Satisfying the professional’s needs

Vibration

Dominate the job site with Makita’s low vibration construction and grounds care equipment.
When using a power tool, vibration is produced as a by-product of that process. Vibration used to be something that was overlooked by employers and employees alike. However, with the effects of vibration exposure being revealed, it was necessary for manufacturers and employers to take a serious stance to protect the workforce. The vibration magnitude is frequency weighted acceleration value measured in metres per second squared (m/s²).

If steps are not taken to limit the amount of vibration a machine produces and the level of exposure an individual receives, then injuries such as Vibration White Finger (VWF) will occur through Hand-Arm Vibration (HAV). This can potentially leave employers open to legal issues.

In July 2005 the Physical Agents Directive became law. The law meant that all power tools had to have their vibration levels measured and that information to be made available to anyone. This information helps towards educating the operator to understand how long they can safely operate a machine.

**How AVT™ works**

AVT, the benchmark in vibration reduction.

Makita demolition tools are among the best in the world. Working with the users to solve the problem of vibration Makita's AVT products have been designed in close relation to users needs at site level.

Focusing on the 3D's:

- dialogue
- development
- delivery

No effort has been spared to ensure that our products provide the professional user with reliable, long lasting power.

1. **Vibration damping.**
   AVT, Anti-vibration technology uses the principal of counterbalances to massively reduce the harmful vibrations experienced when using hammers drills and breakers.

2. **Motor speed.**
   Suppressing the motor speed reduces vibration of the tool body when idling and decreases the amount of vibration to operator's hands during a day's operation.
   It also minimizes deflection of bit tip from the material when starting to use the tool.

3. **Efficiency**
   The AVT system makes Makita tools more efficient. They harness more energy transferring this to the working tip and allowing the job to completed in less time. The result is more productivity within a given time, which is key to managing your employee’s exposure to vibration.
However, it is not only important to produce a machine which limits or even eliminates any danger to the operator, but it is also vital that the operator and contracting companies are educated in the risks and prevention techniques surrounding vibration hazards. Makita provides the right tool for the job whilst making that tool as safe to use as technologically possible. It is vital you equip your workforce with the safest products available. A safe product means a longer operational time thanks to reduced vibration figures. Working with a safer machine makes the operator confident which in turn will enable them to perform to the maximum of their abilities resulting in a superior finish at the end of a task.

For on site certificated training please see the Solutions training publication.

[www.hse.gov.uk/vibration/](http://www.hse.gov.uk/vibration/)
AVT™

Site safety

Vibration is a major topic that the power tool industry are working hard to provide solutions for, even more so since the EU Physical Agents (Vibration) Directive 2002/44/EC came into force. This directive deals with risks from vibration at work and has been implemented in the UK under the Control of Vibration at Work Regulations 2005.

A revolutionary anti vibration technology.

SDS-PLUS Rotary Hammer
HR3210C

Rotary hammer: 10.0m/s²
Hammer only: 7.5m/s²

Max. in concrete 32mm
Max. TCT core 90mm
No load speed 315-630rpm
Blows per minute 1,650-3,300bpm
Impact energy 5.6J
Power 850W
Net weight 5.2kg

Standard Equipment
Side handle, depth stop, bit grease, carry case.

SDS-PLUS Rotary Hammer
HR3210FCT

Rotary hammer: 10.0m/s²
Hammer only: 8.0m/s²

Max. in concrete 32mm
Max. TCT core 90mm
No load speed 315-630rpm
Blows per minute 1,650-3,300bpm
Impact energy 4.9J
Power 850W
Net weight 5.4kg

Standard Equipment
Side handle, depth stop, bit grease, quick change chuck, carry case.

SDS-MAX Rotary Demolition Hammer
HR3541FC

Rotary hammer: 11.0m/s²
Hammer only: 9.0m/s²

Max. in concrete 35mm
Max. TCT core 90mm
No load speed 315-630rpm
Blows per minute 1,650-3,300bpm
Impact energy 6.1J
Power 850W
Net weight 5.6kg

Standard Equipment
Side handle, depth stop, bit grease, carry case.

Impact energy per stroke according to EPTA-Procedure 05/2009.
Initial protection

The AVT mechanism works by transferring air around a series of chambers which in turn pushes a counterbalance in the opposite direction to the piston, thereby canceling out the vibration which the piston would have otherwise created.

Secondary protection

Shock absorbing handle are also used on appropriate tools for added protection.

SDS-MAX Rotary Demolition Hammer
HR4011C
Rotary hammer: 7.5m/s²
Hammer only: 6.5m/s²
Max. in concrete 40mm
Max. TCT core 105mm
No load speed 180-265rpm
Blows per minute 1,350-2,700rpm
Impact energy 6.2J
Power 1,100W
Net weight 6.7kg

Standard Equipment
2 x side handles, depth stop, bit grease, carry case.

