



IMA SCHELLING
GROUP



IMA Schelling HPO

**Optimize cutting
patterns.**

imaschelling.com

GET THE MOST FROM BOTH MATERIAL AND MACHINE.



HPO stands for High Performance Optimization. In this case, that means the optimization of cutting patterns. For IMA Schelling users, it opens the door to more efficient production. Because this complex, ground-breaking and simultaneously easy-to-use software gets the most out of both the board and your machine. Boards can be used at up to 98 % of full use, and sawing times are reduced to a minimum. And whenever speed and material utilisation are at odds with one another, the program can select the most cost-effective production technique however you require. With numerous features that make work efficient and easy, and many intelligent functions added in comparison with earlier versions.

Optimize cutting patterns and earn more

HPO cutting pattern optimization means money. Because it makes a direct contribution to getting more profit from material, machine and working time. And it helps you get order data under control, too.

Each IMA Schelling saw has a simple control system as a standard feature, that does permit the cut-to-size of boards to be programmed, but doesn't optimize the cutting patterns.

To save material, time and money, you need a more complex program – the IMA Schelling HPO software. Depending on the cost of material, machine and labour, optimization can set its focus in different places:

For high-priced materials, the maximum utilisation of a board is top priority, while for high machine or labour costs the maximum output in the minimum time may be more important. When both are important, the system can optimize for total cost.

The basic prerequisite for optimization are rectangular formats for the master boards, as well as parts lists specifying length and width and the quantity required.

In addition to optimizing scrap and output, the expected cutting time is also calculated, depending on cutting heights and the portion of manual labour.

IMA Schelling HPO can also be automated, and integrated into an automated environment.

Automatic, continuous data flow

The HPO optimization program automatically creates complete NC data for all IMA Schelling machines and peripheral components, such as automatic area storage, cut-to-size saws, cut-to-size plants, lot-size-1 systems and sorting and stacking plants.

HPO can also be integrated with all current ERP and PPS systems. It doesn't simply optimize, but also permits largely automated processes.

Numerous languages thanks to Unicode

IMA Schelling HPO is programmed in Unicode and is therefore available in all important languages. All EU languages are offered with the standard product, but Chinese, Hebrew and Cyrillic alphabets are also no problem. All other languages can be implemented optionally.

The right license for every productivity desire.

HPO E(x)

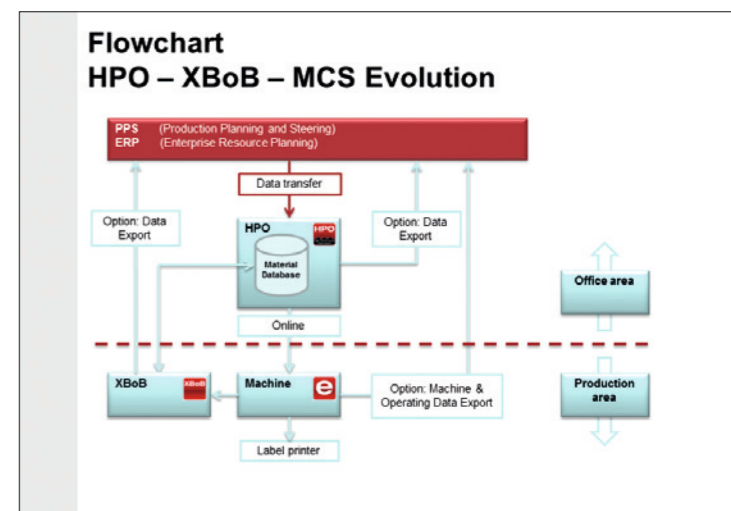
- Single-user version
- Associated with one PC
- Installation on the local hard drive
- Not network- or terminal-server-capable

HPO TS(x)

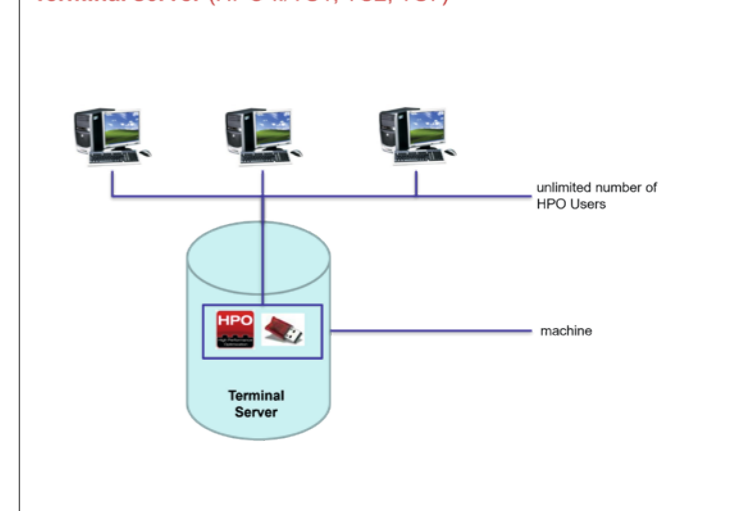
- Network version
- Terminal server/remote desktop version (one license)
- Cloud computing: HPO is installed on a remote server and accessed through a network connection
- Lower technical requirements for the terminal device
- Functionality identical to HPO N(x)

HPO optimization on the saw

- Cutting pattern optimization directly on the saw



Terminal server (HPO ../TS1, TS2, TS7)



EASY-TO-USE SOFTWARE ADAPTED TO THE LATEST HARDWARE.



