

ecoPlus – Technology that really pays off



ecoPlus saves resources and costs



Energy, time, materials and labour are all precious resources. By employing them carefully you can boost productivity and save costs. This is where the new ecoPlus technologies of the HOMAG Group come into their own.

ecoPlus encompasses a whole raft of innovations designed to save energy and reduce your operating costs. On top of this, ecoPlus helps to reduce CO₂ emissions and so also plays a part in protecting the environment. The technologies form an integral part of nearly every machine produced by the HOMAG Group. You can recognise them at a glance: by the ecoPlus sign.



Contents

- 04 Four fields of action – 100 measures
- 06 Saving energy on standby
- 08 For smart savers: your HOMAG Group ecoPlus calculator
- 10 Always at your disposal: higher productivity
- 12 Reducing pressure – lowering consumption
- 14 Selective extraction technology
- 16 Powerful drive systems, frugal consumption
- 18 SORB TECH – greater stability, maximum precision
- 20 BARGSTEDT: intelligent material flow
- 22 BRANDT: state-of-the-art technologies and innovative drive systems
- 24 BÜTFERING: fine finish efficiency
- 26 FRIZ: savings across the board
- 28 HOLZMA: optimum material usage
- 30 HOLZMA: intelligent air tables thanks to sensor technology
- 32 HOLZMA: thin kerf saw blades
- 34 HOMAG: the laminating technology of the future
- 36 HOMAG: so that everything runs smoothly
- 38 HOMAG: edge gluing with **laser**Tec
- 40 HOMAG: efficiency for processing centres
- 42 HOMAG: always the right vacuum
- 44 HOMAG: the machine as powerhouse
- 46 LIGMATECH: integrating efficiency
- 48 TORWEGGE: tailored efficiency
- 50 WEEKE: on course for higher cost-effectiveness
- 52 WEINMANN: more economy for the house
- 54 Technology that benefits the environment

Four fields of action – 100 measures

You benefit fourfold from **ecoPlus**. Comprising more than 100 different measures, **ecoPlus** acts effectively in four scientifically defined fields of action*: its technologies improve your process stability, boost the energy and resource efficiency in your manufacturing processes, create self-contained cycles in your process chains and ensure loss-free infrastructure operation of your production systems. The bottom line: **ecoPlus** helps you to save in dozens of ways – despite increases in performance.



ecoPlus | Fields of action

Up to 30 % lower energy consumption with **ecoPlus**. You can save a great deal at no extra cost!

The fields of action

ecoPlus optimises your use of resources and your energy efficiency in four fields of action:*

1. Improved process stability

- Minimised set-up periods and downtime
- Avoidance of rejects

2. Efficient production processes

- Intelligent standby operation
- Process-dependent extraction and i-system
- Motors with the new, internationally recognised IE2 energy efficiency rating for enhanced efficiency and thus significantly lower energy consumption
- Development and deployment of innovative materials such as SORB TECH

3. Self-contained cycles

- Due to the use of modern production engineering for woodworking or lightweight panels

4. Loss-free infrastructure operation

- Optimisation of your extraction system, pneumatic system etc
- Utilisation of left-over wood and waste heat

Your benefit

The HOMAG GROUP **ecoPlus** package pays dividends in many respects. It allows you to save:

- energy
- material
- labour
- time
- and thus money

Efficiency example

How great the potential actually is, just considering energy consumption, can be demonstrated by taking a look at the entire picture.

A company that opts for HOMAG Group solutions, from saw and edge bander to processing centre and sander, can cut its energy consumption by up to 30 %!

This is achieved by a total of over 100 different measures in the **ecoPlus** package. Taken together, these technologies make your production much more profitable, while also protecting the environment. That's what counts, and that's what we understand by sustainability.

* Source: Fraunhofer-Gesellschaft

Saving energy on standby

One of the central components of the **ecoPlus** concept is the **standby function**. This puts the machine into an **energy-saving standby mode** – either automatically after a set period of time, or when the **ecoPlus button** is pressed. All the energy-consuming systems go into **sleep mode**. If you operate the machine or press the button again, the machine will return to its normal operating mode within a few seconds.



Resource: energy | **Standby button**

Your benefit

The new HOMAG Group **ecoPlus** button saves hard cash with its intelligent standby feature. This is an ideal solution for businesses where the machine does not need to work around the clock, but has to be available immediately if needed.

The standby function has already proved its worth many times. HOLZMA, for example, has been equipping several of its panel saw series with the **ecoPlus** button since 2009 – at first under the name of **ecoLine**.

The technology

The new **ecoPlus** button, together with its control lamp, is clearly visible on the control panel. In addition, many of the HOMAG Group machines automatically go into standby mode after a certain time interval has elapsed, even without a button. As soon as the standby mode is started...

- the machine halts normal operation,
- energy-consuming units are switched off,
- all servo drives are disconnected from the mains,
- a signal automatically deactivates the extraction system.

Efficiency example 1

HOMAG BMG 512 processing centre with a connected load of 26 kW:

- Standby operation alone can reduce energy consumption when the machine is idle by up to 8 160 kWh p.a.
- Up to 5.7 t less CO₂ per year
- Cost savings of up to €980 p.a.

Efficiency example 2

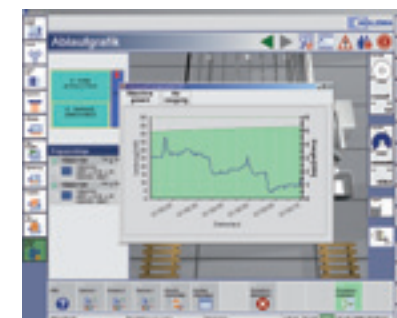
KF 520 sizing and edge banding system (complete furniture line) for lengthwise and crosswise processing:

- Connected load 350 kW including transport
- Yearly savings of up to 30 000 kWh
- Up to 21 t less CO₂ per year
- Cost savings of up to €3 700 p.a.

Efficiency example 3

Energy consumption at a glance

Anyone looking to increase the energy efficiency of their production process, needs to know the current consumption of their machine. It is precisely this information that the HOLZMA energy monitor provides, for example in the new panel saws of the 3 and 4 series. The CADmatic control software allows you to see, at any time, how much energy the saw needs for individual processing steps. Savings potential can be accurately pinpointed.



HOLZMA energy monitor

For smart savers: your HOMAG Group ecoPlus calculator

Would you like to know just how much you can save with ecoPlus? Then simply use our ecoPlus calculator. Select one of more than 30 machines – and the calculator will tell you by exactly how much you can reduce your energy consumption with our technologies. 30 per cent is easily possible!



ecoPlus calculator | Calculation

Your benefit

The **ecoPlus** calculator gives you a chance to see beforehand just how much you can save with **ecoPlus**. Transparency from the start – and without any obligations.

Ask your HOMAG Group sales consultant for more details.

