

IMA SCHELLING GROUP

INDIVIDUAL SYSTEMS FOR LOT-SIZE-1 PRODUCTION
PERFORMANCE CLASS 4



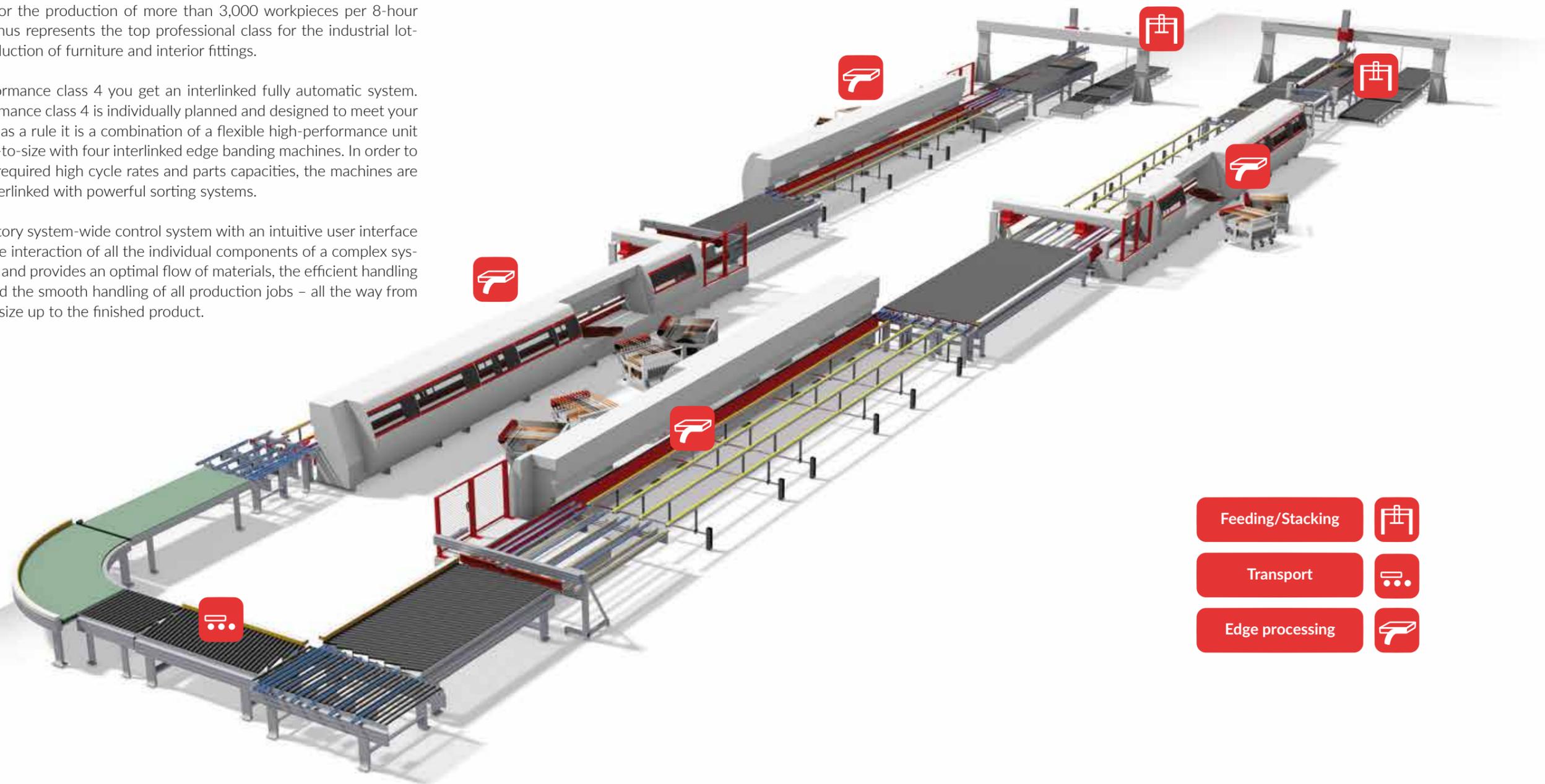
PERFORMANCE CLASS 4 AT A GLANCE

Interlinked production with four machines – the professional class for fully automatic furniture production