Graphically clean and easy to understand

The experience of two decades has gone into IMA Schelling HPO. Its look and feel are based on Windows applications and it runs on current Windows operating systems. It is easy and intuitive to operate. Even in its basic variant, the scope of functionality it provides is very broad. HPO is a total software package that can handle most application cases without the purchase of optional features.

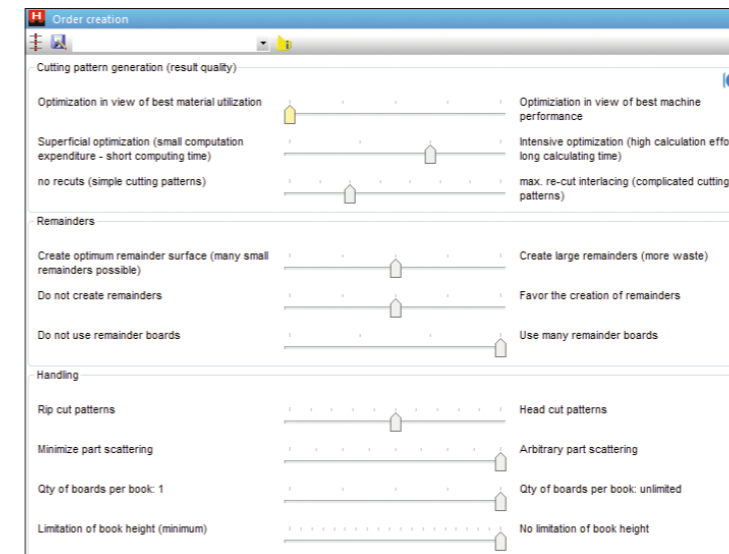
Cutting patterns are shown graphically, and their display is configurable. Results and parts lists can be printed in colour, clearly and easy to understand.

Fast thanks to multicore support

IMA Schelling HPO supports the latest generations of computers. It is capable of taking full advantage of the potential of multiprocessor PCs with dual or even quad cores. Its current kernel ensures quality of results and fast calculation power for processor-intensive processes. Simultaneous (batch) optimization allows different board types to be processed in parallel on the processor cores available.

Extensive master data management

The optimization program can itself be used to manage all master data – including the graphical display of sizes and of grain direction and trimming. Among other things, this includes parts lists, board data, edge data, stacking rules in combination with stacking plants – even packaging and strap-up rules.



Solution choice

HPO calculates several solution proposals at the same time and displays them graphically.

In addition to the optimal solution, several alternative options are available that can be easily selected by click. Depending on the requirements, the best solution for production can be chosen.

- Calculation of several optimization solutions
- Graphical display of the top three solutions including a clear comparison of the solutions using a bar chart
- Simple selection of the desired result by click
- All additional solutions can be adopted by click
- Possible solutions can be customized

