents the formation of vapour in the carburettor.

Starter unit

The Dura Starter is a new patent-pending starter unit designed specifically for the dusty operating conditions in which cutting machines are used. The Partner K950 Active is the largest machine to feature Dura Starter.

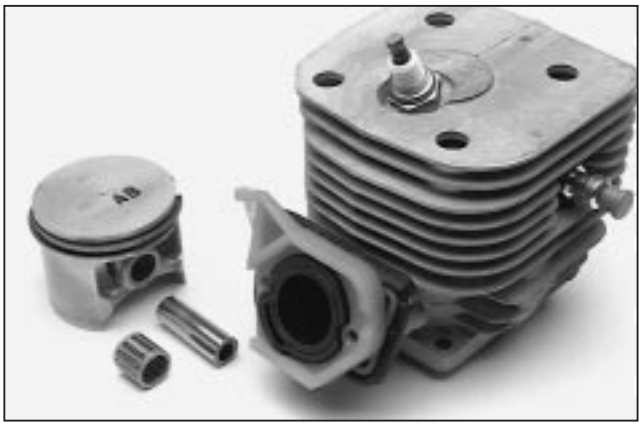


Dura Starter — new dust-excluding design
The principle of the new starter unit is that the pulley is protected from vibration-induced movement. This makes it possible to fit a series of seals and a grease-lubricated bearing.

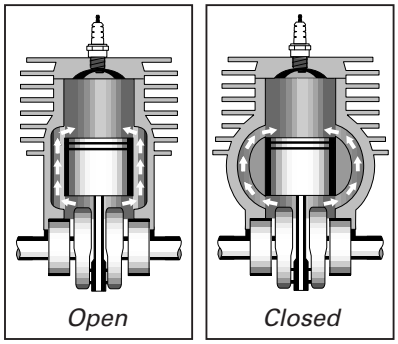
The spring above the pulley exerts a tensioning force against the centre screw and acts as a brake on vibration-induced movement. An O-ring above the spring prevents dust from penetrating into the pulley's bearing. The spacer sleeve around the centre screw is the pulley's upper bearing point and the entire pulley is journalled in a slider bearing against the starter casing's bearing pin.

The space between the pulley and the spring cassette is shaped like a circular labyrinth, which prevents dust from moving towards the centre. The spring cassette is sealed against the centre with a spring-loaded sealing lip lying against the pulley.

Cylinder/piston



The Partner K950 Active and K1250 Active have specially developed air-cooled two-stroke engines running on unleaded 95-octane petrol. They are lubricated with oil mixed in the petrol.



There are two types of flushing duct - open and closed. Large two-stroke engines work more efficiently with closed flushing ducts, which is why the K950 and K1250 Active feature this system.

The cylinder bore is hard-chromed. The piston has two piston rings, and it has needle bearings at the coupling with the connecting rod.

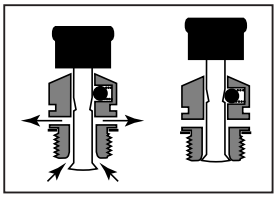
The cylinder and piston are made in a way which ensures ideal dimensions during operation. The piston is profile-turned and the cylinder is honed for the temperature — and the accompanying material thermal expansion — which each part of the cylinder and piston experience during operation. For example, the piston, when seen from the side, has a somewhat barrel-shaped profile, while the view from above reveals a slightly asymmetrical oval shape.

This design gives the engine maximum power through perfect sealing in the cylinder chamber allied to minimum frictional loss against the cylinder wall. However, this production method is both complex and expensive.

Decompression valve

Large engine offers relatively high resistance at the starter cord. The decompression valve solves this problem in a simple and efficient way.

When starting the machine, the valve is first opened by pressing the button. When the operator pulls the starter cord, most of the compression pressure exits through the valve and the starter cord's movement is both gentle and even. As soon as combustion takes place in the cylinder, the valve is shut automatically by the combustion pressure and the engine operates normally.