With Performance class 4 the IMA Schelling Group offers systems that are individually customized to your needs for lot-size-1 production. It has been designed for the production of more than 3,000 workpieces per 8-hour shift and thus represents the top professional class for the industrial lot-size-1 production of furniture and interior fittings.

With Performance class 4 you get an interlinked fully automatic system. The Performance class 4 is individually planned and designed to meet your needs and as a rule it is a combination of a flexible high-performance unit for cutting-to-size with four interlinked edge banding machines. In order to attain the required high cycle rates and parts capacities, the machines are directly interlinked with powerful sorting systems.

The obligatory system-wide control system with an intuitive user interface controls the interaction of all the individual components of a complex system layout and provides an optimal flow of materials, the efficient handling of parts and the smooth handling of all production jobs – all the way from cutting-to-size up to the finished product.



STORAGE

Storage space is scarce and expensive and takes up large areas, especially in the case of panels. Our solution: perfect storage logistics and utilisation of space in panel storage areas or high bay storages. Both provide an optimal access to each individual panel, customized ease of use and if necessary an entire stack handling. The more quickly the panel passes through storage while saving space, the more economic.



Flexible connection options to upstream and downstream process steps

EXTREMELY PRECISE STORAGE

- storage of panel-type wooden materials of various types and sizes
- secure manipulation of the panels by automated transport
- rational and rapid taking into and removing from storage
- taking into and removing from storage possible from various storage areas
- optimal use of the space in the storage
- automatic feeding of panel parting saws and units
- utilisation of the area under the guide tracks up to the safety enclosure
- automatic handling of remnants



Turning device of the vacuum cross-beam to feed the parting unit with the correct orientation

CUT-TO-SIZE

Thanks to advanced technology and a 27 kW motor rating, the ah6 panel parting unit is ideal for the production using cut-to-size packages. The unit is designed in each case to meet the wishes of the customer and is adapted to the requirements and the space available.

The new flexible, high-performance Combi.cut 1 cut-to-size unit for custom furniture production combines for the very first time the advantages of the two parting technologies of sawing and milling and impresses by its economy and a minimal space requirement of only around 123 m².

ADVANTAGES OF THE PANEL PARTING SAW ah 6

- feeding systems for optimal material feed cutting processes
- optimised flow of materials for the quickest way through the unit
- optimal utilisation of materials with turning device/turning table for head parting cuts
- short production cycles with 2x and 3x infeed carriages for the cross-cut saw
- fully automated waste disposal via central outlet
- manual or fully automatic sorting and stacking facilities
- graphic-based unit operation and online diagnostics
- optimisation program, software for parts tracking, labelling and logistics
- sorting, strapping and packing included



Parting area of the saw



ADVANTAGES OF THE Combi.cut 1

- material feeding: Roller table, alignment in the lengthways and transverse directions
- infeed with clamps: secure material transport, exact positioning
- machine table, pressure beam and sawing unit for rapid and precise cutting-to-size
- strip buffer: timing decoupling of both cut-to-size processes
- infeed device: servo-controlled with freely positionable clamping tongs
- machining supports: each with a powerful, vector-controlled 18 kW milling spindle
- pull-out device: placing of finished workpieces on the outfeed transport belt
- integrated waste disposal: carrying away to a central collecting point

FORMATTING/EDGE PROCESSING

Formatting and edge banding can be done in Performance class 4 using the edge banding machines of the Novimat and Combima systems. The highly flexible loop-type production systems guarantee highly professional industrial edge banding in their capacity as a combination of processing machines and feedback.