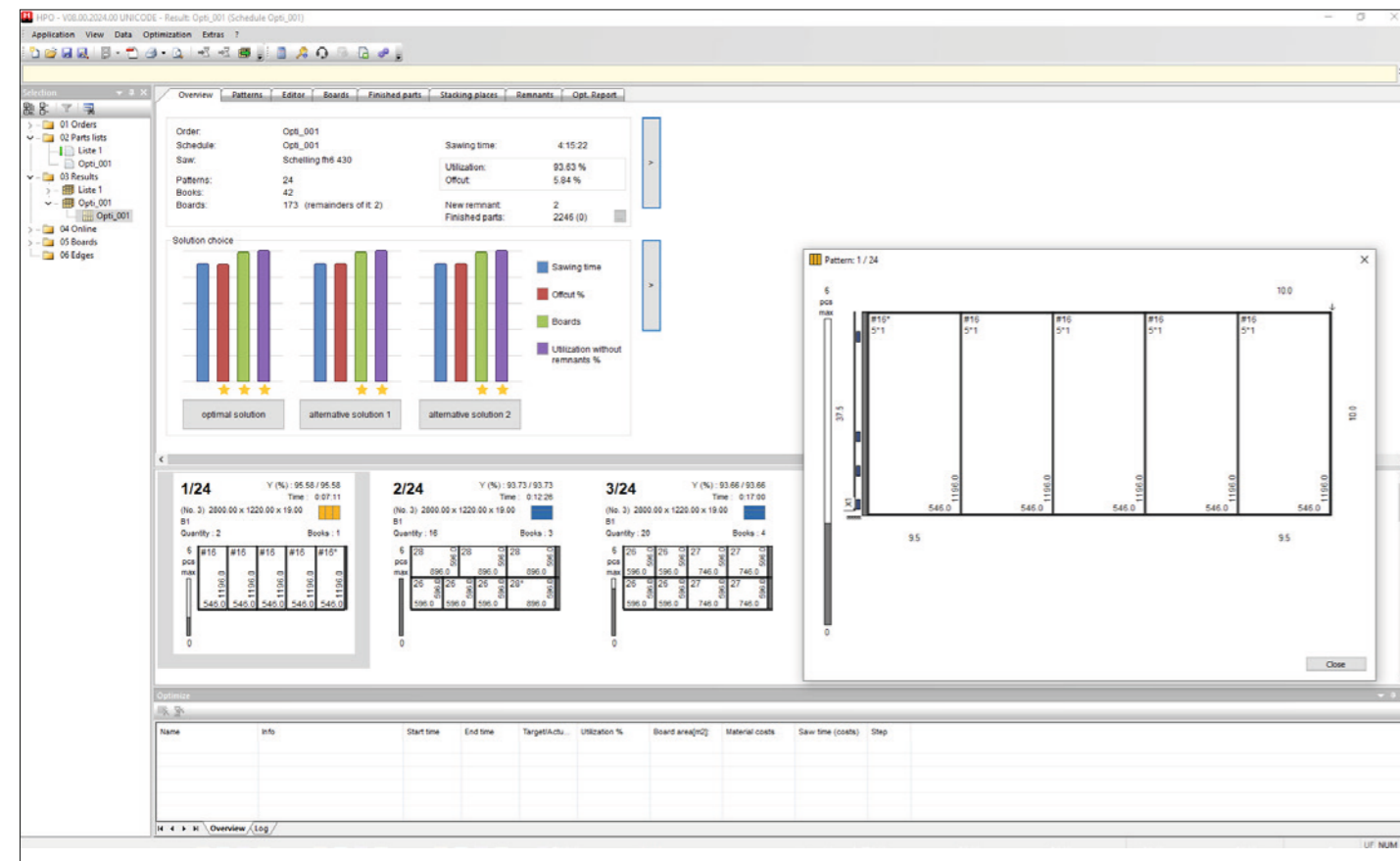
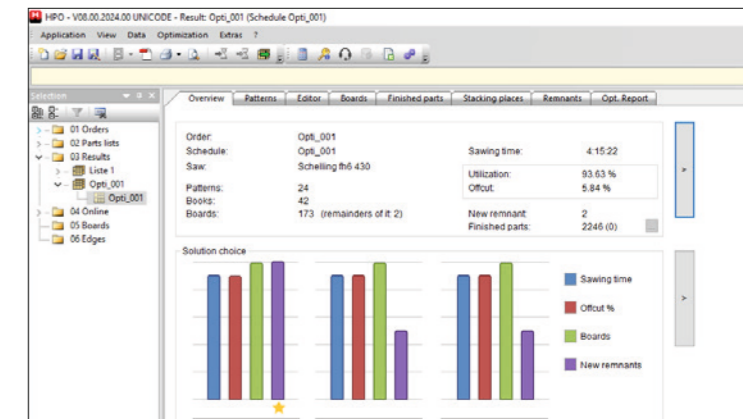
Slide controls for individual adjustment

HPO cutting pattern optimization is preconfigured for each machine. Parameters are selected on the basis of experience with common requirements. That means that HPO can be used as soon as it is installed.

"Plug and play" is the motto.

With the slide control menu, you can easily change important parameters yourself as you see fit.

You don't even need programming knowledge.



BASIC FUNCTIONS FOR NEARLY ANY REQUIREMENTS.

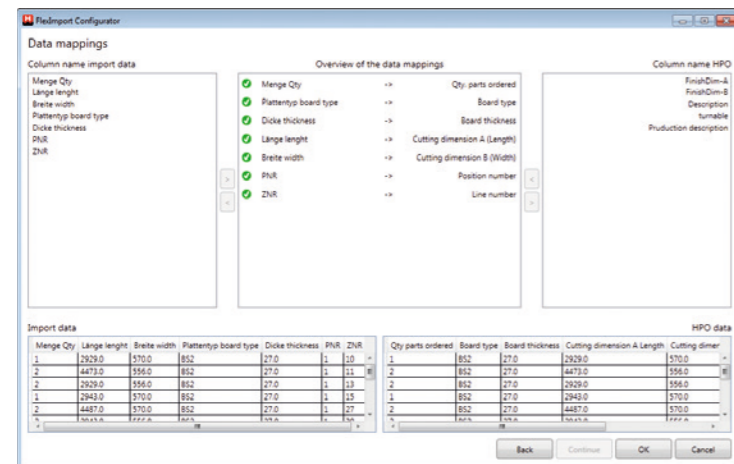
Data import

Even in its default variant, IMA Schelling HPO offers extensive options for importing data easily from higher-level systems, especially from PPS systems (production planning and steering systems) and ERP systems.