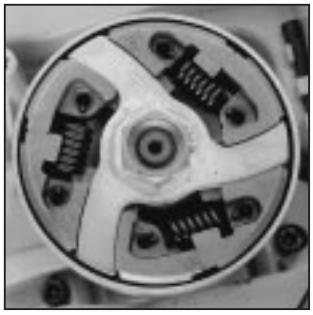
Silencer

The silencer is of the single-chamber type and the exhaust gases are directed towards the side – away from the operator. The panel between the cylinder and carburettor cools the exhaust port.

Most of the sound from the machine comes from the escaping exhaust gases.

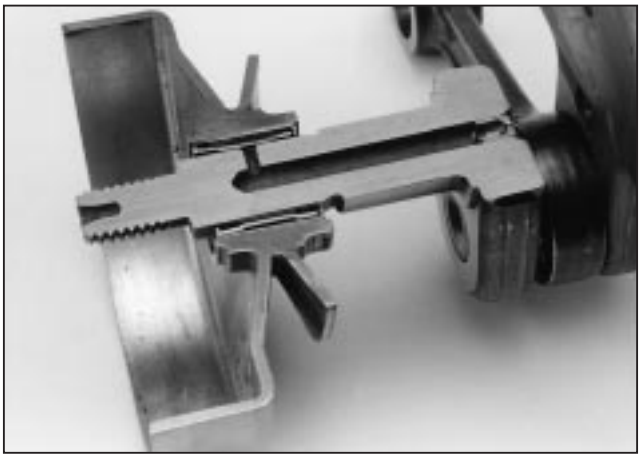
The air filter system acts as an effective intake damper and goes a long way to reducing sound pressure since the intake air is not drawn from above the engine. Sound levels are measured according to the CE norm in two ways:
– Sound pressure, measured at the operator's ear.
– Sound level, the mean value of the acoustic power which the machine generates, measured at twelve points around the machine on a reflective flooring material (concrete). These measurements are taken at idling speed and maximum speed.
See the technical specifications on page 11.

Clutch

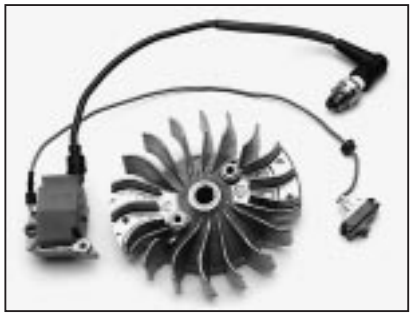


The clutch located between the engine and the cutter is of the centrifugal type. At idling speed, the clutch shoes are held against the centre by a spring. This means that the cutter disc is at a standstill when the machine runs at idling speed. As the engine increases speed, the spring can no longer hold the shoes in place, and the shoes are pushed against the clutch drum by centrifugal force. Engagement speed is about 3400 rpm. At normal operating speed, centrifugal force is so high that a sudden overload on the cutter disc will cause the belt to slip against the pulley.

Self-lubricating clutch bearing
The clutch bearing on the K950 and K1250 Active is lubricated automatically – a tried and tested Partner speciality. A duct in the crankshaft opens out at the clutch bearing. The over-pressure which is created in the crankcase is transferred to the clutch bearing and keeps the bearing clear of incoming dust particles and at the same time lubricates it.

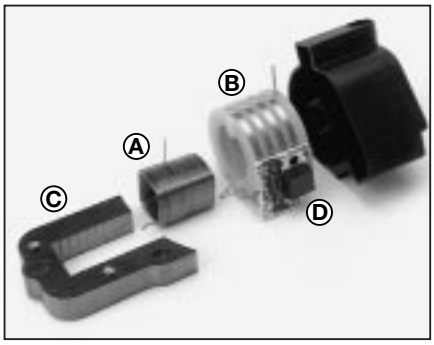


Ignition system



The ignition system is completely sealed and has no moving parts. It is insensitive to moisture and dirt. It is designed so that the ignition point never needs to be adjusted.

The Partner K950 and K1250 Active feature a built-in over-revving protector in the electronic module, limiting engine speed to 9,750 rpm.