Efficiency example

Savings of up to 15 000 kilowatt hours per year.

HOMAG processing centre 211 Venture 20 with ecoPlus ...

- reduces the energy input per workpiece by up to 20 %,
- cuts the annual energy consumption by up to 15 000 kWh and
- lowers CO₂ emissions by up to 11 t per year.

Our **ecoPlus** calculator reveals this and more. Why not give it a try!

The basis for the calculations

The following general conditions have been taken as a basis for quantifying the savings potential:

Electrical energy:

€0.12 per kWh (value varies with country and price scale)

Compressed air costs:

€0.04 per Nm³ at 6-7 bar

Extraction system:

Required electric power approx. 1.8 kW per 1 000 m³/h at 2 500 pascal negative pressure at the connection to the machine and 4 200 pascal negative pressure at the fan.

Utilisation:

We assume that the machine is in operation 50 weeks a year, five days a week, eight hours a day, in other words 40 hours a week in one-shift operation (or 80 hours a week in two-shift operation). In practice this will doubtless vary from company to company – we simply decided on this basis for the calculations.

Always at your disposal: higher productivity

Energy efficiency can also work the other way around: by producing more without increasing consumption. That is precisely how it is with machines from the HOMAG Group. Over the last eight to ten years, their productivity has risen on average by up to 30 per cent. The machines produce more in the same period of time – and use no more energy than before. This can be done, for instance, by implementing intelligent production processes, as the example of HOLZMA shows. Added to this now is the **ecoPlus** effect, which additionally reduces energy consumption.



ecoPlus availability | Productivity

Your benefit

Increasing output, more intelligent processes, more productive hours of operation – while consumption of energy and resources remains unchanged or even falls. That is what the new **ecoPlus** technologies promise, because they:

- guarantee a steady production flow
- prevent the capacity of individual components being exceeded and thus bottlenecks resulting
- free up machine operators, thus creating additional capacities for other tasks

More output for the same or less input, for example by reducing set-up periods by means of:

- woodLine
- woodScout
- the HSK push button
- the new QA 65 application unit

The technology

Optimised processes at HOLZMA:

Intelligent processes start with the feeding system and continue right through to destacking.

- Perfect saw/storage interface
- Cut Rite from HOLZMA is the best-selling optimisation software worldwide – delivering hard cash savings
- Power Concept
- Pressure beam height control and pre-positioning
- Cutting length limitation
- Simultaneous label printing
- Central side aligner
- AB-BA system for angular saws
- ... and much, much more

Efficiency example 1

HOMAG edge banding machines with the new QA 65 application unit for low glue level:

- Production time increased by up to 30 minutes per shift and up to 125 hours per year
- Cost savings: up to €17 500 p.a.

Efficiency example 2

BRANDT edge banding machine KDF 1680 profiLine with workpiece gap optimisation:

Calculation of the ideal gap between workpieces in relation to the feed speed and workpiece thickness guarantees an up to 20 % higher output for the same input.

Efficiency example 3

HOLZMA Power Concept:

The additional clamp, which can move independently of the program fence, covers peak demands and increases performance by up to 40 %.

The basis for the calculations

- Two-shift operation, heating up only performed once
- Machine-hour rate of €100–140

Reducing pressure – lowering consumption

Compressed air is a big issue for many machines – also with regards to energy efficiency. A whole range of measures play a part in reducing consumption here. Altogether, you can achieve annual savings running into four figures (in euros).



Resources: energy and material | Reduction in compressed air consumption

Your benefit

The amount of energy used to supply your machines with compressed air can be reduced by up to 40 %. This is achieved by optimising or eliminating consuming units.

The technology

HOLZMA panel saws:

- Shortening the length of the hose between valves and cylinders
- One instead of two cylinders for the lift drive of the main saw
- Scoring saw lifted by means of motor instead of pneumatic drive
- Dimensioning of clamp cylinders taking saw blade projection taken into account – thus avoiding unnecessarily filling unused cylinder capacity
- Reduction of cylinder diameter and capacity for pressure beam cylinders

The technology

HOMAG has implemented a series of measures to reduce compressed air consumption.

HOMAG processing centres:

- Automatic central lubrication using semi-fluid grease
- Use of optimised blowing nozzles, for example for better results in blowing away chips and dust
- Optimisation of design and processes

HOMAG throughfeed machines:

- Optimisation of the compressed air supply by using a dual-circuit pressure system
- Use of Laval nozzles
- Use of sensor system without cleaning air
- Improved use of cleaning air

Efficiency example 1

HOLZMA HPL 430:

- Implementing all the measures, including the options available for the compressed air sector, can achieve savings of up to 28 %
- Cost savings of up to €403 p.a.
- Energy consumption cut by up to 1 209 kWh p.a.
- Up to 0.85 t less CO₂ per year

The basis for calculation 1

- A cost of 0.04 €/Nm³ for compressed air
- One-shift operation
- Triple Mix cutting patterns
- Eight hours per shift
- 250 working days

Efficiency example 2

HOMAG KF 500:

- Depending on equipment, a savings potential of up to 25 % for compressed air
- Cost savings of up to €7 700 p.a.
- Energy consumption cut by up to 23 100 kWh p.a.
- Up to 16 t less CO₂ per year

The basis for calculation 2

- A cost of 0.04 €/Nm³ for compressed air
- Two-shift operation
- Eight hours per shift
- 250 working days

Selective extraction technology

The amount of energy required by extraction systems in woodworking applications has always been substantial – up to now. The new ecoPlus technologies of the HOMAG Group can reduce the energy consumed by the extraction system by up to 40 per cent.



Resources: energy and material | **Extraction**

Your benefit

Energy required for chip removal reduced by up to 40 %. Achieved by process-dependent, needs-based extraction concepts such as:

- individual flap control and two separate negative pressure areas
- i-tools
- multi-section extraction hoods
- tools with chip guidance and fitted extraction hoods

The technology

Process-dependent extraction controlled on the basis of individual flaps and with two separate negative pressure areas:

Every extraction unit that is not permanently in use has its own gate at the connection to the tool. This opens and closes automatically, depending on operating status.

Furthermore, there are two separate areas with controlled fans and different negative pressures. This allows the extraction of the individual units to operate as needed.

In order to coordinate when the extraction system is switched on and off precisely with the operation of the saw, HOLZMA has been equipping the panel saws of its 3 series with intelligently controlled switching contacts since 2009. As a result, the units are only activated when they are actually needed, which significantly reduces energy consumption.

Efficiency example 1

HOMAG KFL 326 with ecoPlus:

- Negative pressures: 2 500 Pa for finish processing, 1 800 Pa for sizing
- Savings: up to €4 000 p.a.
- Payback period for the additional investment: 2–3 years
- With control of the individual flaps

Efficiency example 2

Profile trimming unit with i-tools for a HOMAG edge banding machine:

- Extraction requirement cut by up to 3.8 million m³ a year
- Energy consumption reduced by up to 4 200 kWh p.a. or 47 %
- CO₂ emissions cut by up to 3 t a year
- Cost savings: up to €500 p.a.