The basic function is the data import of parts list, board data and edge data, among other things in the MSC_NC 4.12 format (*.stk) and as text files in ASCII format (such as *.csv or *.txt), as well as MS Excel files (*.xlsx).

A mapping tool allows the order of the data in the file to be mapped onto HPO parameters clearly, very flexibly and with structured, intuitive operation.

Alternatively, data can also be transferred to and from Excel tables by copy and paste in either direction.



Cutting time

Calculating the cutting time (taking cut heights into account).

Mixed part lists

Entry of mixed part lists, that is different board types in a single part list. Optimization is automatically divided into individual optimization runs for each type of board.

Underproduction and overproduction

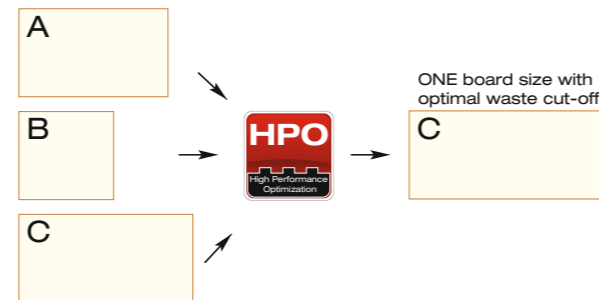
Optimization can optionally be done by planning the exact number of parts, or with an over or underproduction.

Filler parts

Filler parts can also be programmed in.

Board selection

Selection of the optimum board size if different sizes are available.



HPO AutoOpt

This tool permits the automatic import of data and then the automatic start of the optimization process. After completion of optimization, the data is automatically transmitted online and can be printed out.

HPO Export

With the HPO Export function, optimized results data is exported in the form of ASCII files. This data can for example be used for additional reports (higher-order systems such as production planning systems, industry-specific packages, ERP systems). Exported files are not deleted by HPO. By default, the following data can be exported as *.csv files: fixed code S 01, order name, schedule name, board type, thickness, sawing time, utilisation, scrap, number of books, number of boards, number of formats ordered, number of formats optimized.

Block part optimisation

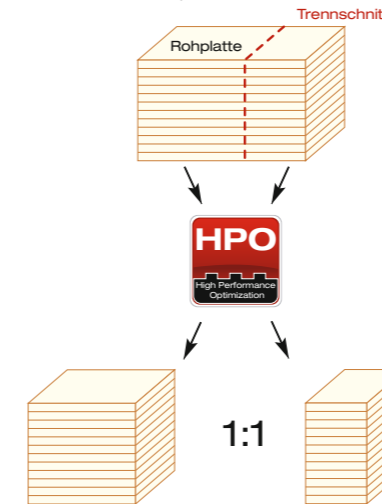
Parts which are too small for edge banding will be combined together to a bigger part. After the edge banding process they got cut to their final dimension.

HPO Stock

With the simple HPO Stock board and remainder management program, the boards planned in optimization can be checked out of the board database and the newly created remainders posted. HPO Stock can run on a single workstation or on the network. It is a management program that is operated off-line – there is no connection to the machine. Simple, but not as perfect as the high-performance IMA Schelling XBoB remainders program that can manage remainders in real time.

Board ratio optimization

For boards with separating cuts, the HPO can plan both parts of the board evenly.



Optimization for multiple feeders

HPO also ensures additional performance increases for machines with several feeders, such as cut-to-size saws with a second DUPLUS2 feeder and systems with multiple feeders.

Freely configurable

Screen displays, lists and printing can be flexibly configured, that is, adapted to your individual needs. The printing of results and part lists can also be configured freely; for example, data can be printed as barcode.