Four edge banding machines are linked together for Performance class 4. This means that very high throughput rates of from 3,000 to 7,000 parts per shift can be attained and all four workpiece edges processed in one pass. The machines are set up either in a long narrow arrangement or in a space-saving U-shaped layout. The U-shaped layout also makes operation easier.

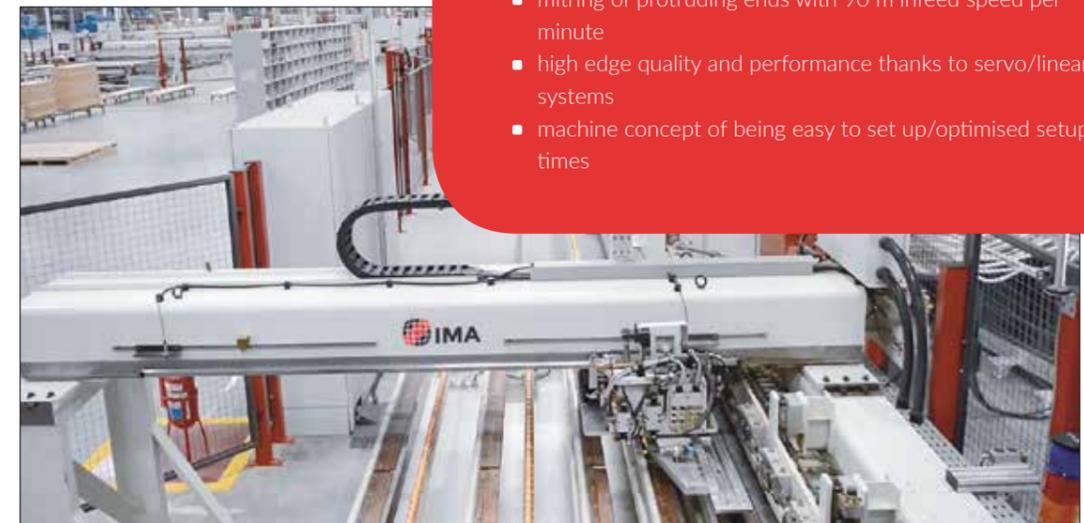
Depending on the requirements, the units are either interlinked in places directly with the cut-to-size and sorting units or else set up as a single system with a feeding and stacking gantry. This allows the economic operation of genuine lot-size-1 production up to small-scale series production. Performance class 4 guarantees high efficiency even with varying thicknesses of the parts.

OPTIMAL EDGES

The edge banding machines of the Novimat or Combima series open up all manner of new possibilities for highly efficient industrial edge banding. Conventional gluing is also available in addition to Laser Edging, or the production of connections with no joints or transitions between edge and panel by means of a diode laser. An individually configurable post-processing area rounds out the edge processing of these edge banding machines. Edge banding machines for lot-size-1 production must be flexible and be able to be set up quickly for changed forms of machining and differing dimensions of the workpieces. These requirements are perfectly met by the Novimat Performance.one in all three configurations. Thus you can produce in a job-related way and save yourself high storage costs.



User-friendly U-arrangement of machines with central edge management



Processing of all 4 edges in one run



Contour milling unit KFAx50

HIGHLIGHTS NOVIMAT- UND COMBIMA-SYSTEME

- roll holders of various types
- up to 96 edge shafts
- roll material up to 3 mm in thickness
- strip material up to 20 mm in thickness
- format processing by milling or machining is possible
- infeed with chain track extension for transverse processing
- high-precision infeed and detent stop system
- modular system with several processing units precisely attached to one another
- infeed speed of up to 120 m per minute
- seamless edging with Laser Edging
- mitring of protruding ends with 90 m infeed speed per minute
- high edge quality and performance thanks to servo/linear systems
- machine concept of being easy to set up/optimised setup times

BUFFER/SORTING

The right handling and transport systems make excellent individual machines and island production units into an interlinked system that fits together like the gearwheels in a watch. Buffer and sorting units connect the machines with one another and form the interface of the unit with the customer.