Efficiency example 3

Machines for batch size 1 – bespoke furniture in series:

- Extraction output reduced by up to 25 to 30 % by using i-tools
- Controlled extraction for each unit
- Furthermore, cost-saving passive cooling without energy input

Efficiency example 4

HOLZMA has reduced the extraction volume required by up to 15 %:

- Optimisation of all components relevant to the extraction system
- New geometry of the saw carriage and the chip channel
- Cost savings of approx. €170 p.a.

Powerful drive systems, frugal consumption

Efficiency begins with the drive system. This is why the HOMAG Group has replaced all the three-phase asynchronous motors by new highly efficient motors with IE2 energy efficiency rating. In addition to this, HOLZMA, for example, employs frequency-controlled main saw motors, which allow the rotation speed to be individually matched to the material. Thanks to an integrated bypass circuit, the machine can still achieve short bursts of maximum power exceeding the rated kW.



Resource: energy | Drive systems

Your benefit

You save right from the word go with energy-efficient IE2 motors. Additionally, the HOLZMA frequency converter allows you to...

- process many different materials,
- process plastic sheets,
- set a high value on precision,
- cut large books,
- subject the saw to high loads for short periods – time and again.

The technology

IE2 motors:

Regulation (EC) No. 640/2009 applies in the European Union; there are other directives in place in other parts of the world. The key features:

- Higher degree of efficiency
- Therefore lower energy costs
- Lower thermal loads achieved by greater engineering precision
- Lower CO₂ emissions*

HOLZMA frequency converter:

The frequency converter improves the cut quality and prevents short-term overload operation of the motor. At the same time, the integrated bypass circuit allows you a high degree of flexibility: you can switch off the frequency converter and change to mains operation at the touch of a button. The ideal solution for short periods of high throughput or when processing very hard materials.

Efficiency example

HOLZMA HPL 380 with IE2 motor:

- With energy-efficient 18 kW main saw motor
- You can save up to €190 a year

HOLZMA frequency converter:

With a frequency-controlled 21 kW main saw motor and 50 per cent use of the bypass circuit you can save up to €36 a year.

* Applies to three-phase motors that are designed for 50 Hz or 50/60 Hz operation (for a more precise definition and exceptions please refer to Regulation (EC) No. 640/2009).

SORB TECH – greater stability, maximum precision

SORB TECH is a new material for machine construction and also part of the ecoPlus concept. We produce the frames for our machines, the “supporting platform” for the processing units and the support tables for the workpieces from this mineral material. SORB TECH stands for a low-vibration, stable machine design promising improved work results and maximum precision. Complete with savings potential.



New material | SORB TECH

Your benefit

Using SORB TECH for the “supporting platform” of your machine already reduces the primary energy input during manufacturing by a factor of three in comparison to using steel as construction material.

The advantages in day-to-day operation:

- Longer tool lives
- Higher feed speeds and faster acceleration
- Saves time
- Saves money

SORB TECH is used in manufacturing:

- BÜTFERING wide-belt sanding machines SWT 500 and SWT 900
- HOLZMA panel saws of the 5 series
- WEEKE CNC processing centre BMG 400
- HOMAG CNC processing centre BMG 500/600

The technology

SORB TECH absorbs vibrations extremely effectively, and its high weight allows it to dampen impacts in the machine almost entirely – and this is true of machines as different as CNC processing centres, saws, throughfeed machines and sanding machines. The result is faster acceleration coupled with improved precision and smoother operation.

The fibre-reinforced mineral mix also makes far more efficient use of energy and resources than steel does and offers significant cost advantages in comparison with a welded steel design.

Efficiency example

HOMAG BMG 511 processing centre with SORB TECH machine bed:

- Energy input reduced by up to 4.48 MWh/t*
- Energy input for machine bed reduced by up to 12.15 MWh/t*
- Energy savings of up to 63 %*

The basis for the calculations

With a view to resources, SORB TECH delivers a substantial gain in efficiency from the start, i.e. during its own manufacturing. The amount of primary energy required to produce a ton of steel is substantially higher than that needed to produce a ton of SORB TECH.

- Primary energy required to produce a ton of steel: 6.236 MWh/t
- Primary energy required to produce a ton of SORB TECH: 1.752 MWh/t

The bottom line: the production of a ton of steel requires 3.6 times more energy.**

** Sources:

- Stahl-online: Energiewirtschaft – CO₂-Monitoring der Stahlindustrie
- Agreement between the government of the Federal Republic of Germany and German Industry on climate targets

* In manufacturing the machine bed

Intelligent material flow

For an effective material flow, you need efficient machines. The new ecoPlus products are another step in BARGSTEDT's ongoing commitment to solutions offering low total operating costs. BARGSTEDT machines are known for their long service lives, low wear and low maintenance – equipped with ecoPlus features they also save energy and considerably reduce costs.



Your benefit

Increased process stability:

- Easy, reliable panel handling even when a wide variety of panels are involved
- No disruption of production caused by lack of material

Optimisation of the production process:

- The material flow is optimised – only those amounts that are going to be used in the near future are stored

Closed resource cycles:

- Shorter delivery periods allow just-in-time purchasing
- Optimum use of left-over material cuts material costs

Loss-free infrastructure operation:

- Savings in human resources – the jobs of cutting and preparing material are dealt with separately
- Automated transport ensures high utilisation of the processing machines
- Material as a whole is managed, not just what is in stock

The technology

The more efficiently a company deals with resources, the higher the added value achieved by its products.

BARGSTEDT provides its customers with logistic solutions that optimise the entire material flow, from the receiving of the goods to the processing machine, and also make efficient use of available resources.