Searching, sorting and deleting

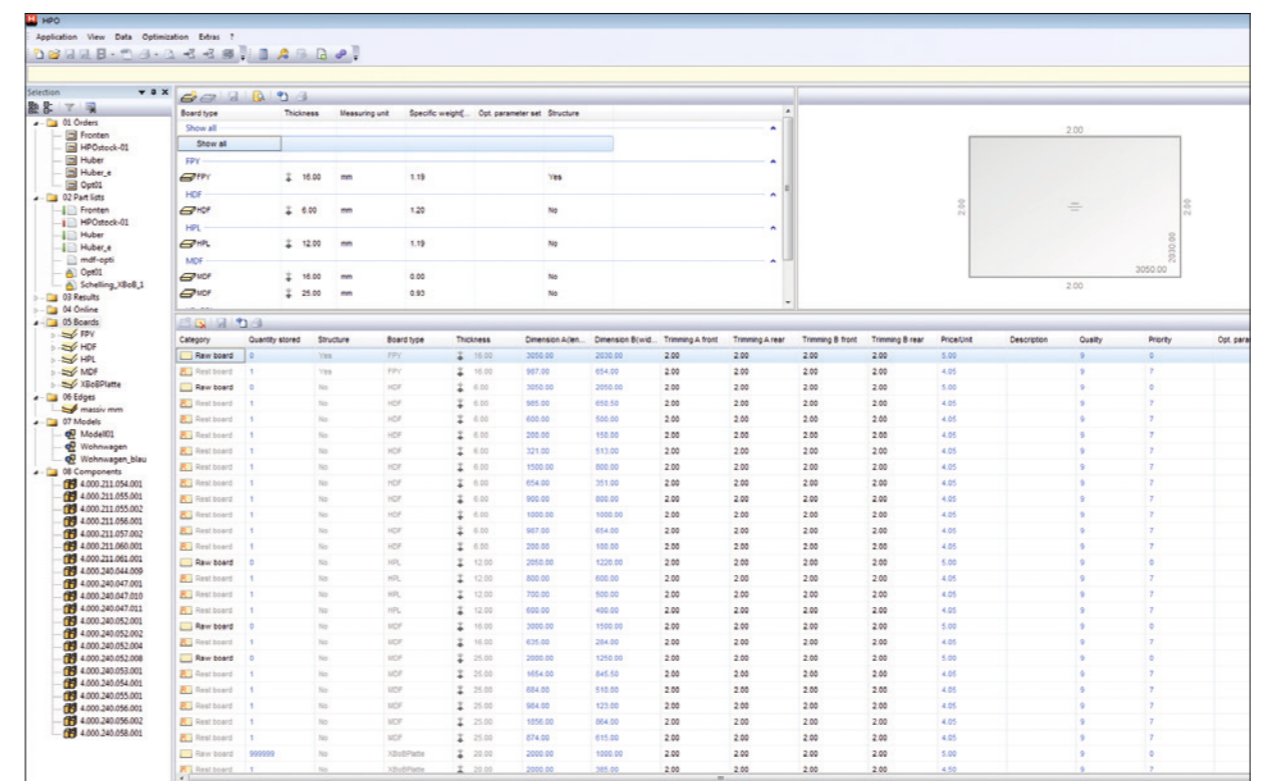
IMA Schelling HPO has a powerful search function for orders, part lists, etc., offering a wide variety of sorting options for cutting patterns. Old orders are automatically deleted, and how that happens can be configured as well. The board database can give you a complete overview of all the entries available.

Component management

Component management is used to create part lists without the need to enter data manually. A component is a piece of furniture or a part thereof. They are called "parts", because they need not necessarily be just formats. They can also include door handles, hinges, or the like.

Model management

Model management is used to create part lists without manual data entry. The advantage here is that each model can be assigned any material without changing the original component. A model consists of one or more components. You can specify how many components are needed and which material should be used.



REFINED FEATURES ON EVERY CORNER AND END.

Consideration of Stack References

The optimization process takes stack references or stack groups into account during calculation. A stack reference consists of multiple part dimensions assigned to the same identifier. A maximum number of open stack references can be defined, which will not be exceeded. This ensures that at no point during cutting will there be more active stack references than specified.

- Considered per material and thickness
- Freely selectable stack reference identifiers
- Parts without a stack reference are scheduled independently of the maximum open stack reference limit
- Stack placement sizes are taken into account

Graphical Cutting Plan Display

In HPO, cutting plans are visualized with edge information and tooltips. Tooltips are small pop-up windows that appear when hovering the mouse over a screen element, showing relevant information. Both display elements and tooltips can be freely configured with custom text content – for example, clamp positions or edge details.. Included visualizations and overviews:

- Panel requirements
- Parts overview
- Edge material requirements
- Graphical or tabular cutting plan summaries
- Graphical cutting plans
- Stack space allocation

Controllable pattern complexity

The complexity of cutting plans can be defined using various parameters, including:

- Number of different strips.
- Number of different parts per strip and per pattern.
- Minimum / maximum strip width.
- Minimum cross cut dimension.
- Minimum / maximum main part length and head part length.
- Head cuts yes/no.
- Recutting (third phase cuts) yes/no.
- Complexity of recutting (third phase cuts) can be configured.
- Remainder definition.

Board modification before optimization start

This function allows for modifying board data before the start of the optimization process, in order to carry out a calculation with modified values. The modification applies only to a one-time optimization, with the master data remaining unchanged. However, these data can be modified as needed. The modified values are then used for the calculation of the result:

- Stock quantity
- Trim cuts
- Priority
- Release/Lock

Stacking place optimization

The optimization program allows part scattering to be set up on the stacking locations available.

Consideration of available stacking place sizes

This function allows for considering different sizes of stacking places. It ensures that at no time more stacking places are used than available. The size of each stacking place is taken into account.