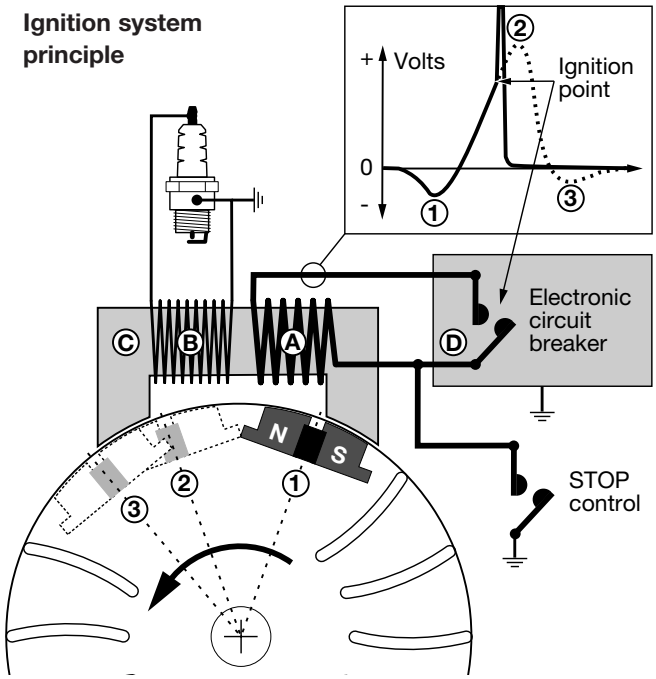
The ignition system consists of the primary coil (A) and the secondary coil (B), both of which surround the iron core (C). A transistorised electronic module (D) deals with the contact-breaking function.

Current is generated in the primary coil when the flywheel's permanent magnet passes the coil and produces the voltage sequence shown in the diagram below. (The dotted line shows the voltage which is generated if the current is not broken.)

The ignition point is determined by the electronic module which senses variations in voltage in the primary coil and cuts the current at the right level, at the same time as the piston is just below top dead centre. At the instant that the contact is broken, voltage in the primary coil rises from 5 V (volts) to about 200 V through a process of induction.

In the secondary coil, a high tension of about 20,000 volts is conveyed to the spark plug.

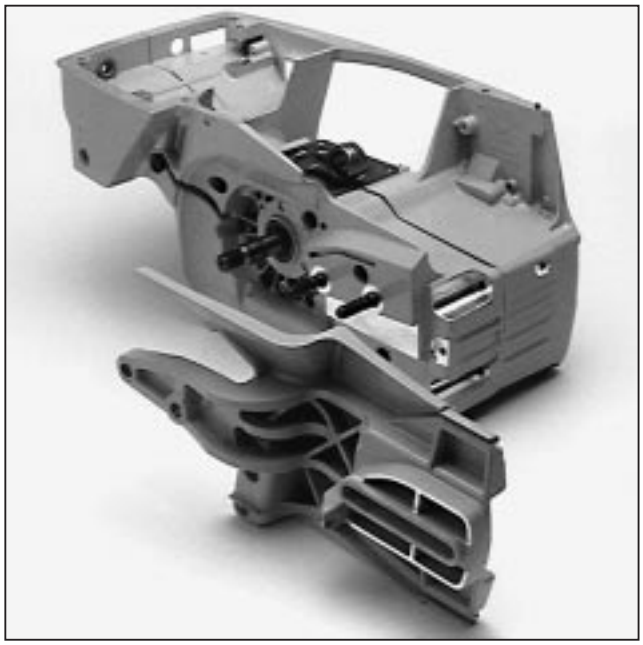
Ignition system principle



Machine body

The machine body is cast in magnesium alloy for high strength and low weight. The block is conventionally split into two crankcase halves.

The Partner K950 and K1250 Active feature an innovative machine-body construction. The machines feature a separate vibration-damped unit encompassing the fuel tank, rear handle and machine base plate, to the front of which the handle arch is attached. As a result, the mass of the handle system is greater, which in turn reduces vibration levels. Separation of the fuel tank from the engine body keeps the fuel cool, eliminating disruptions caused by vapour formation in the fuel system.



Ergonomic design

The K950 and K1250 Active are noted for the clean, slim lines of their engine bodies and the absence of protruding parts — all so the operator can work as comfortably and safely as possible.

In normal cutting operations, the machine is moved straight back and forth in the cutting groove, and the operator is close to the machine — in some jobs even maintaining direct bodily contact with the machine. Protruding parts on the machine body may easily force it off its intended cutting line if the machine comes into contact with the operator or an adjacent object. This is naturally a source of irritation and may even constitute a safety hazard.