- Reduction of the moving masses
- Intermediate circuit compensation around the gantry
- Intelligent standby operation
- Optimised compressed air consumption for parts handling
- Ultrasonic sensors for low compressed air consumption
- Integration of storage system, saw, offcuts store and cutting pattern optimisation
- High degree of process reliability in separating parts
- Fewer storage movements

Efficiency example

TLF 210 horizontal storage system with ecoPlus:

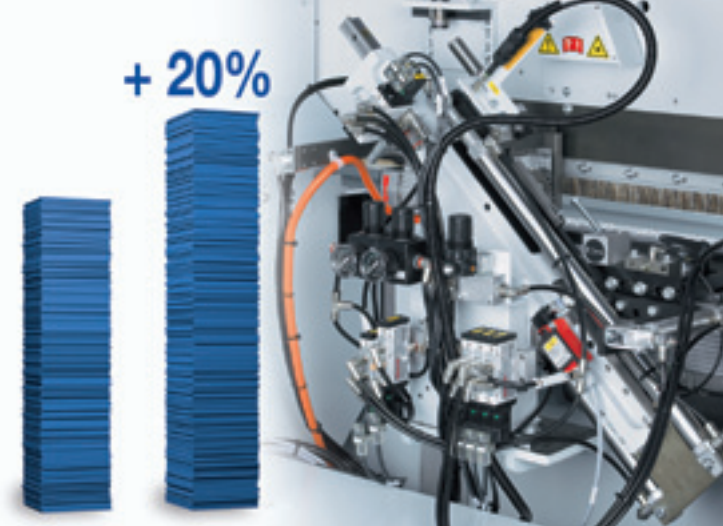
- Savings of up to 58 % achieved by intelligent standby operation
- Savings of up to 50 % achieved by use of ultrasonic sensors
- Savings of up to €14 000 achieved by reliable parts handling (books of thin panels, weight measurement); the operator does not need to intervene

The basis for the calculations

- Total output of the three axes: 7 kW
- Based on one shift a day
- Up to 480 panels possible per shift
- The storage system pays off from a quantity of 30 panels per shift, on the basis of 60 s per travel movement and upwards of 200 movements per shift

State-of-the-art technologies and innovative drive systems

BRANDT utilises many of the ecoPlus technologies to improve your balance sheet: innovative drive systems optimise the output-to-consumption ratio. State-of-the-art sheet-type heating elements shorten the heat-up period in the gluing unit. On top of that, intelligent management of the control voltage lowers energy consumption during interruptions to work or breaks.



BRANDT shipping unit with workpiece gap optimisation

BRANDT | Resource efficiency

Your benefit

- Reliable processes due to the use of servomotors: reduced set-up periods and downtime
- Intelligent standby operation saves on compressed air, extraction and energy costs
- More efficient production in the same processing time: optimisation achieved by adapting workpiece gaps to match the feed
- Optimised gluing system: development and implementation of innovative heating technology

The technology

- Standby operation is automatically activated after machine has been idle for 15 minutes
- Savings due to dual-circuit pressure system
- Flat heating elements in the QA 45 gluing system for shorter heat-up period
- Online help minimises downtime
- IE2 motors for efficient energy yields
- Optimisation of workpiece gaps for higher output in the same processing time
- Use of energy-saving tubes
- Automatic central lubrication of the feed chain reduces frictional resistance
- Minimum edge overhangs achieved by adaptive control technology
- Line-controlled blow-off device reduces air consumption

Efficiency example 1

BRANDT edge banding machine Highflex 1880:

- More output for the same energy input by reducing the gaps
- An up to 20 % increase in manufacturing capacity in the same period of time
- Dual-circuit compressed air system reduces air consumption by up to 40 %

The basis for calculation 1

The calculated savings indicated here are based on the following assumptions:

- 8 hours a day
- 250 working days
- A cost of 0.12 €/kWh for electricity
- A cost of 0.04 €/Nm³ for compressed air
- Feed rate of 20 m/min

Efficiency example 2

BRANDT edge banding machine Highflex 1440:

- Use of synchronous motors
- Air consumption reduced by up to 40 % due to dual-circuit compressed air system
- Minimum set-up periods and downtime due to automatic edge infeed

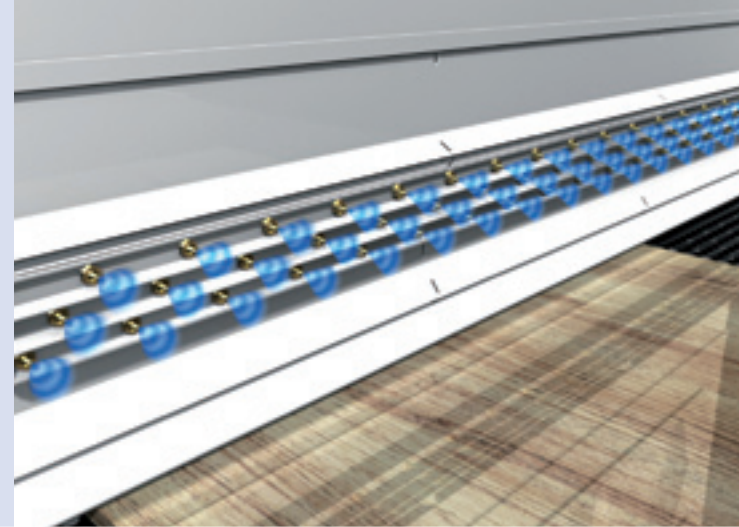
The basis for calculation 2

The calculated savings indicated here are based on the following assumptions:

- 4 hours a day
- 250 working days
- A cost of 0.12 €/kWh for electricity
- A cost of 0.04 €/Nm³ for compressed air
- Feed rate of 14 m/min

Fine finish efficiency

Innovative solutions for every type of sanding task – that’s what you expect from BÜTFERING. And for us innovation also includes resource efficiency. Whether wide-belt sanding machines or solutions for sanding panel-shaped workpieces: BÜTFERING and ecoPlus save you money at every step.



Air jet cleaning of sanding belt

BÜTFERING | Resource efficiency

Your benefit

- Electricity consumption reduced while maintaining the same output
- Reduced extraction requirement and improved dust extraction
- Reduction of the air output of the work-piece suction device
- Lower heating costs
- Reduced compressed air consumption

The technology

- Integrated sanding belt blasting device
- Automatic activation of standby mode when machine is idle
- IE2 motors
- Area-related control of vacuum
- Reduction of the no-load current in variable frequency drive operation
- Five-stage control of the sanding belt blasting device
- 3-section extraction hoods with individually controlled blast gates

Efficiency example 1

Series 300 with ecoPlus:

- Annual energy savings in the range of 18 000 kWh achieved by lowering the extraction volume
- Electricity consumption reduced by approx. 12 000 kWh p.a.
- Energy requirements cut by approx. 8 000 kWh by controlled vacuum output and reduced air output

Efficiency example 2

BÜTFERING 5-belt sanding machine SWT 955:

Equipped with variable frequency drives and vacuum, powerful 140 kW machine with SORB TECH machine frame:

- Savings potential of up to 35 %
- Energy consumption cut by up to 2 900 kWh
- Up to 2 t less CO₂
- Cost savings of up to €4 700 achieved by application-dependent air-jet belt cleaning device

Savings across the board

The core areas of FRIZ Kaschiertechnik are profile wrapping and surface lamination. The company has been supplying special-purpose machines to the furniture and structural elements industry since 1906. In all its activities, FRIZ strives towards a single goal: to laminate your products faster, more economically and more flexibly. The energy-saving technologies of the ecoPlus package are exactly the right approach.