Print

Results, part lists, and more can be clearly and flexibly printed – fully customizable, for example as:

- Loading list (pre-picking list for panel material): Provides a summarized overview of key data across multiple optimization runs – including number of panels used, yield (%), saw time, and more.
- Results summary: A concise overview of the optimization outcome.

Selection of Print Layout Designs

Preconfigured print layouts with detailed information can be selected from a list and customized as needed.

- Multiple ready-to-use layouts available
- Printouts for results, part lists, and panels
- Completely redesigned print output
- Layout customization possible via graphical layout editor

Fill parts as fixed part list – efficient planning of recurring components

This function allows frequently required components – so-called fill or edge parts – to be permanently stored in the software. They can be added to any optimization job either manually or automatically, regardless of the material used.

Flexible configuration options allow you to precisely define for which materials the use of fill parts is permitted. This actively helps reduce waste and increases overall material efficiency.

Optimization with remnant maximization

On request or as a standard feature, HPO calculates cutting patterns in a way that maximizes the size of the remaining offcuts – enabling even more efficient use of your panels.

Number of diff. board types: 6

Board category	Quantity	Area	Volume	Weight	Price
Raw boards	67	170,70	3,636	3592,07	853,50
Remainder	21	11,61	0,171	174,40	47,36
	88	182,31	3,807	3766,47	900,86

Raw boards / Remainders

Board stock:

Serial no.	Category	Board
1	Rawboard	FPY
2	Remainder	FPY

Print layout

Active	Description	Name
<input type="checkbox"/>	Default layout for board printout with remainder stock managem...	Standard Boards and Rem
<input type="checkbox"/>	Default layout for board printout	Standard Boards
<input checked="" type="checkbox"/>	specific layout made by user	specific layout
<input type="checkbox"/>	my layout for panels	layout001

Create missing parts list

This function provides a convenient way to transfer the non-optimized parts (=missing parts) of an optimization order to a new parts list. The parts list is automatically taken over as a new list and can be optimized again.



More Power in the Details

- Configurable cutting plan display
- Detailed information on cutting layout and stack height
- Order filtering options
- Powerful search functionality
- Error detection and handling!

Cutting plans are rarely simple – they're shaped by detail and individuality. A true optimization system needs to keep up. HPO from IMA Schelling does exactly that.:

Reoptimization of individual runs

Within a single order, individual runs can be optimized again without changing other runs.

R1		2800.0	373.5
	7* 1*1	1010.0 x 210.0	8* 1*1
	3* 2*1	2600.0 x 200.0	
	3* 2*1	2600.0 x 200.0	
	6* 1*1	2020.0 x 180.0	
	5* 1*1	2015.0 x 160.0	
	4* 1*1	2010.0 x 150.0	
	1* 1	2500.0 x 105.0	
	2* 1	2550.0 x 104.0	
	2* 1	2550.0 x 104.0	
	2* 1	2550.0 x 104.0	

Remnants overview without optimization.

R4		2600.0 x 200.0	
	3* 1*2	2600.0 x 200.0	
	2* 1*2	2550.0 x 104.0	
	2* 1*2	2550.0 x 104.0	
	2* 1*2	2550.0 x 104.0	
	1* 1*2	2500.0 x 105.0	
	1* 1*2	2500.0 x 105.0	
	R2	7* 1*1	1010.0 x 210.0
		8* 1*1	1020.0 x 220.0
		995.5	434.5
		5* 1*1	2015.0 x 160.0
		4* 1*1	2010.0 x 150.0
		6* 1*1	2020.0 x 180.0
	R3	2600.0 x 159.0	

Optimization with remnant maximization.

OPTIONS: EVEN MORE POWER WHEN YOU NEED IT.

Most HPO cutting optimization functions are included in the standard package, but some features are optional. They can be selected as needed.

HPO label printing in the office (LEdit/LPrint)

This option is used to print labels



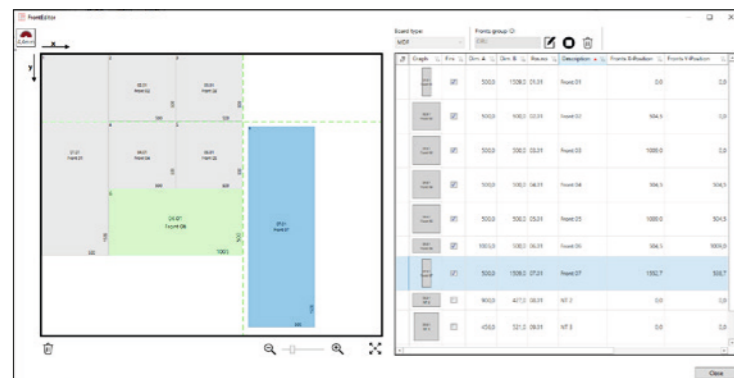
and/or packing slips on the optimization computer (usually in the office) and transfers the label data to the saw controller if the "Label printing" option is included on the saw and the saw controller requires the special transmission of label data for label printing. In many applications this can be a very convenient feature.



