



Siempelkamp



Complete systems for the
wood-based products industry

Content

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Wood-processing plants made by Siempelkamp: competence from a single source

The acquisition of plant facilities for the wood-processing industry is the equivalent of laying the foundation for the continued long-term survival of the company that is making the purchase – and for the success of the whole region where it is based in an internationally competitive market.

The decision to make such an investment requires careful consideration and commences with the choice of the right partner. With Siempelkamp, you'll be drawing on the know-how of an international specialist for large-scale plants that carries out its own planning, manufacturing, commissioning and maintenance for all the machines that have an effect on your plant's processes. We are also able to supply the entire range of processing technology: we operate our own R&D centre at our headquarters in Krefeld along with an additional facility that focuses mainly on size-reduction technology for which Pallmann, our new subsidiary, is responsible.

"Everything from a single source" – our concept makes complex individual subcontracting unnecessary and ensures that you benefit from plants and process-control concepts that have been integrated into your overall needs and adapted to your requirements. It is a profile that has made Siempelkamp the global market leader in the field of complete wood-processing plants. One that has proved itself in more than 300 ContiRoll® concepts that have been sold worldwide. Research and development, design, planning, engineering, production, assembly and commissioning on site along with our after-sales service will support you reliably, efficiently and individually. All of which saves time, protects budgets, conserves resources and reduces logistics requirements.

It is in this way that we are able to accompany you along the process to arriving at the board that is best for your purposes. A process that includes such current developments as the resource-efficient use of raw materials, process optimisation and energy-efficient technologies.

Project design, planning, construction design



Integrated engineering is the key to plants that deliver optimum performances. This is what Sicoplan – Siempelkamp's subsidiary in Belgium – regards as its core competence. Nearly every piece of equipment that we supply benefits from its expertise – expertise that rounds off our full-service concept.

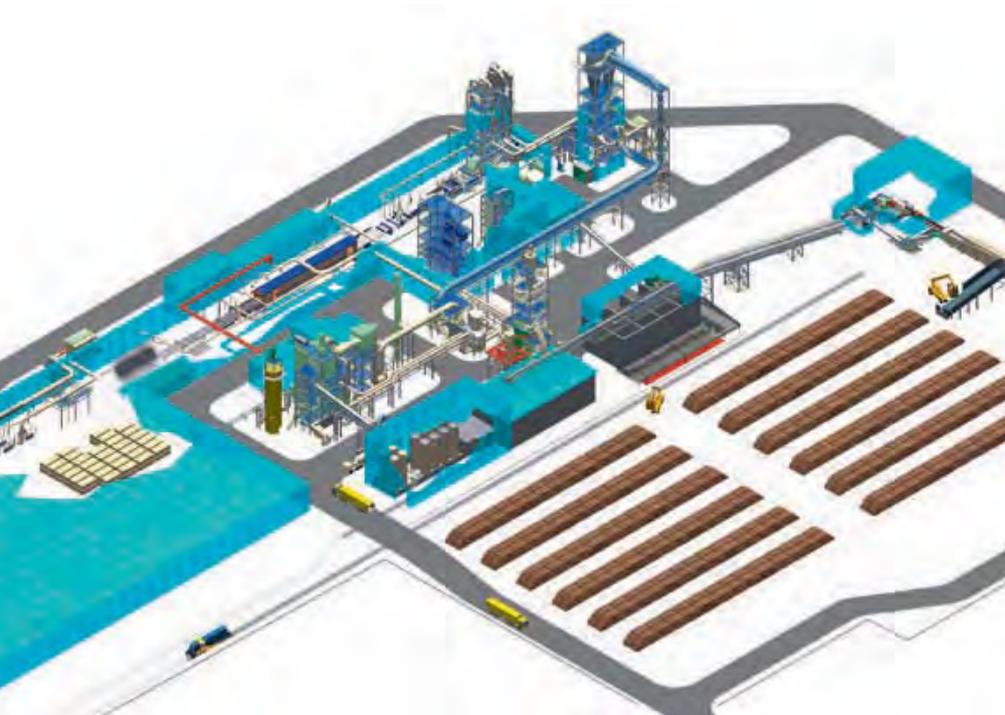
Sicoplan's engineering services start with the basic engineering that constitutes the basis of a plant's concept. The subsequent planning uses an exact 3D model of the plant to design many details, e.g. estimated raw material volumes for structural steelwork, the dimensions for production halls and the specifications for the foundations. This model constitutes the optimum basis for setting the direction that the plant's design will take. A basis that will increase your confidence in the calculations carried out for the planning, delivery, investment and financing costs.

Are you intending to retrofit, expand or modify your plant? A complete 3D model based on a 3D scan will integrate both the new machines as well as the available factory layout into the new concept. This scan precisely documents all the factors that exist on site.

Our performances:

- Process engineering and planning of the technical equipment and plant, including calculations for the required raw materials and energy supplies
- Assistance with approval procedures
- 3D planning for entire production plants
- Design for mechanical and pneumatic conveyor systems
- Design and production of all process machines within the Siempelkamp Group
- Technological consulting and optimisation of the production process that takes account of technological and commercial factors
- Modernisation packages, extensions and conversions, including 3D planning for pre-owned plants

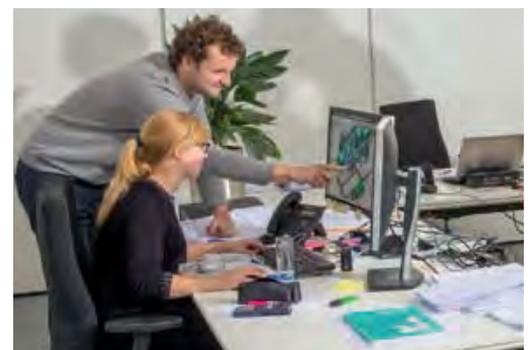
The digital plant



SicoScan team



Planning and project work



Financing support



Financing support by Siempelkamp right from the start

Investments in large-scale plants in the format that Siempelkamp usually supplies are based on highly individual financing preferences in international markets. Our team of specialists will on request assist with advice about financing concepts to determine the best solution for you that takes account of your initial situation.