The parabolic heater provides precision heating with no loss due to dissipation

FRIZ | Resource efficiency

Your benefit

- Energy savings of up to 60 % achieved by using new generation heaters
- Precision heating with no loss due to dissipation
- Bonding of the surface already covered remains intact
- Additional energy savings with standby feature

The technology

- Intelligent standby operation with the **ecoPlus** blutton
- New generation parabolic heater with parallel outgoing rays. When wrapping the profile edges, only the area required is heated, i.e. there is no loss due to dissipation
- Precision heating, with no detrimental effects on the bonding of the surface that has already been wrapped

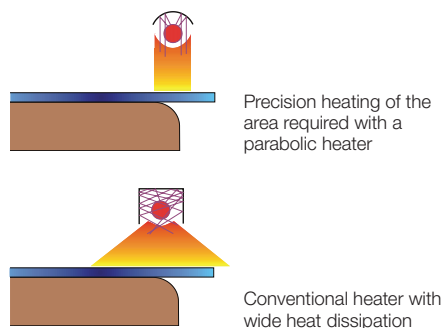
Efficiency example

Profi PUM 310 with ecoPlus:

- Savings potential of up to 80 % or 4 000 kWh due to standby operation
- Savings potential of up to 60 % or 16 000 kWh p.a. due to parabolic heater
- Up to 16 t less CO₂ per year
- Total savings of up to €2 900 p.a.

The basis for the calculations

Standby operation approx. 800 h/year



Optimum material usage

HOLZMA panel saws are particularly powerful and efficient – this begins with material usage. Every reject and every cutting scrap is wasted capital. This is why HOLZMA has developed tailored technologies to process material gently and efficiently.



Thanks to innovative technologies from HOLZMA, even very demanding materials can be processed gently and efficiently

HOLZMA | Material

Your benefit

HOLZMA technologies allow you to process material gently, thus avoiding waste and reducing costs.

The technology

HOLZMA has developed many different solutions for everyday requirements that allow you to save material and systematically optimise your production processes. These include:

- Cut Rite, the worldwide leading software for cutting pattern optimisation. A proprietary HOLZMA product
- Solutions for scratch-sensitive surfaces
- Solutions for pressure-sensitive material
- Special technologies for processing plastics, for example the HOLZMA minimum quantity spraying device
- Individual adjustment of the saw depending on the material – controlled fully automatically
- Main saw motors with frequency converter improve cut quality, because the saw blade rotation speed can be precisely adjusted to the material
- And much more

Efficiency example

The use of an optimisation program can save you over €14 000 a year.

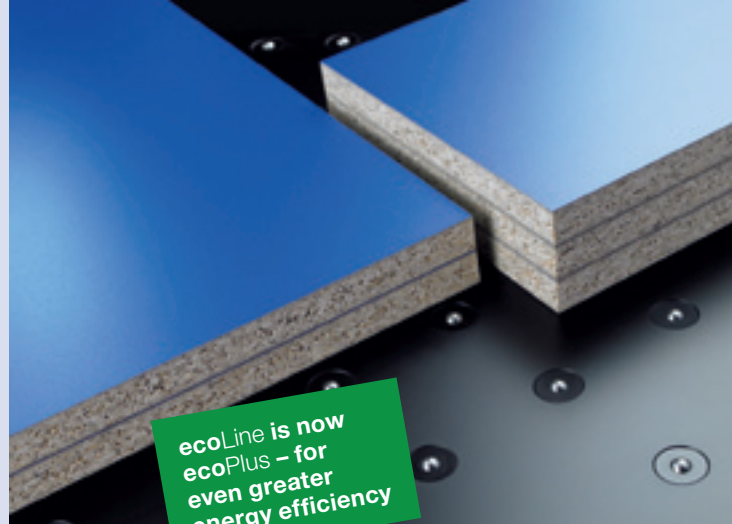
- Material savings: 5 %, equates to €6 960 a year
- Time saved: 240 hours a year
- Savings on wages and ancillary labour costs due to automatic cutting pattern creation: €7 200 a year

The basis for the calculations

- 20 half-format panels per day
- 240 working days per year
- Price of the panels: 5 €/m², equates to €580 per day
- Wages and ancillary labour costs: €30 an hour

Intelligent air tables thanks to sensor technology

HOLZMA air tables protect the material and facilitate handling. The air that streams out of the jets is always the right amount to allow single panels as well as heavy books to be moved effortlessly. What is new is that now only as much air pressure is built up as is really required for the panel material on the table. This is achieved by the “load-dependent air table control”, which is available as an optional extra.



Intelligent air table with load-dependent control

Your benefit

The load-dependent air table control ...

- protects the panel material,
- saves energy by regulating the air fan power on a needs basis,
- reduces noise,
- ensures optimal handling and ergonomic working conditions,
- minimises draughts.

Another advantage of all HOLZMA air tables: the sealing balls are spring-loaded and so close automatically when not under a load. This minimises dust emission.

The technology

The load-dependent air table control from HOLZMA works with pressure sensors. They detect whether there is any material lying on the air table and then increase the speed of the fan motor until the ideal operating pressure for the air table is attained.

If there is no material on the air table, the fan power is automatically reduced to an individually adjustable idle pressure. That saves energy costs and at the same time reduces the noise level.

Efficiency example

Depending on mode of operation and air table size, you can save up to €144 a year.

Thin kerf saw blades

The thinner the saw blade, the lower the energy consumption of the main saw motor. If the material is suitable, you should therefore use as thin saw blades as possible.



Thin kerf saw blades reduce energy consumption and waste

HOLZMA | Thin kerf saw blades

Your benefit

Thinner saw blades from HOLZMA ...

- cut the energy consumption of the saw,
- allow trouble-free blade changing with the HOLZMA Power Loc system, fast and as needed – even with differing blade plate thicknesses,
- reduce waste.

The technology

Comprehensive studies undertaken by HOLZMA have shown: if a saw blade with a standard 4.8 mm thickness is replaced by a saw blade that is only 3.8 mm thick, the power required for a two metre long cut through a 5 x 16 mm thick book of chipboard panels is reduced by up to 20 %.

Efficiency example

HOLZMA HPL 380:

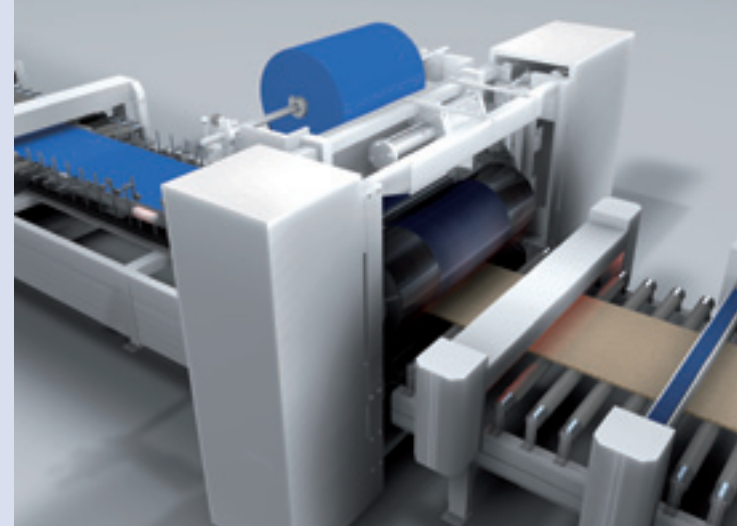
Using a saw blade with a 3.8 mm kerf, in comparison to a 4.8 mm thick saw blade, can save you up to €230.