So Partner cutters owe their clean lines to functional requirements — with the added bonus of an attractive appearance.

Slim machine body

Both the K950 Active and the K1250 Active feature a machine body with minimum width, placing the centre of gravity near the operator. This property is of utmost importance to operating comfort and when carrying the machine.

Surface treatment

The machine body is powder-painted, which means that no solvents are used. Powder paint is sprayed onto the machine body, which is electrostatically charged, to produce a uniform coating which penetrates everywhere. The parts are then baked in an oven and the powder paint melts to form a thick surface layer which is durable and resistant to mechanical wear.

Crankcase bearing

The crankcase has sturdily dimensioned ball-bearings. These are lubricated by the two-stroke oil mixed in the fuel. The crankshaft's sealing rings can be replaced from outside the machine.

Crankshaft/ connecting rod

The crankshaft and connecting rod are forged and case-hardened to ensure top strength and durability. The connecting rod has needle bearings on the crankshaft.

Fuel tank

The fuel tank is integrated with the vibration-damped handle unit, thus minimising heat transfer from the crankcase.

Tank volume is sufficient for about 25 – 30 minutes of operation.

Fuel filter

The pick-up, which also has a fuel filter, always remains at the bottom of the tank so the cutting machine is always assured of its supply of fuel irrespective of the angle of operation.

The filter design is new. It is made of sintered polyethylene plastic which filters out the smallest particles. Its high filtration efficiency reduces wear on the carburettor's moving parts. The filter surface is smooth and repels dirt. The filter-replacement interval has thus been increased several times over.

Refuelling

The Partner designers have chosen to position the fuel filler in line with the machine body so as to avoid protrusions which may get in the way during cutting operations. The tank cover hangs securely from the machine during refuelling.

In order to avoid spillage for environmental and safety reasons while refuelling, we recommend the type of fuel-can which features an overfill valve.

Handle system

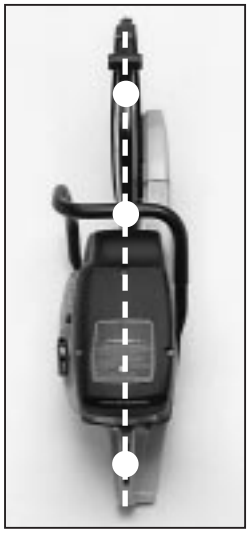
Ergonomics have top priority in the design of every Partner cutter. In practical terms, this means the machine must be comfortable and safe to use. A well-built tool will not tire or burden its operator. More work gets done and the risk of injuries is minimised, both in the long and the short term.

The distance between the handles is important for overall ergonomics. A short gap means the operator must use greater force to advance and hold the machine on course. If the distance is too great, the machine is difficult to control.

The ideal distance, as on the K950/K1250 Active, corresponds closely to the shoulder width of the user.

Handle grips in line with the cutter blade

A design in which the line of grip on the front and rear handles is aligned with the cutter blade, gives the best conditions for safe and efficient cutting. The cutter blade is automatically pressed straight down into the cutting groove, and the cut is straight. Crooked cutting grooves waste power and impose extra wear on the cutter's frame and segment.



Horizontal cutting is more difficult compared to the more common vertical cutting. In vertical cutting, most of the machine's weight is exerted on the object being cut and the feed pressure is applied on the front handle.

In horizontal cutting, however, the operator has to support the machine. The front handle's forward-positioned grip in the horizontal position shifts the weight to the rear handle, thus creating better balance. The operator can easily and comfortably provide feed pressure with his body against the air filter housing, with the support of the handle arch.

Vibration suppression

In prolonged use, vibrating handles cause injuries to the blood vessels in the hands (TVD, often termed "white fingers"). In brief use, vibration results in impaired sensitivity and muscle strength in the hands which, apart from the discomfort, also heightens the risk of accidents.

Suppressing vibration in the handle system is something of a designer's balancing act. A firm handle system would, in theory, provide perfect contact and control of the machine, if we disregard the harmful effects of vibration. Maximum vibration suppression, on the other hand, would permit considerable movement between handle and machine which would result in poor control over the machine during cutting. A good handle system is always a matter of combining optimum vibration suppression with good control over the machine.