This is where modern finance know-how is combined with the expertise that we have gained from many years of experience as an equipment manufacturer in dialogue with producers who operate wood-processing plants all over the world.

It is in this way that tailored structures and solutions – developed in consultation with selected



3D layout of an MDF-plant

financial institutions – can be drawn up. Our customers appreciate this service, particularly in times of wildly fluctuating capital markets.

Our performances:

- Trade financing
- Project financing
- Export financing
- Domestic and cross-border financing



Production

Siempelkamp is known in the market for its great production depth. It is a reputation that we have been able to establish for ourselves because it is able to exploit the many benefits for our customers that modern technologies offer in addition to the ones that result from the manual assembly of many component groups.

All basic ContiRoll® components, for example, are always machined using state-of-the-art CNC technologies. This facilitates cost optimisation by

keeping throughput times short and guaranteeing the dimensional accuracy of our components.

The concept of "handmade" – i.e. manual assembly – is applied to a variety of component groups. The benefits:

- It is possible to "containerise" – to combine and assemble – component groups in such a way that they fit exactly into standard overseas containers. Such "containerisation" does not only help to optimise packaging and freight,



Assembly of the modular designed chemical metering system



Chain production line



Production of hydraulic equipment

- it also helps reduce the costs for final assembly on site – which is carried out by local assembly teams. Quality assurance is achieved through supervision by Siempelkamp.
- The electric and hydraulic systems are installed as component groups: “plug & produce” – to ensure rapid commissioning on site!
- The individual component groups’ functions are tested immediately after they have been assembled – either in Krefeld or at the site of installation.

- Our hydraulics components are tested, developed and optimised at our hydraulics testing facility in Krefeld



Siempelkamp (Wuxi) Machinery Manufacturing Ltd.

Wood preparation



No “all from one source” principle without wood preparation as it constitutes the central thread that runs throughout our entire chain of performances – from debarking to packaging – because the quality of the finished wood-based boards stands and falls with the quality of the prepared particles, fibres and strands. Together with our subsidiaries and holdings – including CMC, Pallmann and Hombak – we stand for comprehensive know-how and decades of experience in the development and production of machines designed to prepare wood for subsequent processing.

This is where Pallmann, which was finally integrated into the Siempelkamp Group in 2017, plays an important role as a specialist for size-reduction and preparation technologies. Its size-reduction machines and preparation plants are very popular with our customers. They are in this way able to benefit from the group’s continuously expanding expertise in size-reduction and refinement processes for many different types of wood.

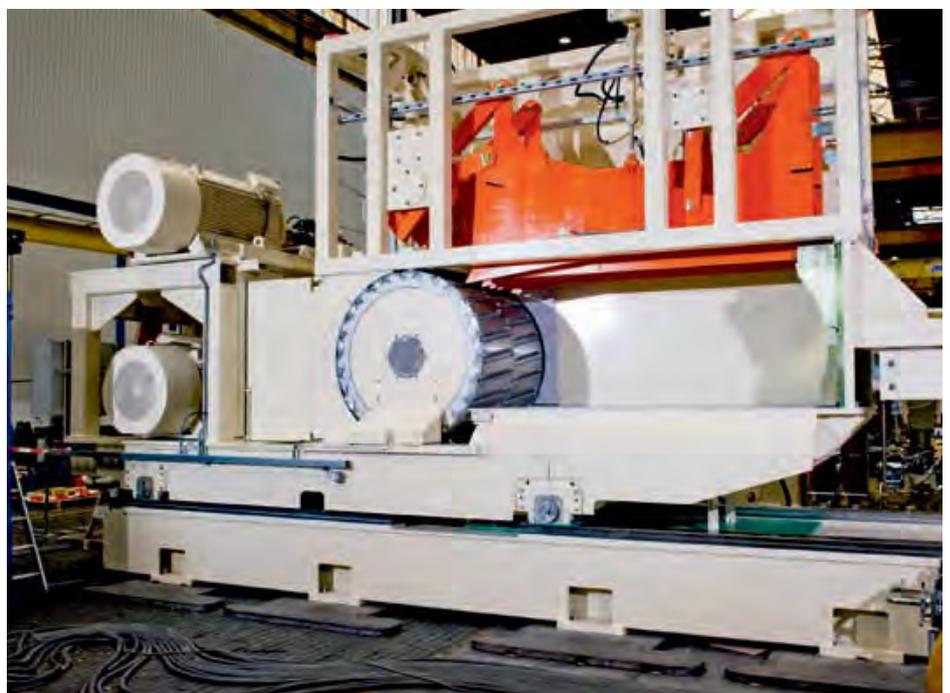
Wood preparation for particle-board plants
Siempelkamp is able to supply the entire range of machines needed to manufacture high-quality particles: our drum chippers, knife-ring flakers, hammer and surface-layer mills guarantee the production of high-quality particle materials. All wood may be prepared for recycling using special cleaners.