The basis for the calculations

- One-shift operation
- Triple Mix cutting patterns
- 8 hours per shift
- 250 working days
- A cost of 0.12 €/kWh for electricity
- Triple Mix operation, 80 mm high book of panels, saw carriage speed of 50 m/min

The laminating technology of the future

With **reactTec** furniture laminating, HOMAG throughfeed machines are redefining quality and economy in the manufacturing of construction elements and furniture. Developed in cooperation with Henkel and Nordson, **reactTec** scores high in nearly all important criteria. This innovative technology combines the advantages of the hot melt process with the benefits of other methods. **reactTec** impresses not only with low manufacturing costs but also with a high degree of environmental compatibility.



The heart of the **reactTec** furniture laminating process: calender rolls

Your benefit

- The amount of glue applied can be reduced by up to 20 g/m²
- Low production costs
- Significantly improved surface quality
- High process stability due to “simple” technology
- Performance characteristics on par with urea
- As user-friendly as hot melt
- No formaldehyde emission

The technology

- New hot-sealing adhesive with high temperature and moisture resistance
- Innovative hot melt application system: new generation wide slit nozzle technology
- New machine design

Efficiency example

The **reactTec** technique reduces your energy consumption by up to 50 % or more than one million kWh a year. In the same period of time you can cut CO₂ emissions by up to 700t and save up to €120 000 on energy costs.

In addition to these savings, you also benefit from higher productivity with fewer rejects. The process as a whole can deliver yearly savings of up to €400 000.*

* In the in-line method in comparison with urea

So that everything runs smoothly

HOMAG throughfeed machines are team players: they integrate seamlessly into your production line and boost productivity. The fact that this can be perfectly combined with resource efficiency is demonstrated by the new ecoPlus models. These models reduce consumption and ensure a high degree of energy efficiency with a number of standby options. In addition, the new laser technique laserTec sets new standards in edge banding, significantly enhancing product quality and lowering costs.



doubleEdge effect on edge banding machine

Your benefit

- Savings in time, material and energy – and consequently higher productivity and greater flexibility in your budget
- Enhanced process stability achieved by minimising set-up times, non-productive time and downtime
- More efficient production processes due to the development and deployment of innovative manufacturing technologies

The technology

Standard:

- Intelligent stand-by operation after a preset time interval
- Temperature of heaters automatically lowered to reduce electricity consumption
- Shorter heat-up periods with QA 65 for increased productivity
- Energy-efficient machine lighting
- Sensor system without cleaning air for reduced compressed air consumption
- Servo edge feed for lower edge banding consumption
- Use of modern, local control technology achieves savings due to passive cooling, minimised leakage currents and less use of copper
- Energy-efficient impedance matching transformers
- IE2 drive motors as defined by EC Directive, HOMAG already meets these requirements, which will not come into force until 1 January 2017
- i-tools in most of the refinishing units for lower extraction output and improved chip capture

The technology

As option:

- laserTec
- Optimisation of the compressed air supply by using a dual-circuit pressure system
- Measuring and display of compressed air consumption
- Measuring and display of electrical energy consumption
- HSK 63 push button
- Quality inspection systems
- woodLine
- woodScout
- Timer
- Process-dependent control of individual flaps
- Synchronous motors for dynamic refinishing units
- Tool-adjusted dust hoods
- MMR – Machine Monitoring & Reporting: for systematic acquisition and analysis of all machine data

Efficiency example

HOMAG sizing and edge banding machine OKFL 326/C:

- Savings potential of up to 25 %
- Cost savings of up to €14 600 p.a.
- Consumption cut by up to 77 000 kWh p.a.
- Up to 54 t less CO₂ per year

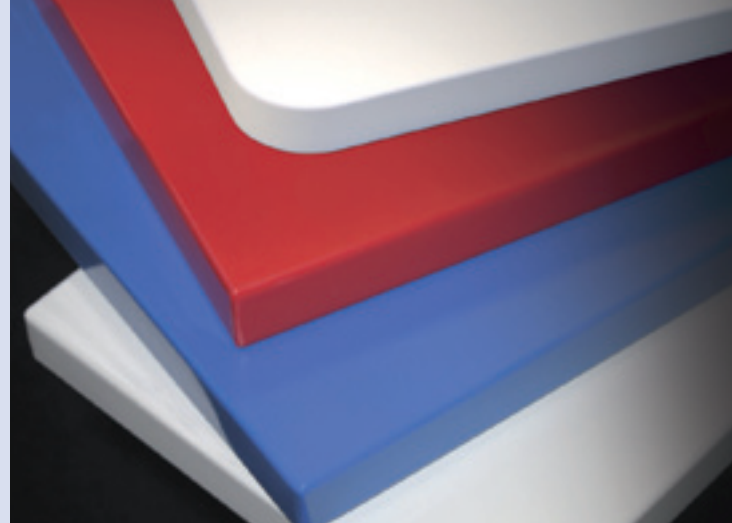
The basis for the calculations

The calculated savings indicated here are based on the following assumptions:

- Two-shift operation
- 8 hours per shift
- 250 working days
- A cost of 0.12 €/kWh for electricity
- A cost of 0.04 €/Nm³ for compressed air

Edge gluing with laserTec

HOMAG laserTec is a completely new manufacturing technique for edge gluing – revolutionary in its quality, efficiency and economy. The innovation: laserTec entirely eliminates the need to use conventional adhesives. Instead, a laser simply melts a special adhesive coating on the edging, which can then bond to the counterpart for a joint-free, long-lasting result – absolutely precise and very easy to operate.



Joint-free workpieces

HOMAG | laserTec

Your benefit

- Percentage of rejects reduced
- Simple operating processes
- Lower additional costs
- Maximum level of availability
- No logistical cost for glues
- No complicated manual entries
- No auxiliary materials such as separating agents and cleaning agents
- No waiting periods and set-up work for colour changes
- No energy consumption without productive results
- Unlike when using hot-melt glue application units, there are no contamination or cleaning problems

The technology

In comparison with conventional gluing methods, HOMAG **laserTec** is a clear winner: with this method, a special adhesive coating on the edging is melted by a laser beam – and then pressed directly onto the workpiece. An oscillating mirror automatically deflects the laser beam to the required height, depending on the thickness of the edging. This simplifies processing enormously.