- Printing directly at the optimization computer.
- Optionally in cut order or by format number.
- Different unit count controls.
- Different layouts.
- Data fields can be printed as barcodes if necessary.
- For different printer types.

Front optimization (large/small part optimization)

The formats (fronts) are planned by HPO according to the coordinates entered in order to achieve a consistent grain direction. Complex front patterns that have additional subdivisions can also be taken into consideration. Formats with and without front detection can be planned together in the same optimization run. The front pattern is shown graphically in the part list. With a graphical editor, formats can be intuitively arranged via drag & drop. All relevant data is generated automatically – for fast, error-free, and user-friendly planning.



HPO FlexImport

The HPO FlexImport function makes it possible to import any text file (such as *.csv) into HPO.

Reoptimization on the saw

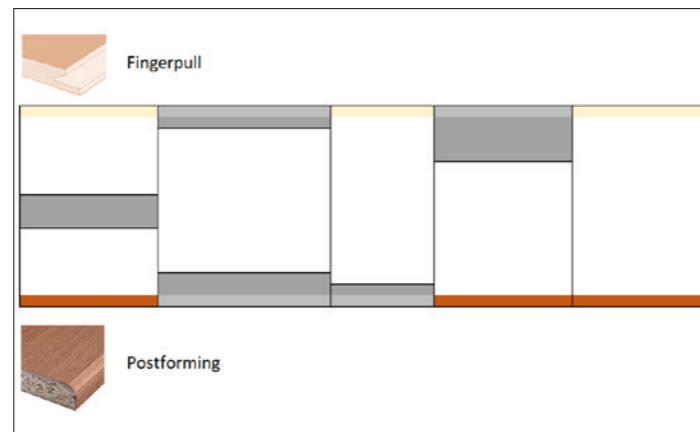
This function makes it possible to optimize orders or runs again on the machine itself in order to reuse remainder boards.

SmartEdge optimization

This function enables the consideration of specified edge designs for the board material. Edge designs can, for example, be postforming, finger pull, or rounded edges. The design of the applied edge can be different on each side. Each part also receives the required edge design. The

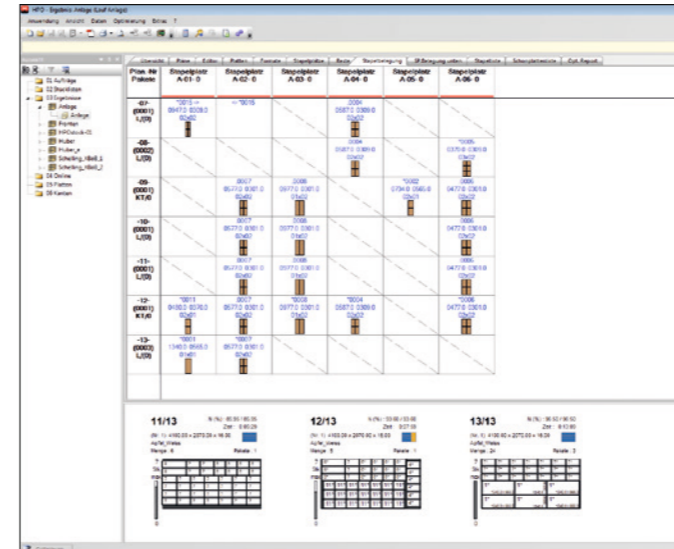


software automatically calculates all cutting patterns where the parts are placed on the appropriate side of the board. Any combination is permissible.



Part list administration

From a collection of formats (the format pool), one or more optimization parts can be created and optionally "Can" parts (= fillers) can be defined. The format pool is a database in which all formats newly imported into HPO are stored. Unused fillers are automatically written back to the format pool after optimization. Features and options: creation of a part list from a format pool, single or multiple selection possible, division of formats into "must" and "can" parts, freely configurable display of the formats relevant for production, different status possible for the individual formats.



Production planning

The production planning program is integrated into HPO and is used for the preparation of "multicolored" board stacks, that is, optimized stacks consisting of different types of board. After printing a stack slip with a unique stack number, the stack of master boards is created manually. The picking data is optionally transmitted either to the machine and/or to an automatic board storage system. Sorting and separation criteria include stack height, board category (remainder/master boards) and board geometry.

Stack optimization

The HPO stack optimization program calculates NC data (stack data) with the aim of reducing production time for a fully-automated storing and stacking plant, in which the stack layers are composed of different packages or subpackages (such as main part / head part). The cutting patterns and the formats that appear in them are handled on a "run-oriented" basis. HPO stack optimization works together with an automatic or a manual stacking system.