The gentle handling of particle materials is achieved with Siempelkamp’s separating equipment that employs disc, drum and vibrating screens as well as air separators all made by CMC, our subsidiary, which is based in Italy. In conjunction with Sicoplan’s innovative conveyor technology (see P. 27), we are able to deliver comprehensive packages for the production of excellent particles to be used in the production of surface- and core-layer materials. Bins and silos are just as much part of the range as metering systems that evenly feed the materials to the systems downstream.

Knife-ring flaker PZSC



Universal flaker





Strander



Wood feeding into the strander



Silos for SL & CL particles



Fibre dosing bin



OSB-bin



Roller screen for wood chips

Wood preparation for MDF plants

Our top-class expertise in wood preparation also comes to bear in the production of high-quality MDF boards. It stands for high performance, low production costs and high-quality fibres. And we already support customers in the field of size-reduction engineering by providing special rotor and drum debarkers for removing the bark from round logs. The optimised chipping geometry and material feeds mean that its drum and disc chippers produce highest quality chips. The chipped materials are temporarily stored in silos or bins that employ a variety of discharge systems such as pulling or pushing floors with metering and rotating screws. The priority here is to achieve precisely metered discharges. We collaborate with Pallmann, our new subsidiary, to provide MDF producers with high-performance and energy-efficient refiners.

New: we have realised a proprietary development to meet customer demand for higher-capacity and

energy-efficient sifters. These sifters represent a new component that is central to our portfolio. They are characterised by optimised geometries – for greater sifting ranges which mean greater fibre throughput and optimised flow – and by frequency-converter-controlled fans by Ventapp, another one of our subsidiaries.

Wood preparation for OSB plants

Siempelkamp has also developed its own strander for producing first-class strands that is able to achieve throughputs of up to 45 t / h O.D at a particle thickness of 0.65 mm. Its dimensions – 2,500 millimetres in diameter, 850 millimetres cut width, 56 cutters – means that this strander sets records where its format is concerned. Siempelkamp also works with its subsidiaries of Sicoplan, CMC, Pallmann and Hombak to supply the entire range of coordinated wood preparation, with debarking, conveying, screening and bunkering equipment, for OSB plants.

Siempelkamp wood-processing technology at a glance:

Debarking

Particle MDF OSB

Size-reduction

- Drum chippers
- Disc chippers
- Knife-shaft flakers
- Knife-ring flakers
- Stranders
- Hammer mill
- Screen basket mill
- Refiners
- Ecopulser

Particle MDF

F*

MDF

Particle

Particle

OSB

Particle

Particle

OSB

F*

MDF

Particle

Fractionation

- Disc and roller screens
- Vibrating screens
- Air separators
- Ferrous and non-ferrous separators
- Wood-chip dry cleaner
- Chip washing

Particle MDF OSB

F*

Particle MDF OSB

Particle MDF

Particle MDF OSB

Particle MDF

MDF

Temporary storage

- Bins with pulling and pushing floors
- Round silos
- Floor-conveyor bins
- Metering bins with screw floor

Particle MDF OSB

F*

Particle MDF OSB

MDF OSB

Particle MDF

F*

* = Fuel



Left and right: Disc chipper PHS

Dryers and energy plants



From the point of view of process engineering and plant-construction expertise, the dryer and energy plant are part of the same system. That's why customers appreciate Büttner's strategy of supplying both products as an integrated concept. Plant owners are increasingly ordering their systems for generating the heat they need for their processes and drying as a single overall concept.

Our range includes dryers that, depending on requirements, are designed as drum or flash-tube dryers. We further develop heating and automation systems in-house and supply burners for the combined combustion of various fuels to achieve flexible dryer heating. The heating systems are designed to deliver thermal performances that range up to 100 MW and that may be fuelled with residual wood, natural gas, oil and dust.

Dryer details:

- Drying capacities from three to around 70 t / h O.D.
- Low specific energy consumption
- Individual solutions for different waste-air cleaning systems
- Short assembly and commissioning times by experienced specialists
- Retrofitting and performance increases for your existing plants (all manufacturers)

Be it thermal oil for presses, steam for refiners or flue gas for dryers: our energy plants help ensure reliable supplies of heat to heating processes while simultaneously guaranteeing the economic use of wood as a resource and the reduction of CO₂ emissions. The utilisation of wood left over from production, e.g. bark or dust from screening and sanding, also helps realise high economic efficiencies. Siempelkamp's energy plants are also

Cyclones of a 76 MW energy plant



Energy plant



designed to burn such gaseous fuels as natural gas and such liquid fuels as light and heavy oils. Büttner covers the entire spectrum of performances – from planning through delivery to the commissioning of the entire energy plant – and will also train the customers' personnel in how to operate its systems.

Energy plant details:

- Combustion capacity of 10 to 100 MW
- Air-cooled feed-grate firing system – in conjunction with a combination burner system if required
- Process heating in the form of flue gas, thermal oil and / or steam as well as hall heating
- Process control adapted to wood-processing plants
- May be integrated both into new and existing plants

Dryer plus energy plant as an overall concept – the benefits

- Highly efficient design of the combined dryer and heating system
- Greater efficiencies and lower costs for engineering, transportation, logistics, assembly and commissioning
- Optimum interfacing of process-control and automation equipment, higher product quality

Fibre dryer



Particle dryer type NH



Glue-blending and metering system

Ecoresinator for fibres



The modular concept that Siempelkamp's glue- and chemical-preparation system uses as well as its metering and application systems do not only deliver the best cost-benefit ratios but also help create the best possible end product. Uniformly accurate metering of the glue mix and its optimum application to the particles constitute the prerequisites for the production of boards that possess good mechanical properties.

Siempelkamp metering bins are high-performance machines which accurately feed chips and strands to the downstream glue-application units.