HOMAG continues to increase the efficiency by ongoing optimisation of the laser system.

Efficiency example 1

In comparison with the conventional hot melt adhesive technology on through-feed machines:

- **laserTec** saves up to 36 911 kWh p.a.
- Energy savings: more than 40 %
- Reduction in CO₂ emissions: up to 26 t per year
- Cost savings: up to €4 430 p.a.

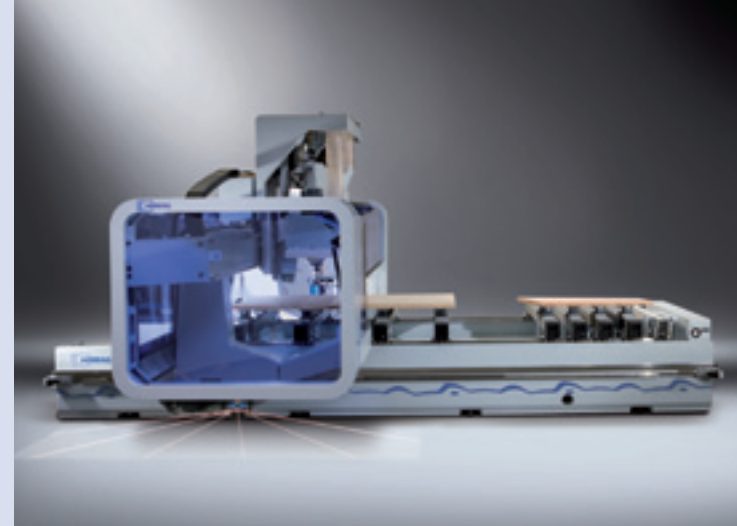
Efficiency example 2

In comparison with the conventional hot melt adhesive technology on CNC processing centres:

- **laserTec** saves up to 2 250 kWh p.a.
- Energy savings: more than 20 %
- Reduction in CO₂ emissions: up to 1.6 t per year
- Cost savings: up to €270 p.a.

Efficiency for processing centres

HOMAG CNC processing centres are powerful “one-man-armies”: they saw, drill, trim and deliver top performance. They are, as it were, a separate item in the balance sheet: the productivity and consumption figures cannot be “pushed” onto a production line; they stand alone. What a good thing that ecoPlus scores high with plenty of efficiency here too.



HOMAG CNC processing centre
BMG 512

HOMAG stationary technology | Resource efficiency

Your benefit

Low consumption:

Optimised machine components reduce the consumption of compressed air, extraction system and electrical energy. In comparison with conventional systems, the automatic, hydraulically-based central lubrication system leaves very few traces of lubricant on the machines and workpieces.

Efficient workpiece programming:

Programming and producing without testing with HOMAG software modules. Saves time, saves material for test parts and avoids rejects.

Fast set-up:

Time savings of up to 70 % for set-up and checking “at a glance” with the help of LED indicators.

Reduction of non-productive time:

Software modules monitor the machine and prevent collisions. Malfunctions are quickly detected, located and remedied.

The technology

Built-in efficiency:

HOMAG CNC processing centres work with an automatic central lubrication system on a hydraulic principle, which needs no additional compressed air. Semi-fluid grease with optimised additives evenly lubricates and seals all the lubrication points.

Optimised air jets and processes additionally lower the consumption of compressed air.

HOMAG software for CNC processing centres makes sure your way to the finished part is fast, simple and reliable.

woodNest: makes optimum use of the raw panel by nesting the parts to the best advantage.

woodMotion: simulates processing programs on the basis of the original machine data. Need for trials is eliminated.

woodWOP Wizard with technology database: creates programs for edge banding almost entirely automatically, with any adjustments to the parameters for edging material and contour that may be necessary.

The technology

collisionControl: permanently monitors for potential collisions between machine components and spindle directly on the machine.

woodScout: helps errors to be recognised, located and remedied quickly.

Spindle sensor: detects critical vibrations in good time and thus prevents chatter marks or parts being released due to insufficient clamping

Intelligent set-up aids: patented LED displays on consoles and machine frames for easy and fast positioning of the vacuum clamps and consoles.

Efficiency example

HOMAG CNC processing centres with ecoPlus semi-fluid grease lubrication:

- Up to 67 200 Nm³ less compressed air per year
- 100 % savings in compressed air consumption in comparison with oil-air lubrication
- Up to 5.64 t less CO₂ per year

The basis for the calculations

- Semi-fluid grease lubrication: savings in compressed air of, on average, 350 NI/min compared with oil-air central lubrication
- Oil-air central lubrication on-time: approx. 80 %

Always the right vacuum

The pumps of the HOMAG CNC processing centres, which work with high-volume vacuum generation, are equipped with variable speed control. Sensors measure the current negative pressure and control the air flow of the pumps as needed. The machine only uses as much energy as is necessary, even during interruptions and set-up periods, or when only a low volume is needed.



Panel material is held in position by suction for efficient vacuum production.

HOMAG stationary technology | Vacuum control

Your benefit

Needs-based control of vacuum generation matches the output to the current situation.

This way you never use more than is necessary, even if demand varies. This is of particular advantage for the following examples:

- Nesting processing
- Use of reinforced pumps
- Use of a certain quantity of porous materials
- Greatly varying part dimensions

The technology

Speed-controlled vacuum pumps with frequency converters in conjunction with an intelligent closed-loop control adjust the volume output to match the current need.

Multi-pump systems with intelligent activation and deactivation of individual pumps on a needs basis.

Efficiency example

HOMAG CNC processing centres with speed-controlled vacuum pumps:

- Energy savings: up to 6 320 kWh p.a.
- Up to 4.4 t less CO₂ per year
- Cost savings: up to €750 p.a.

The basis for the calculations

- Two-shift operation
- 8 hours per shift
- 250 working days
- A cost of 0.12 €/kWh for electricity
- A cost of 0.04 €/Nm³ for compressed air

The machine as powerhouse

A machine does not only consume energy – it also produces it. The electrical energy generated by braking the spindles and drives in HOMAG CNC processing centres can now be fed back into the grid. That lowers consumption, without requiring any preparations on the power supply.



Making good use of available energy – by intelligent energy recovery

HOMAG stationary technology | **Energy recovery**

Your benefit

Electrical energy resulting from braking drives and spindles can be recovered instead of being given off in the form of thermal energy.

This is of particular interest for short processing cycles with frequent tool changes.

The technology

Energy recovery:

The energy released in the machine during braking processes is systematically harvested by feeding the intermediate circuit voltage of the frequency converters back into the grid.

All the devices required are present in the machine, and no adjustments or other measures are required for the factory's power supply.

Efficiency example

Energy recovery with HOMAG CNC processing centres:

- Energy recovered: up to 3 200 kWh p.a.
- Up to 2.2 t less CO₂ per year
- Cost savings: up to €384 p.a.