SDS-MAX Rotary Demolition Hammer
HR4511C
Rotary hammer: 7.5m/s²
Hammer only: 7.0m/s²
Max. in concrete 45mm
Max. TCT core 125mm
No load speed 130-280rpm
Blows per minute 1,250-2,750rpm
Impact energy 9.4J
Power 1,350W
Net weight 9.1kg

Standard Equipment
2 x side handles, depth stop, bit grease, carry case.

SDS-MAX Rotary Demolition Hammer
HR5211C
Rotary hammer: 12.5m/s²
Hammer only: 11.0m/s²
Max. in concrete 52mm
Max. TCT core 160mm
No load speed 130-260rpm
Blows per minute 1,075-2,150rpm
Impact energy 18.9J
Power 1,500W
Net weight 12.4kg

Standard Equipment
2 x side handles, depth stop, bit grease, carry case.

Impact energy per stroke according to EPTA-Procedure 05/2009.
AVT™

Better by design

The Makita demolition hammer HM1810 has everything needed to conform to current Health and Safety regulations including the Outdoor Noise Directive while still delivering extreme performance: 66% less vibration and 20% more power compared to other breakers without AVT.

AVT sets the standards for safety, performance and efficiency.

SDS-MAX Demolition Hammer
HM1213C
Hammer: 7.0m/s²
Blows per minute 650-1,900bpm
Impact energy 18.6J
Power 1,510w
Bit angle setting 12 stage
Speed control Variable via dial
Net weight 10.8kg

Standard Equipment
Side handle, bull point, bit grease, carry case.

SDS-MAX Demolition Hammer
HM1214C
Hammer: 8.0m/s²
Blows per minute 950-1,900bpm
Impact energy 19.9J
Power 1,510w
Bit angle setting 12 stage
Speed control Variable via dial
Net weight 12.3kg

Standard Equipment
Side handle, bull point, bit grease, carry case.

1¼” Demolition Hammer
HM1810
Hammer: 9.0m/s²
Blows per minute 1,100bpm
Impact energy 36.9J
Power 110V: 1,700w
240V: 1,900w
Net weight 32.3kg

Standard Equipment
Hex wrench.

Impact energy per stroke according to EPTA-Procedure 05/2009.
Anti vibration handle
As the handle receives vibration from the motor housing the handle is shifted in all directions with the help of the ball joint functioning as a fulcrum, the rubber dampers soak up this movement lowering the vibration transferred to the operator.

Anti vibration side grip
As the anti vibration grip receives movement from the machine through the shaft the vibrations are dissipated with help of ball joint functioning as fulcrum. The rubber damper between GRIP and SHAFT absorbs the vibration from the ball joint.

Reciprocating Saw
JR3070CT
Cutting: 8.5m/s²
Max. in wood 255mm
Max. in pipe 130mm
Length of stroke 32mm
Strokes per minute 0-2,800spm
Power 1,510W
Net weight 4.6kg

Standard Equipment
Blades, carry case.

Jigsaw
4350FCT
Wood cutting: 8.0m/s²
Metal cutting: 4.5m/s²
Max. in wood 135mm
Max. in steel 10mm
Length of stroke 26mm
Strokes per minute 800-2,800spm
Power 720W
Net weight 2.8kg

Standard Equipment
Blades, hex wrench, anti splinter device, cover plate, dust nozzle, carry case.

Jigsaw
4351FCT
Wood cutting: 6.5m/s²
Metal cutting: 4.5m/s²
Max. in wood 135mm
Max. in steel 10mm
Length of stroke 26mm
Strokes per minute 800-2,800spm
Power 720W
Net weight 2.5kg

Standard Equipment
Blades, hex wrench, anti splinter device, cover plate, dust nozzle, carry case.

180mm Angle Grinder
GA7040S
Grinding: 7.5m/s²
Wheel size 180mm
Bore size 22mm
Spindle size M14 x 2mm
No load speed 8,500rpm
Power 2,400W
Net weight 6.4kg

Standard Equipment
Lock nut wrench, AV side handle, wheel guard.

230mm Angle Grinder
GA9040S
Grinding: 5.5m/s²
Wheel size 230mm
Bore size 22mm
Spindle size M14 x 2mm
No load speed 6,600rpm
Power 2,400W
Net weight 6.7kg

Standard Equipment
Lock nut wrench, AV side handle, wheel guard.
Outdoor power

Makita has a wealth of experience in outdoor power equipment.

Makita, known internationally for quality and innovation within the powertool industry also have a long and illustrious history running through the outdoor power market.

In 1991 Makita acquired Dolmar and with this has gained valuable experience in the OPE market and can deliver even more innovation to the grounds care industry.

Makita are also leading the change with greener, cleaner and much more environmentally friendly approaches to the products we produce. We have introduced the MM4 4-Stroke engine, which produces fewer emissions and has less fuel consumption than the traditional 2-Stroke engine; the MM4 engine is therefore kinder to the pocket and kinder to the environment.

Making the job easier for the professional user.