New design

The K950/K1250 Active differ from other Partner cutters in that the handle unit is integrated with the fuel tank and base plate, at the front of which there is a vibration-suppression element. With this design, weight has been transferred to the handle system. The greater mass in the handle unit considerably cuts vibration levels, particularly in the case of high-frequency vibration.

The four damper elements consist of steel springs with a rubber damper pad at the handle arch. The dampers are placed as far from each other as possible, thus achieving a good compromise between vibration suppression and operating convenience.

Safe starting position

The rear handle on Partner cutters is designed to accommodate a large boot, ideal for locking the machine in a safe starting position.

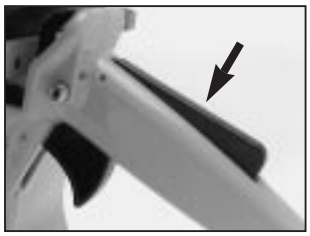
Controls

The basic principle behind the controls needed while the machine is running is that the operator should not need to release his grip on the handle. Therefore, all the controls are gathered together on the rear handle – for both safe and comfortable operation.

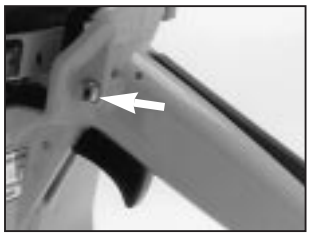
The size and the shape of the controls make them easy to operate with thick gloves on – gloves should always be used for cutting operations.

Throttle control
The throttle control has been thoroughly tested. The spring-loaded counterbalance, its stroke, design and precise positioning are all optimised for best "finger-tip comfort".

Throttle trigger lockout
The throttle control is blocked in the idling position – a safety device to prevent accidental acceleration. The inhibitor, on the upper face of the handle, is released when the driver grasps the handle.



Starting throttle catch
The throttle control can be locked in a partially open setting which ensures the correct throttle opening for starting, with either a cold or warm engine. As soon as the throttle control is pressed, the catch is released.



Choke
On the K950/K1250 Active, the choke control is pulled outwards, a more easily noticeable indication that the choke is engaged. The choke control does not act on the throttle shutter; instead, the partial-throttle setting is governed by the starting throttle catch during start-up.

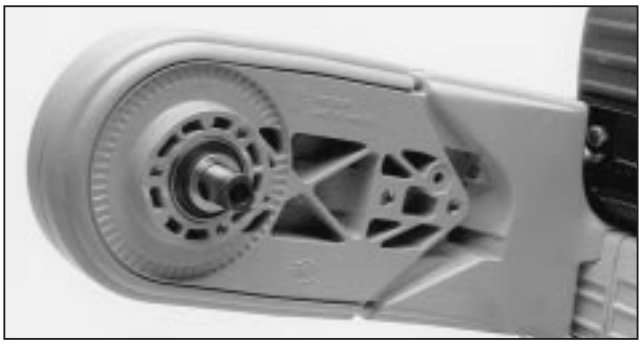
Stop control
The stop control can be operated with the thumb without the operator having to release the handle. The control cuts the ignition.

Cutting unit

Belt drive
The cutter blade on the K950/K1250 Active, as on most other Partner cutters, features one drive belt leading from a pulley on the crankshaft to the pulley on the spindle shaft. This design has the multiple advantages of simplicity, reliability and low weight.

It is also important from the safety viewpoint. If the cutter blade comes to a sudden stop, the drive belt will slip and allow the engine to come to a halt more slowly. The cutter arm is split to permit convenient belt replacement and adjustment of belt tension.

Fully sealed transmission casing
Large machines like the K950 and K1250 Active are often used for wet-cutting operations. Water on the belt functions as a lubricant but also increases the risk of belt slip. These machines are therefore equipped with a



sealed casing that prevents water from reaching the belt. Dust is also kept away from the belt, thus reducing wear. In order for the transmission to be sufficiently cooled, the casing features cooling-air vents at the clutch.

Semi-automatic belt tensioning
Opinions as to what is the "correct" belt tension vary from one operator to another. Partner's semi-automatic belt tensioning system solves this problem – a standardised spring provides the correct tensioning force.