Integrating efficiency

Assembly, packaging, automation – these are the areas of expertise that make LIGMATECH market leader in the wood-processing industry. In all these areas, the subsidiary of the HOMAG Group delivers production solutions designed for the future. Cost-effectiveness is at the top of the list, for customers and the company alike. The new ecoPlus technologies allow LIGMATECH to integrate efficiency and savings possibilities right from the start.



Wear-free zero-edge trimming cut

Your benefit

New VKS 200 cutting machine:

- Perfect fit, smallest possible box for any product combination
- No additional filling material required

New VKV 080 closing station for ultra-flat workpieces using wet-adhesive bonding method:

- Advantage of paper adhesive tape: same raw material as cardboard boxes --> no waste separation

New VKF 100 box-folding machine:

- Reduced operating costs due to optimised technology

ZHR 100 return system:

- Reduced operating costs achieved by reducing the number of drive motors

The technology

- VKS 200: wear-free zero-edge trimming cut – protects tool
- VKF 100: multi-functional processing of widely varying sizes of cardboard material (sheets and endless cardboard), fewer consumers and therefore little or no air consumption, fewer heated glue hoses and gluing heads
- ZHR 100: one-man operation of the edge-gluing machines, a central drive system for the complete machine, gentle material handling
- Control system: intelligent tracking system for parts – drive systems of the roller conveyors are only active if a part is actually present – lower energy costs

Efficiency example

VKF 100 with ecoPlus:

- Potential savings of up to 53 % due to lower air consumption
- Potential savings of up to 56 % or 15 200 kWh p.a. due to reducing the heating output
- Total savings of up to €4 321 p.a.

Tailored efficiency

How is a door leaf or a composite panel made? The most efficient answer is given by TORWEGGE. The subsidiary of the HOMAG Group offers tailor-made solutions for panel manufacturing and wood processing. The spectrum ranges from compact manual units to automatic system solutions for large-scale industry. The **ecoPlus** technologies provide a maximum of efficiency. That is how TORWEGGE gets wood into shape – and puts energy in the green.



Compression jaw system of a PWR composite panel unit

Your benefit

- Substantially reduced extraction outputs on the composite panel machines
- Significantly improved energy balance of the workpieces produced
- Process duration shortened by using PUR adhesives
- Lower costs for machine installation in the customer's factory due to machine technology without the use of compressed air, therefore lower consumption costs

The technology

- No compressed air
- Optimised geometry for the extraction system
- Process technology
- **ecoPlus** button for standby mode
- Extraction and pneumatic system controlled by process/employee
- Precision heating, with no detrimental effects on the bonding of areas that have already been wrapped

Efficiency example

PWR 100:

- Reduced adhesive consumption due to highly efficient compression jaw system
- Reduction of heating output and thermo-oil requirement due to innovative heating system
- Energy consumption significantly cut by pressing the materials without the addition of heat
- Compressed air savings achieved by mechanical pressurisation in the calender and in the glue application unit, resulting in annual savings of up to €480
- Reduction of the extraction output required due to changes in the extraction geometry, therefore yearly savings of up to €150
- Saving of resources by use of composite materials, e.g. due to hollow construction

On course for higher cost-effectiveness

Wherever wood has to be drilled, grooved or routed, WEEKE is the specialist you need. In addition to precision drilling, WEEKE also offers a raft of ecoPlus measures designed to save important resources. Whether energy, material, time or space – in contrast to the past, WEEKE opens up enormous savings potential with the new technologies.



ecoPlus saves natural resources and hard cash

WEEKE | Resource efficiency

Your benefit

- Savings in time, material, energy and space ensure greater flexibility in your budget
- Products using SORB TECH boast an 80 % faster absorption of vibrations
- Potential for alternative investments
- Potential to increase your profitability
- “Greener” production

The technology

- Standby mode: with **ecoPlus** button, or automatic...
 - switch-off of motors for drilling and routing
 - switch-off of conveyor belts
 - closing of extraction system
 - switch-off of conveyor belt for chips
- SORB TECH
- Program-controlled multi-position extraction points
- Intelligent, energy-efficient vacuum system
- Clamp system instead of vacuum system in the entire BHX series
- Frequency-controlled drives

Efficiency example

Drilling, grooving and routing machine WEEKE BHX 055 with ecoPlus:

- Maximum 11.5 kW connected electrical load with a workpiece weight of 35 kg, resulting in energy savings for compressed air, electricity, extraction output and vacuum
- Without set-up work and test parts for 70 % of the parts to be manufactured
- Extraction output reduced by up to 2 780 m³/h

More economy for the house

Wood as building material for houses – that means: a lot of material and very high demands. All the more reason for particular attention to be paid to the economical use of resources. WEINMANN excels here and has integrated a whole range of ecoPlus technologies in its products. For wood processing on a grand scale – with relatively low energy costs.



High tech for timber construction: the new, innovative Combi Wall System WEK 100 from WEINMANN

WEINMANN | Resource efficiency

Your benefit

- Less cleaning time required for the machine
- Increased tool life
- Less dust exposure
- Cost savings
- Improved operational safety
- High time savings

The technology

- Energy savings due to needs-based extraction
- The extraction systems delivers a negative pressure of 1 800 pascal to the machine; the difference in pressure up to 2 500 pascal for finishing is generated, for example, by supporting fans
- Scope of delivery from WEINMANN:
 - Software for the PLC control
 - Digital I/O interface to activate the extraction system
- Scope of delivery of the extraction system supplier:
 - Complete, frequency-controlled extraction system including all flaps
 - Digital I/O interface to activate the extraction system
- Reduction of the extraction output and cleaning required for the machine and workpieces, coupled with improved chip capture due to tools with chip guidance and fitted extraction hoods

Efficiency example

WEK 100 Combi Wall System

- Extraction costs reduced by 90 %
- Savings potential of 8 380 kWh due to intelligent control of the extraction system
- This equates to a savings of €1 005 p.a. and a savings potential for CO₂ in the range of 5.9 t

Extraction costs reduced by 90 %!

The basis for the calculations

- Two-shift operation
- 8 hours per shift
- 250 working days
- A cost of 0.12 €/kWh for electricity
- A cost of 0.04 €/Nm³ for compressed air

Technology that benefits the environment

ecoPlus demonstrates very impressively: output and economy can well be combined. The technologies use energy intelligently – that is what spurs us on, that is why we set the standard, across the entire industry, for more efficiency and increasing potential for savings. In this way ecoPlus benefits the environment and your budget. Excellent prospects for today, tomorrow and the future.



“As a company group playing an active role on the world stage we accept responsibility – for the success of our customers and for the conservation of our environment. **ecoPlus** is a visible sign of this commitment.”

Jürgen Köppel, Director of Sales, Marketing and Service for the HOMAG Group AG



**Choose the Original
Choose Success!**

For the Success of Original Technology
A VDMA Campaign



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