Precision scales for controlling the metering process make glue-blending and metering even more efficient. The various machine sizes are perfectly adapted to the respective plant and process capacities.

Integrated chemical-preparation systems are employed to prepare and meter glues and additional components precisely. The preparation sections in these glue kitchens are equipped with load cells and the metering sections with state-of-the-art flow meters that are tested by Siempelkamp before shipping.

Assembly of the modular designed chemical metering system





Ecoresinator P



Glue blending system by CMC

Glue-blending systems: Ecoresinator for MDF, Ecoresinator P for particleboards

The Ecoresinator and Ecoresinator P glue-blending systems constitute innovative concepts that have been realised by our research and development division. They are available for both MDF and particleboard plants.

Thanks to the Schlick company's special nozzle technology and the use of hot steam, our glue-blending system for fibres – the Ecoresinator – has been shown to save 15% and more glue compared with traditional blowline glue-blending processes. The homogeneous distribution of glue also improves the quality of boards and their surfaces.

We have built on the success of the Ecoresinator for fibres and have now developed a new type of glue-blending system for particleboard production: the Ecoresinator P. It has been demonstrated that this system is able to save up to 10% of glue and the unprecedented even application of the glue to the particles makes the system an expedient investment – for both new and operationally tested plants.

We are also able to supply a complete ready-to-connect glue-injection system with switchgear cabinet and automation software for both the fibre and particle glue-bonding processes. The production data is continuously recorded, monitored and optimised with our Prod-IQ® process-control system. Its low investment costs means that the Ecoresinator glue-bonding system is also suitable for the subsequent modification of existing plants and that it may be integrated into production facilities within the shortest possible times.

Mat former systems

A wood-based board is only as good as the systems that form the boards. Whether the process uses particles, fibres or strands – we have carried out lots of research into the development of excellent mat-former systems for all types of different wood-based boards.

These state-of-the-art systems used in conjunction with the ContiRoll® constitute technically and technologically sophisticated machine units. The result: high-quality wood-based boards that will satisfy even the most demanding of end customers!

System	Surface layer	Core layer	Method
Particle board	Ecoformer SL	Cageformer	classic
	Ecoformer SL	CrownFormer	combination
	CrownFormer	Cageformer	combination
	CrownFormer	CrownFormer	mechanical
MDF	Starformer	–	mechanical
OSB	DiscFormer	FinFormer	classic
CSL/OSL	DiscFormer	–	modified

EcoFormer SL



Particle mat former



MDF mat formers

Forming line

Siempelkamp's forming line guarantees the best-possible conditioning of the mats before they enter the press as well as highest flexibility. Part of this flexibility is the fact that it is possible to easily change the production width and board thickness.

Quality tests using mat scales, the detection of ferrous and non-ferrous metals, SicoScan moisture measuring and equipment to measure the weight per unit area as well as the detection of foreign bodies round off the features associated with Siempelkamp's forming line. Prepresses that have been specifically adapted to the products ensure that air is removed from the mats and that they are stabilised in the best possible way.

The preheating systems, which constitute an in-house development, come into their own once the mats have been compacted and ensure that the mats are conditioned in the best possible way before they are admitted to the press. The mats are evenly heated through before they enter the press, which does not only improve product quality, it also reduces the time the mats need to stay in the press and as a result increases plant capacities.

OSB forming line



Innovation 1:

Mat preheating with microwaves

Our latest development – preheating with the ContiWave microwave system – significantly increases production capacities on plants used to manufacture particleboards, OSBs and fibreboards – for fast and reliable operations even for thick products. The ContiWave represents an attractive alternative to extending presses on existing plants when there is a need to produce thick board materials as the product mats already enter the press at higher temperatures.

Innovation 2: Siempelkamp's COMPACTOR

Our COMPACTOR is able to help plant owners significantly increase the capacities and qualities they achieve in the high-speed production of wood-based boards. The precompaction and therefore preparation of fibres helps ensure the prevention of blowouts during the pressing process – particularly where high board densities are concerned. Compression capacities of up to 8.000 N/cm reliably destroy any lumps of glue and undesirable structures so that they are no longer able to damage the steel belts on the press.

The benefits

- Homogeneous mat temperature
- Improved product quality with simultaneously higher production capacities
- Stable process conditions, e.g. when temperatures vary on a seasonal basis