In precisely controlled experiments in the laboratory, Partner has computed the optimum belt tension which gives the belt maximum service life allied to perfect application pressure before it slips against the pulley.

Belt tension has to be adjusted occasionally owing to stretching and wear of the belt. This is done quickly in three stages.

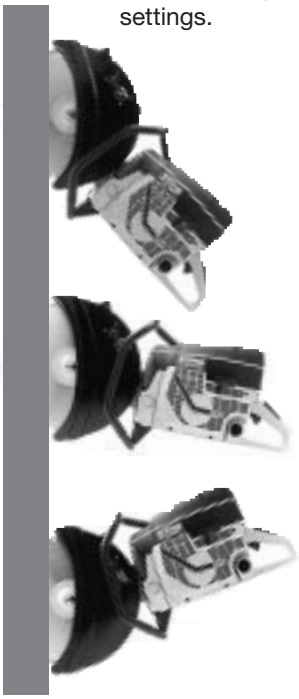
Drive belt
The drive belt in a cutting machine is subjected to severe and uneven loads and sometimes also to immense load peaks. The drive belt also operates on relatively small-diameter pulleys, which imposes particular demands on the belt. To the naked eye, original-specification Partner belts may look like any other drive belt, but they are specially designed for their specific function. The belt-tensioning rating, which is determined by the adjustment spring, is tested using genuine Partner belts.

Reversible cutter arm
The cutter arm can be reversed. This makes it possible to cut close to a wall or at floor height with the blade guard as the only limiting factor, in other words about 20 mm from the cutter blade. Naturally, some of the machine's ergonomic benefits are lost when the cutter arm is reversed, but the ability to carry out certain operations may in fact depend on this feature.

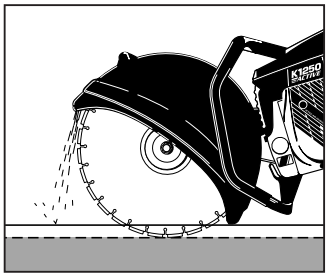
Blade guard

The blade guard is by far the machine's most important safety feature. The normal task of the blade guard is to direct cutting dust away from the operator, but it must also stand up to the effects of a malfunctioning blade. The blade guard is made of steel plate, with its thickness doubled at the periphery.

Self-adjusting blade guard
The blade guard is of a new design. Instead of fixed settings, it features a friction lock which automatically adjusts the position of the guard to suit current operating settings.



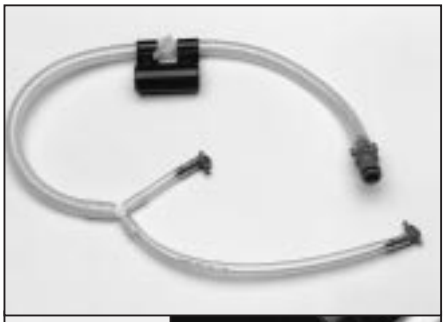
Generally, the rear edge of the blade guard should rest on the object being cut. The effect of this is that the particles follow the path created by the guard and are ejected ahead at relatively low speed.



Wet cutting
Wet cutting virtually eliminates cutting dust and the blade is cooled at the same time, which in turn prolongs the blade's service life.

The blade guard is factory-prepared for attachment to Partner's wet cutting kit.

The wet cutter adapter has been redesigned and is quickly fitted in place. The nozzles are fitted on simply to the blade guard with a screw on the outside securing them in place. The control on the handle arch is used to regulate the volume of water delivered to the cutter blade. The supply hose is now equipped with a standard Gardena® quick-release coupling.



Simple blade replacement
The blade guard has a generous cut-out to aid blade replacement. This opening also gives the operator a clear view of the working surface during cutting.

Rotation-inhibited flange washers
Both the inner and the outer flange washers are locked in place against the spindle shaft so they cannot rotate. The dual connecting flange locks the blade in place securely, even if the lock-screw is only tightened moderately. This design also prevents undesirable self-tightening. As usual, the lock-screw is right-threaded and features a permanent washer.

Replaceable blade bushing
Partner cutting machines can be equipped with centre bushings to suit various standards. Replaceable centre bushings are available for diameters of 20.0 mm, 22.2 mm, 25.4 mm (1") and 30.5 mm. The Partner K950/ K1250 Active are supplied as standard with different centre bushings to suit the market on which they are sold.