EACH PART AT THE RIGHT PLACE

IMA networks all system parts to make adaptable production systems of a modular type. The appropriate handling and transport systems are available to handle all cases for optimal economic utilisation of the production units:

- panel and shelf storage systems
- feeding and stacking systems
- return systems for edge circuits
- material transport systems
- buffer systems
- sorting systems



Sorting buffer for individual panels

WHY BUFFER?

Buffering of the individual workpieces between the main process steps is required for efficient and continuous utilisation of the individual production stations and maximum productivity. It decouples and harmonises the flow of parts and prevents congestion or empty running or bridges problems at individual units. Buffering can be implemented as single panel storage or as package storage.



Sorting unit with robot

WHY SORT?

Sorting steps are provided at various points to make the best possible use of production cells. Increases in efficiency of the subsequent process steps can be achieved or specific sequences for the parts can be set up in the loading. Various versions are available for sorting, ranging from simple buffering and sorting boxes to individual buffering and sorting units with individual panel or package storage.



Sorting area for individual panels

FREE-FORM MACHINING AND DRILLING

The flexible and highly automated IMAGIC flex drilling system for custom woodworking offers genuine added value in production. Individually controllable drilling spindles allow horizontal and vertical drilling and dowel fitting and promise minimal setup times even with complex drilling patterns. The highly dynamic cycling of the drilling gearbox makes complex drilling patterns together with economic per-item costs possible.



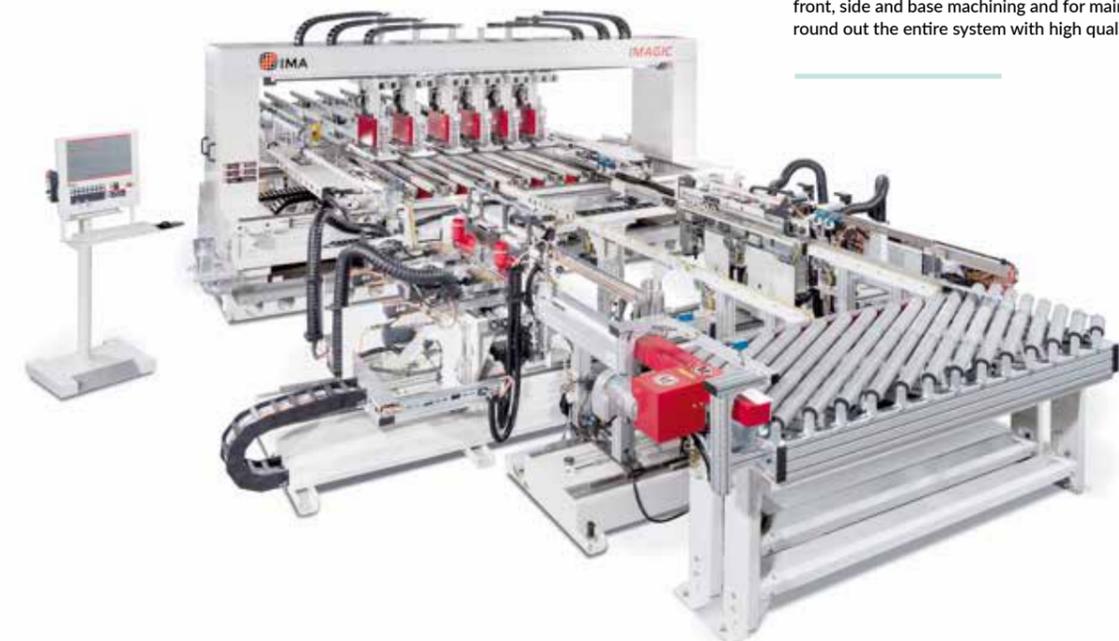
Vertical modules IMAGIC flex

HIGHLIGHTS IMAGIC flex

- fully automatic setup of the machine in a minimum of time
- no reference travel is required
- up to six-sided processing is possible without workpiece turner
- alignment and transport of the workpieces fast and gentle
- speed of the drilling gearbox can be regulated up to 9,000 rpm
- precise regulation of the drilling advance speed and rotational speed
- optional horizontal machining station
- drilling gearbox with up to 54 spindles per side
- optional gluing and dowel monitoring
- up to 8 gluing and dowel fitting tools per side as standard