The benefits

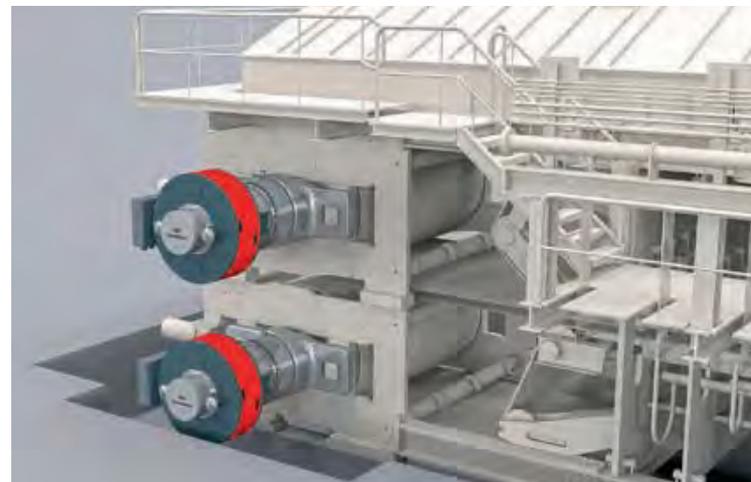
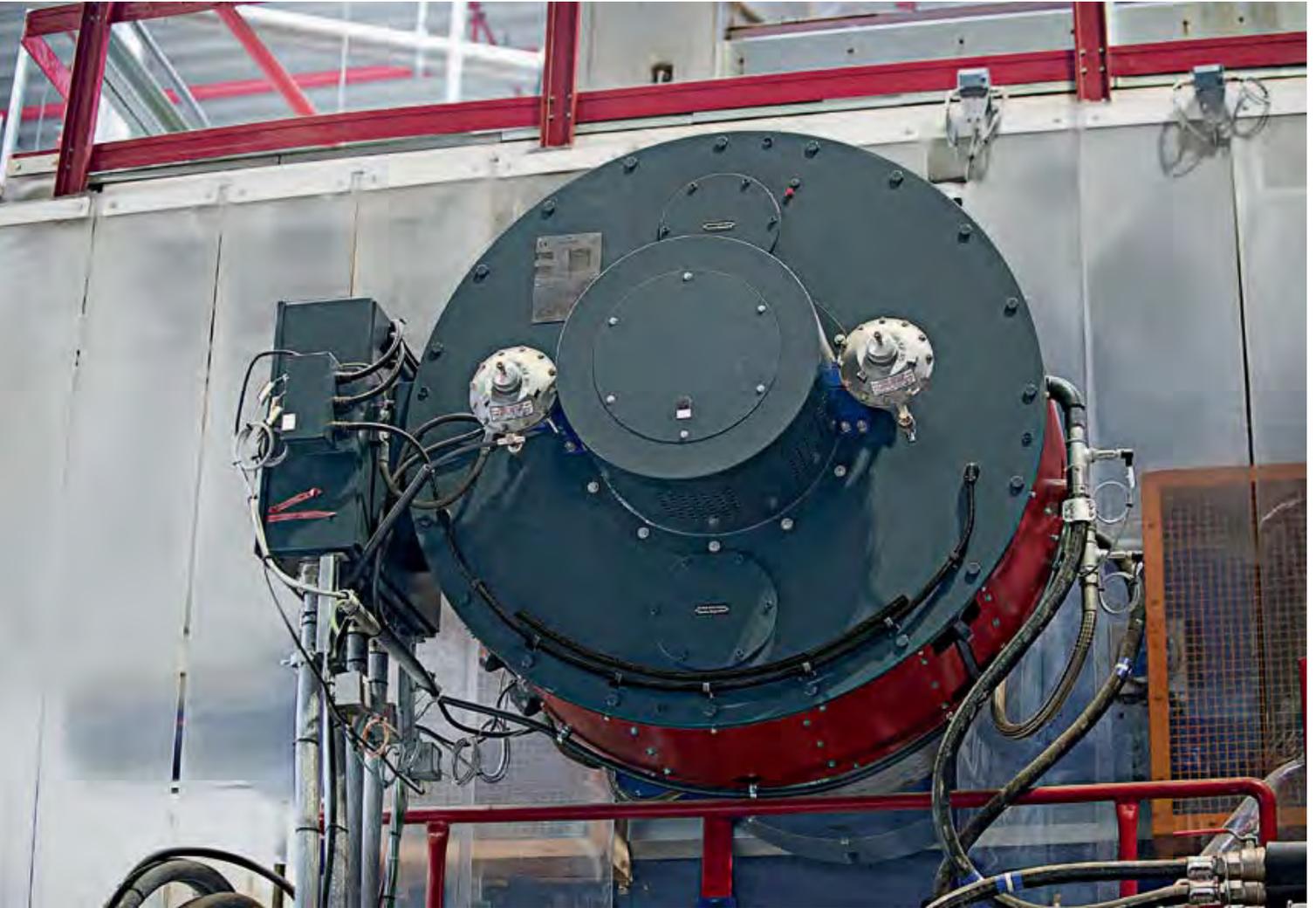
- Highest production speeds
- Best product quality through homogeneous material density

MDF forming line



Prepress

ContiRoll Ecodrive system



Motors of the ContiRoll Ecodrive

ContiRoll® presses: milestones in wood

The ContiRoll® continuous press constitutes the heart of a forming and press line and has made Siempelkamp the global market leader in the field of continuous presses for wood materials. Each and every one of its details stands for perfection – from pressure distribution through top mechanical and thermal flexibility to state-of-the-art control technology.

Annual outputs of up to 900,000 m³, absolute dependability and unsurpassed product quality have resulted in the reference status that the

ContiRoll® now enjoys. It has been sold more than 310 times worldwide and is being used to manufacture boards in many different types of climate across the globe. Be it furniture boards, boards for interior building, floor laminates, such ultra-thin boards as 1.5- to 4.0-millimetre MDF, lightweight boards, refined boards or wood veneers for use in construction: ContiRoll® may be used to manufacture all types of flat wood materials because three different machine sizes are available to meet needs depending on the product, board format and capacity.

	Design 1 (standard)	Design 2	Design 0
Working width	6 – 9 ft	Up to 12 ft, even extremely high pressure profiles	4 and 5 ft
Hot-platen length	Up to 60 m	From 50 m up to 80 m	Up to 40 m

ContiRoll®-MDF production plant



Our customers benefit from the unprecedented precision of the raw boards that can be achieved with the ContiRoll®. The pressure-distribution plates, a fundamental Siempelkamp invention, create a quasi-isobaric press. The additional line of cylinders is responsible for entirely balancing out any thickness fluctuations in the machine's calibrating section – which is achieved by controlling each cylinder individually.

The top and bottom infeed heads on the ContiRoll® are made from nodular graphite cast iron – which is a great expertise that Siempelkamp's foundry possesses. It results in an extremely stable and precise guiding and bending of the top infeed hot platen.