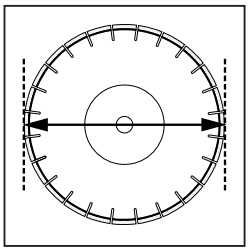
Cutter blades

Specification plate

All Partner power cutters are equipped with a plate on the blade guard which details all the important specifications needed for choosing cutter blades.

The dimensions which the operator needs to know are the following:

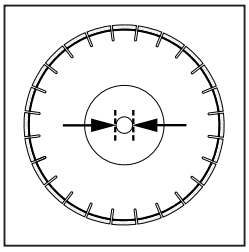
Blade diameter



Blade diameter is given in either mm or inches.

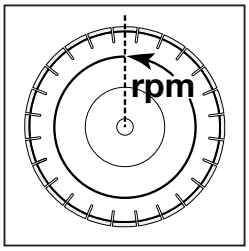
Three models are available in the Partner K950 Active range, with cutting blade sizes 300 mm (12″), 350 mm (14″) and 400 mm (16″). Two Partner K1250 Active models are available, with 350 mm (14″) and 400 mm (16″) cutting blades respectively.

Centre diameter



The cutter blade's fitting holes must exactly match the bushing diameter on the spindle shaft. Various standards are available depending on the countries in which the machines are sold. The most common standards are 20.0, 22.2, 25.4 (1″) and 30.5 mm. Bushings for Partner Power Cutters are available for these diameters and can be replaced.

Speed



All cutter blades are marked with a speed which is usually measured in revs per minute (rpm) and which indicates the rotating speed which should not be exceeded. The blade's maximum speed is determined by the blade manufacturer.

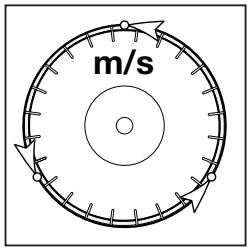
The Power Cutters plate also indicates a speed which is determined by the machine manufacturer and which is termed the "nominal speed".

The nominal speed is the speed which is stated on the machine plate and which determines which marking the blade must have in order to be used with the machine. The cutter blade should be marked with the same or higher speed than that specified on the machine plate.

The maximum speed of the machine is a rating which does not affect the machine operator, so it is not specified on the machine but it is used, for instance, as a control parameter at the service workshops. The maximum speed is the highest permitted speed which the spindle shaft is allowed to achieve with an unloaded blade and the engine running at full throttle.

According to the European norm, the maximum speed may not exceed the nominal speed specified on the machine by more than 10%. For example, a machine with the nominal speed of 5,100 rpm should never exceed a max. speed of 5,100 × 1.1 = 5,610 rpm.

Peripheral speed



Peripheral speed is measured in metres per second and is directly proportional to engine speed. By definition, peripheral speed is the speed at which a given point on the blade's circumference travels through the air. It is also the speed which a given diamond segment, for instance, has in relation to its point of contact during cutting. Another way of looking at the term "peripheral speed" is to imagine a cutting machine as a moving vehicle with the cutter blade as the driven wheel. A speed of 5,100 rpm with a 300 mm cutter blade would give the following speed:

Blade circumference: 0.3 m × π = 0.94 m
Blade speed: 5,100 rpm = 85 r/s
Circumference × speed = peripheral speed
Peripheral speed = 0.94 m × 85 r/s = 80 m/s
Computed into a "vehicle-type situation" this gives a speed of about 290 km/h!

Partner cutter blades are made for peripheral speeds of 100 m/s. A European colour code prescribes a green colour for a maximum peripheral speed of 100 m/s, while a red colour indicates max. 80 m/s.

BLADE TYPES

Hand-held power cutters require cutting blades which are approved for use in hand-held machines – it is not permissible to fit them with blades intended for fixed-position bench-mounted machines, for example. The speed marking must match or be higher than the figure on the machine's specification plate. Partner cutting blades are naturally intended for Hand-held cutting.

– The diamond blade is becoming increasingly common for cutting concrete, stone, asphalt and similar materials. The general advantage of the diamond-tipped blade is that it retains its cutting depth virtually throughout its life so cutting efficiency remains high. Used correctly, it offers excellent blade economy.