In order to be able to offer complete production systems from one source, the network has been working intensively for many years now with experienced and competent partners for drilling up to final assembly. Custom solutions for front, side and base machining and for main body assembly round out the entire system with high quality and efficiency.

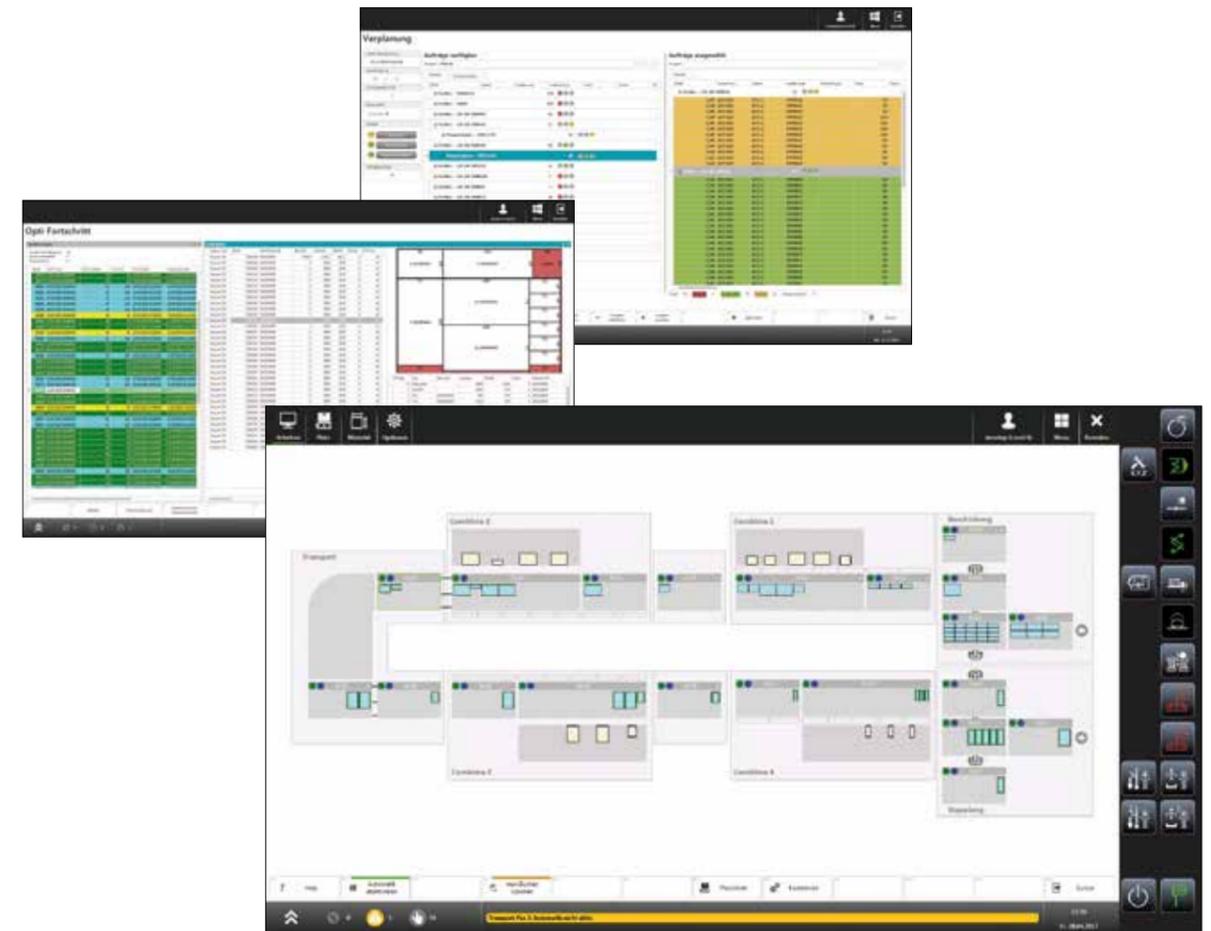
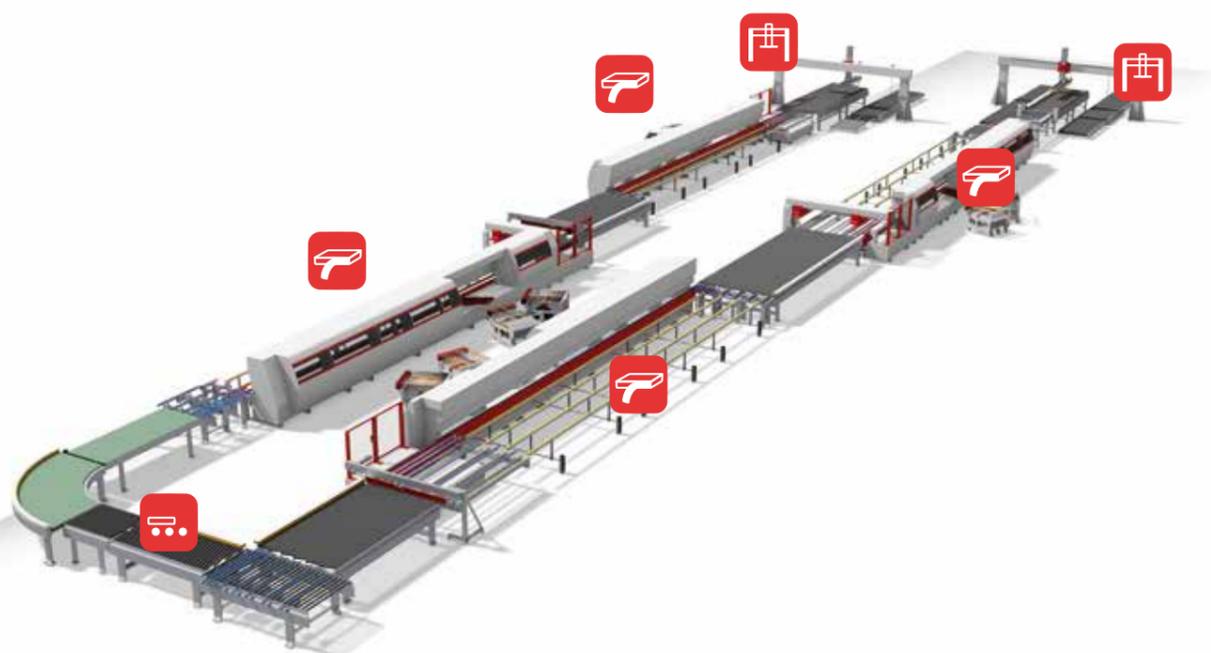


CONTROL SYSTEM

Complex units require complex control systems with simple and intuitive operation. IMA Schelling Group systems for lot-size-1 production handle this task with bravura. The touch display not only gives the operator an excellent and transparent process overview at all times of all component movements and machine states, it also provides all the options for manipulation up to the direct manipulation of individual components by drag and drop. The software architecture makes it possible in future to expand various modules and allows the simple integration of additional production cells and units.

INTEGRATION THROUGHOUT

- the paramount aim is a high level of user-friendliness – this is provided by transparent overviews of the entire system
- various views for different application cases for faster troubleshooting
- comprehensive professional messaging and information system
- modern software architecture in the machine and unit control systems
- modular software platform offers full flexibility for the future since the software modules can be upgraded, replaced or modified with no problems





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