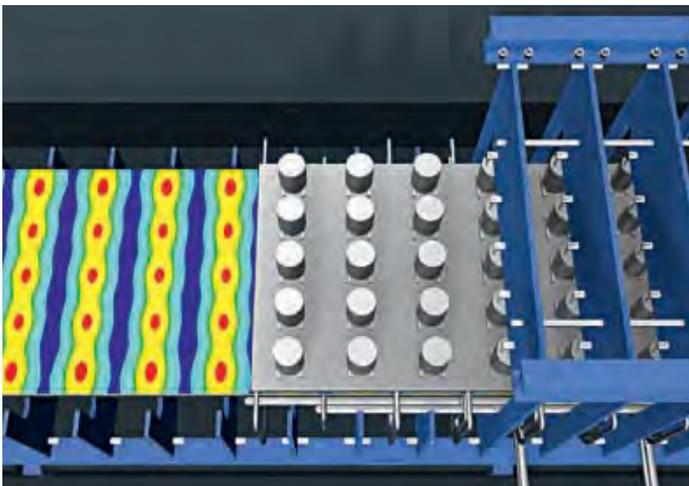
New: ContiRoll® Generation 9

We once again boosted innovation by launching our new ninth generation of the ContiRoll® press in 2017. It has been possible to further increase product quality and realise the potential to achieve even greater materials and energy savings – safely operated at 2,500 mm/sec – with the current concept.

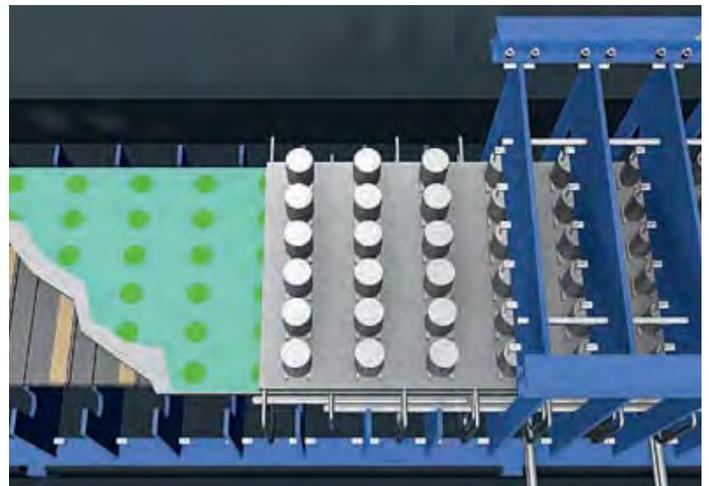
We have also been able to further improve the hydraulics with this innovation. The previously solitary units for the pre-press, the compactor and press itself have been combined for improved performance monitoring into a central unit. This is where all the relevant and central lines have been installed in proximity to each other, which minimises the number of sensors required for controlling and monitoring performances.

The benefits of the comprehensive ContiRoll® concept:

- High economic efficiency with maximum availability and capacity reserves
- Highest precision
- Short installation and commissioning times
- Steep start-up curve
- Material savings in wood and glue
- Optimisation of energy requirements – optimum board-density profile



Pressure pattern with pressure distribution plates



Pressure pattern without pressure distribution plates



ContiRoll® Generation 9 NEO



ContiRoll®-particleboard production plant

Finishing lines, handling systems, intralogistics, board refinement

Our range of performances continues after the press entirely in line with the motto of “perfection to the last”. From the trimming and cutting station to packaging, we will support you with complete finishing lines that include warehousing, intralogistics and board refinement.

Cooling turner



Multi-diagonal saws cut the boards to size once they have exited the ContiRoll®. Siempelkamp's cooling turner is characterised by its high availability and low maintenance requirements. The turner is followed by our stacking stations – with lifting platforms, pit-free with lifting chains or with tried-and-tested gripper carriages for high stacks. They are able to create commission-related small stacks or batch-accurate high stacks that are up to five metres high.

Sanding and cutting to size constitute additional important stages of the process. Our sanding lines

with fast feeding, modern surface checking and intelligent stacking and sorting systems guarantee rapid throughputs. Siempelkamp's cut-to-size systems stand for high performance, flexible cuts and low numbers of off-cuts. We develop our sawing solutions either as online concepts (integrated into sanding lines) or as free-standing angle systems.

Semi- or fully-automated packaging lines are installed separately or integrated into the production plant. The automatic systems reduce costs and increase the quality of the packaging.

Intralogistics are also part of our range of performances. This is where you can benefit from great dependability, high handling capacities, low maintenance costs and high levels of transparency in material flows.

Saws and cooling units



Board sizing units



Packaging line with foil shrinking system

Top: Cross-cut saw with package forming table
Centre: Stacking elements
Bottom: High-rack store

Short-cycle presses



Short-cycle press KT700

As a specialist in presses, we will also support you with the appropriate concept for the fast, accurate and economical finishing of particleboard, MDF or HDF. Ever greater demands are being made here on the visual appearance and feel – and with that also on lamination technology. We have two custom-made short-cycle press concepts to choose from: They cover the entire spectrum of the production range in question, from the standard furniture board to the demanding special product.

KT400, the Standard Line

The multi-cylinder press “Standard-Line” is ideal for the production of high-quality products in line with European standards. Up to 40 pressing cylinders, an energy-efficient heating control and pliant hot platens ensure the ideal pressure distribution. The advantages of this press are revealed in particular when it comes to laminate very different formats.