43cc Petrol Chainsaw
DCS4301

Vibration: 3.6m/s²

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<thead>
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<th>specification</th>
<th>value</th>
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<tr>
<td>Bar length</td>
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<td>Cubic capacity</td>
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<tr>
<td>Horsepower</td>
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<td>Fuel tank capacity</td>
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<td>Weight</td>
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Standard Equipment
Universal wrench, guide bar, chain, chain protection cover, tool kit.

50cc Petrol Chainsaw
DCS5030

Vibration: 5.2m/s²

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<td>Cubic capacity</td>
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<td>Horsepower</td>
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<td>Fuel tank capacity</td>
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Standard Equipment
Guide bar, chain, universal wrench, chain protection cover, torx wrench, tool kit, hex wrench, screwdriver

90cc Petrol Chainsaw
DCS9010

Vibration: 6.7m/s²

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<td>Cubic capacity</td>
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<td>Horsepower</td>
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<td>Fuel tank capacity</td>
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<td>Weight</td>
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</table>

Standard Equipment
Guide bar, chain, universal wrench, chain protection cover, torx wrench, tool kit, hex wrench, screwdriver
Vibration dampening technology

Makita have developed a particularly effective system for damping engine vibrations: the Makita two-mass system known as M2M. The vibrating mass, consisting of the engine, bar and chain, is isolated from the other parts of the chain saw by vibration damper elements. The damping mass is thus greater and – in accordance with the physical law of inertia – more effective than simply damping the handles.

Scientific measurements carried out by various test institutes have confirmed the remarkable effectiveness of the M2M system. Effective vibration damping reduces the physical stress of working with a chain saw. The hands remain steady when cutting and the guide bar can be guided safely and accurately.

Vibrations are damped with the aid of heavy-duty steel springs that are built to last. They take up very little space and are completely unaffected by oil or petrol.

MM4 4-Stroke engine

Makita newly designed 4-Stroke engines offer: High performance, compact and light weight design, clean exhaust emissions, low running cost, easy maintenance and low noise advantages compared with equivalent size of 2-Stroke Engines.

Makita 4-Stroke Engine delivers high torque and horsepower. Max. Torque and horsepower of Makita 4-Stroke Engine are almost the same as those of an equivalent 2-Stroke engine.

Fuel consumption

Overall cost

Clean exhaust emissions

**Go Green**

**Standard Equipment**
Star blade, blade protection cover, tool kit, harness, guard.

**Standard Equipment**
Star blade, 2-piece hood, blade protection cover, tool kit, harness, guard.
Solutions

Committed to reducing health risks.

Makita are committed to providing solutions to the health risks arising from the use of power tools by introducing new technologies and dedicated solutions.

Anything that constitutes a risk to health or the environment is something we are working hard to resolve. Makita has invented and introduced AVT to help reduce the risks associated with vibration. M2M also reduces vibration in chainsaws and has been employed in our machines since 1972. Other introductions to the market such as our MM4 engine used in our outdoor power equipment has reduced emissions and fuel consumption making Makita’s tools greener and more efficient.

Powertool maintenance programme.

We have a more efficient service to ensure your tools work longer and harder: Service+.

Makita’s Service+ package offers 5 years of professional support ensuring your tools continue to work efficiently and longer. Dealing directly with Makita in support of your local supplier we can offer a truly national service and repair coverage. Reduce down time and increase the life of all of your Makita products.

2
Repair costs absolutely free for two years.

3
A three year cap on all repair costs.

5
Five years peace of mind.

Committed to reducing health risks.

Makita Solutions package, a comprehensive group of products to get the most from your Makita tools.

Solutions has been designed to help you keep your tools in prime condition, help you understand the risks of using powertools and offer you training to help you work effectively, efficiently and most of all safely.
Software solutions.

TOOLMINDER®, professional control for tools, plant and equipment.

TOOLMINDER® provides fingertip control of critical safety, maintenance and inspection records for power tools, plant and equipment.

Catalogue your assets, serial numbers, plant number, movements, location, status, condition, repairs, PAT test results, HAV data, WBV data, noise levels, PPE, dust extraction methods, HAVmeter data and many other related records.

Advanced PA Testing developments with Megger Limited for Hire Companies, Plant Departments and the Facilities Management industry offers a new solution for PAT records and PAT tagging.

TOOLMINDER® is scalable to meet the needs of users large and small with simple or complex requirements.

www.earlsmere.co.uk

Building towards a safer working practice.

Recognised in the power tool industry as the leading training provider, Makita are continuously looking to improve and expand the range of courses we offer.

With a dedicated training centre available at our Milton Keynes headquarters we can offer training tailored to your exact requirements whether product related on electric tools or petrol products, health and safety based for abrasive wheel or correct and safe use of portable power tools.
Makita Solutions package, a comprehensive group of products to get the most from your Makita tools.

Solutions has been designed to help you keep your tools in prime condition, help you understand the risks of using powertools and offer you training to help you work effectively, efficiently and most of all safely.

YOU WORK TO THE HIGHEST STANDARDS, SO DO OUR TOOLS.