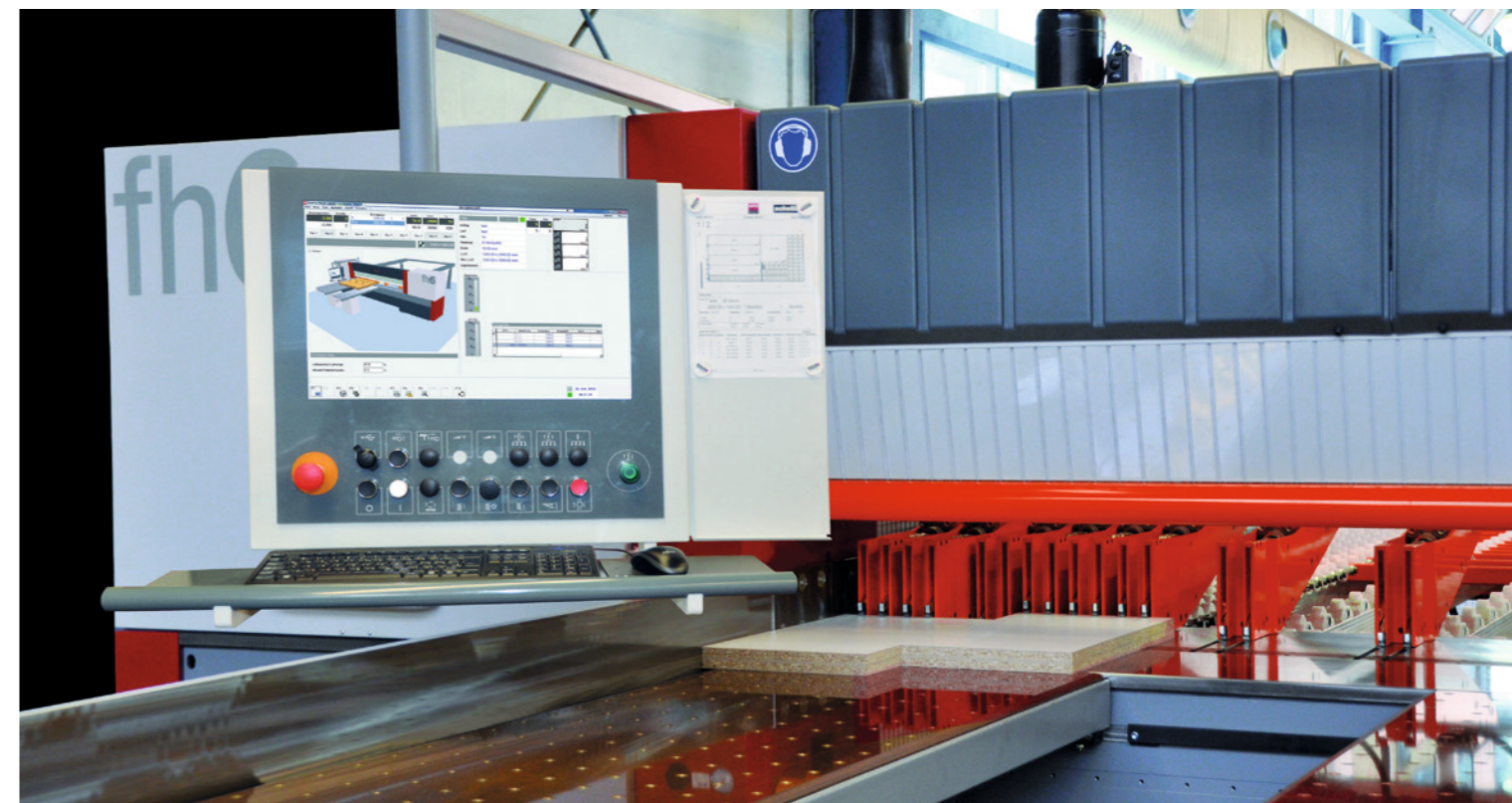
By calculating stack data for fully-automated IMA Schelling sorting and stacking plants, production time can be minimised for the plant as a whole. Automatic stacking stations and manual stacking areas are taken into consideration, as well as storage roller tracks and storage and turning stations.

Batch optimisation

Automatic consideration of material batches at distribution of parts into the cutting patterns. During the optimisation process all relevant parts and part groups, by example all parts of a customer order, are distributed to all available materials. Alternatively for each part or part group the used batch identifier can be transmitted.

XBoB remainder utilisation

The optional XBoB remainder board program from IMA Schelling makes it possible to manage and reuse remainders consistently and cost-effectively in a manual remainder storage area. With refined interfaces between control system, operator and the machine.



The IMA Schelling Group is a reliable partner for implementing of sophisticated system solutions.
The demands of our customers are a daily challenge to us, our know-how and creativity!
We work with you to develop innovative and unique solutions for plate processing.

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Subject to technical modifications and mendments and to further developments. The offer, respectively the order confirmation is relevant in either case!
The picture of the machine could have been taken without complete protection devices. The protection device is part of the scope of delivery.
Photos could also be options, not being part of the scope of delivery.



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