KT400



KT700, the High-End Line

Do you produce particularly high-quality and innovative boards? Our high-end model “KT700” is perfectly suitable for manufacturing, for example, relief-embossed tile, wall and ceiling panels as well as furniture boards. Thanks to its unpressurized exposure time reduced to 0.8 s as well as its pressing power increased to up to 700 N/cm², it makes an ideal quality of product available. Its advantage: More added value by way of design qualities, e.g. with 3D depth embossing and metal decors.

Grading of laminated boards



Beyond the pressing process, you can find both KT models integrated in a logical overall concept – including material handling, storage and packaging systems.

Special plants

Our pioneer role as specialists for equipment to process board-shaped materials is based on our good sense of your requirements and new opportunities on the market. Siempelkamp special plants support you in manufacturing innovative products efficiently and in high quality. There is a reason behind our motto being "Leadership in Technology"!

Equipment for light-weight board plants

The ideal properties of hexagonal structures – minimal cost of materials and energy, yet the greatest possible stability at the same time – is utilised by Siempelkamp for the industrial manufacture of frameless light-weight boards. These consist of two thin wood-based panels (MDF/OSB) and a honeycomb core made of cardboard, paper or MDF, and stand out due to their low weight, stability, smooth surfaces and defined formats. The surfaces can be sanded down, laminated, painted or left untreated for further processing. This makes light-weight boards particularly suitable for furniture manufacturing.

Our double belt presses for manufacturing light-weight boards facilitate the production of about 34,000 m² of boards per day. At your request, we provide them with a handling system, glue application system as well as cooling and stacking unit.

Equipment for wood fibre insulation boards

Wood-fibre insulation boards are most frequently used for thermal and acoustic insulation in external wall cladding systems and in internal ceilings, walls as well as for sound deadening in floors. The quality of them is in high demand especially in ecological buildings.

For the production of these boards, Siempelkamp developed a special process: It makes it possible to manufacture boards of thicknesses ranging between 20 and 300 mm in a dry process. Still being the only manufacturer in this field, we deliver adequate blenders and presses for the production of wood-fibre insulation boards having a width of 8.5'.



Doorskin plant

Central element in this process is the continuous calibrating and curing equipment ContiTherm® to treat the prepressed fibre mat. A steam-air mixture with a precisely controlled dew point is blown through the conventionally formed fibre mat.

Our portfolio comprises specific handling systems including diagonal and cut-to-size saws, profiling systems, stacking and loading equipment as well as packaging systems.

The advantages

- Increase board quality
- Reduced production costs
- Energy savings of about 30 %/t compared to the traditional wet process technology

Special plants



Multi-daylight press

LVL plant



LVL product

Equipment for doorskins

Also in the special segment of doorskin – thin, compression-moulded MDF – we have positioned ourselves with special equipment technology. With an output of up to 11 million doorskins per year, it counts among the fastest around the world. With this Siempelkamp technology, injected doors can be manufactured easily, simply and at low cost.

Equipment for transformer board/multi-daylight presses

For centuries, plant owners have been relying on our multi-daylight presses. Whether particle mats, fibre mats, doorskins or strand mats: the entire range of derived timber products can be produced on these presses. Even insulation material from pure pulp for high-voltage transformers can be manufactured with them. Large multi-daylight presses with a maximum height of 30 layers are constructed specially for OSB production in line with a special Siempelkamp construction principle. The largest multi-daylight press achieves a maximum daily production capacity of up to 2,400m³.

Siempelkamp transformer board units are equipped with intelligent control and instrumentation technology, the control system via a database-based recipe system and a processed data trending system for archiving the equipment data. We also offer forming lines, pre-compressing systems as well as loading and stacking lines that fully match the presses.

On Siempelkamp multi-daylight presses, high quality products are produced in the wet process, e.g. insulation materials for high-voltage transformers. The quality of these products is distinguished among others by great density, even thickness, surface smoothness, high mechanical stability, flexibility, ageing resistance and excellent insulation properties. A simultaneous closing device ensures mat contact at the same time and the uniform sealing of all channels irrespective of the position of the opening.

The advantages

- The highest possible accuracy in thickness
- Surface smoothness
- High mechanical stability and repeat accuracy
- Flexibility and ageing resistance of the product.
- Excellent electrical insulation properties

Units for laminated veneer lumber

Innovative products such as laminated veneer lumber (LVL) are also produced on Siempelkamp presses. This new concept illustrates how we set milestones on the market together with plant owners.

The positive properties of beech wood formed the basis of a development project that ended up in the continuous manufacture of beech LVL with thicknesses of between 20 and 85 mm. There are numerous possible new ways of use for this product as supports, beams and boards in the construction industry or interior work.

The fully automatic continuous production with the ContiRoll® caters for the best distribution of pressure thanks to innovative pressure distribution plates. For laminated veneer lumber equipment, we supply on request the power unit, glue storage and dosing, board handling as well as the automation.



Conveyor and wood preparation technology in an MDF-factory

Chip conveyor and storage system



Conveyor technology

“All from one source” means you can also get from us the conveyor technology to match your equipment. Whether after removing the bark in the woodyard, as a feeder to the glue blending and metering system or to the dryer: Siempelkamp conveyor technology can be found anywhere within a wood engineering plant where bulk goods have to be transported fast and safely.

Together with our subsidiary Sicoplan, responsible for planning and construction, and the fan specialist Ventapp, we offer screw, belt, chain and flight conveyors and extraction systems.


Sicoplan
 Engineering


VENTAPP
 Ventilatoren – Apparatebau

Instrumentation and process control technology

The demands on quality of particleboards, MDF, HDF, OSB, and veneer boards are high. Board weight, board thickness, density distribution, surface properties and the mechanical properties are subject to very low tolerances.