Partner "PowerCut" diamond blades are available for professional and occasional users. The range encompasses several grades which are selected to suit the type of material to be cut. Diamond blades are available for both dry and wet cutting.

– Abrasive discs, which used to be the norm for cutting all materials, are now used primarily for cutting metals. Partner abrasive blades are available for steel and concrete, the concrete blade is also very suitable for cutting softer steel types such as reinforcing rods and structural steel.

– Partner Rescue is a special blade with a TCT hard-metal cutter. It may only be used by specially trained personnel in emergency rescue situations.

Technical specifications PARTNER K950/K1250 Active

	K950/12˝	*K950/14˝*	*K950/16˝*	*K1250/14˝*	*K1250/16˝*
Cutting blade, diam.	300 mm (12˝)	350 mm (14˝)	400 mm (16˝)	350 mm (14˝)	400 mm (16˝)
Cutting depth	100 mm (4˝)	125 mm (5˝)	145 mm (6˝)	120 mm (5˝)	145 mm (6˝)
Nominal speed, blade spindle	5,400 rpm	5,400 rpm	4,700 rpm	5,400 rpm	4,700 rpm
Transmission ratio, engine/spindle	1/0.52	1/0.52	1/0.42	1/0.51	1/0.47
Dimension with blade:					
Length	765 mm	790 mm	815 mm	865 mm	890 mm
Max. width	220 mm	220 mm	220 mm	240 mm	240 mm
Max. height	365 mm	425 mm	465 mm	440 mm	480 mm
Weight, without blade	9.9 kg	10.3 kg	11.2 kg	13.4 kg	14.3 kg
Packaging:					
Dimensions carton, mm	700×240×460	700×240×460	715×240×510	780×260×510	780×260×510
Quantity per pallet	15 units	15 units	15 units	12 units	12 units

Engine

K950 Active

Air-cooled, 2-stroke	94 cm^3
Power	4.5 kW
Bore/stroke	56 mm/38 mm
Compression ratio	10.0:1

K1250 Active

Air-cooled, 2-stroke	119 cm^3
Power	5.8 kW
Bore/stroke	60 mm/42 mm
Compression ratio	10.0:1

Fuel

Petrol, min. 90 octane unleaded (green pump)

Oil mixture		4% (1:25)
Oil mixture with Partner-oil		2% (1:50)
Tank volume	K950 Active	1.0 l
	K1250 Active	1.25 l
Full tank under normal operation lasts approx.		25–30 min.

Carburettor

K950 Active

Tillotson HS282A SmartCarb™ with built in filter compensation.

K1250 Active

Walbro WG 9 SmartCarb™ with built in filter compensation.

Air filter

Three filtration principles:

1. Active centrifugal filtration
2. Oil-immersed 3-layer foam filter

Filter area	K950 Active	3.5 dm^2
	K1250 Active	3.7 dm^2

3. Dry filter, folded paper filter 16 dm^2

Ignition system

Transistorised ignition system, Electrolux type

Spark plug	NGK, BPMR7A or Champion, RCJ7Y
Electrode gap	0.5 mm

Clutch

Centrifugal clutch with 3 clutch shoes.

Engagement speed, min.	3,200 rpm

Automatic lubrication of clutch bearing.

Blade guard

Made of steel. Self-adjusting.

Blade bushing

Replaceable centre bushing for hole diameters: 20.0 mm, 22.2 mm, 25.4 mm (1˝) and 30.5 mm.

Transmission

Belt type	V-belt

Sound level

K950 Active

Pressure	102.6 dB(A)
Power	111.7 dB(A)

K1250 Active

Pressure	102.0 dB(A)
Power	114.6 dB(A)

Vibration levels

K950 Active

Idling, front/rear handles	8/9 m/s^2
Full throttle, front/rear handles	6/8 m/s^2

K1250 Active

Idling, front/rear handles	7/7 m/s^2
Full throttle, front/rear handles	5/6 m/s^2

CE

The CE marking indicates that the manufacturer guarantees that the machine meets all the requirements of the EU directives, that is to say those safety standards which must be met in order for the machine to be sold within the EES block.

PARTNER®

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