The Siempelkamp automation and control technology picks up here to keep product quality at a high level. It combines control-related processes, feedback control problems, operation, visualisation and overlapping process control tasks with a well thought-through system.

A key function in the overall concept is adopted by SicoScan: This process-integrated gauging system avoids product deviations as well as unnecessary raw material and energy consumption. With the ninth generation of the ContiRoll®, we have added to the SicoScan product family: EcoScan is a traversing weight-per-unit-area gauge and tramp material detector for particle, fibre, and strand mats.

One of our most important innovations in the field of process control technology is the

sequential product change that has been part of a Siempelkamp new plant since 2015 and not only merely available as a retrofit. It is used when many different batches are produced on one unit, yet the number of rejects is to be reduced to a minimum in the scope of the product change. The production line allows itself to be altered to the new parameters automatically when there is a production order change without having to open the reject mat nose.

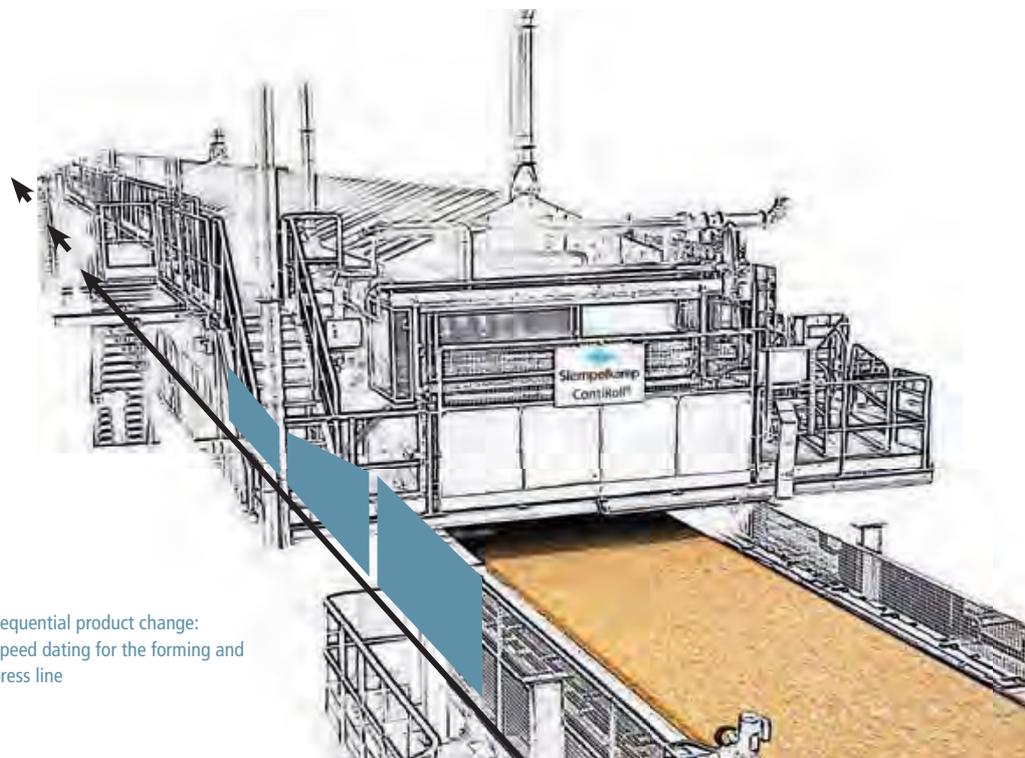
In order to analyse and optimise your plant in its entirety, we have developed Prod-IQ®. This innovative process control engineering system covers the areas of production management, quality control and maintenance with a linking to an ERP system.

New is the addition of the sequential production order change in order to allocate the right glue to the boards. With Prod-IQ®, the type of glue and its consumption can be protocolled precisely for the boards. Especially in the event of frequent production order changes or types of glue, glue consumption and surpluses are reduced considerably. The modules at a glance:

Mat moisture meter



SicoScan ultrasonic measurement system for blister and delamination detection with thickness gauge



Sequential product change:
Speed dating for the forming and press line

- **Prod-IQ.basics** contains basic modules for the generation of reliable and current management key indicators (availability, plant capacity, consumption, quality) as well as for process documentation (material flow tracking)
- **Prod-IQ.business** for the adaption of customer-related reports including script editor
- **Prod-IQ.quality**, the online quality forecast such as for the IB and the MOR
- **Prod-IQ.maintenance**: foresighted and condition-related support in maintenance and repair work

Our process control system is going a decisive step further with Prod-IQ® Next: Prod-IQ® Next stands for the self-optimising production plant and covers the perfect interplay of all Siempelkamp developments for production intelligence; starting with the ERP, recipe manager, automatic production change, online quality forecast and control over optimised control loops, intelligent instrumentation technology down to performance monitoring with equipment condition monitoring of the machines. The customer plans their own production – the plant does the work automatically, online quality-monitored, reliable, fully automatically, cost-efficient and projectable.

Your advantages

- High level of system availability due to fewer downtimes
- Optimised material consumption due to fewer rejects and optimal process control
- Higher production speed
- Online-quality control using quality forecast
- All facts and figures quickly at the right place
- Cost-trending analyses the effects of changed settings on the costs
- Linking to ERP systems for vertical integration
- Energy data collection from low-voltage network up to individual control cabinets with existing instrumentation technology as well as on fuel consumption

Online quality trending



Savings

Value Experience values
from to Notes

Savings	Value	Experience values	Notes
		from to	
Downtime reduction in %	1.5	1.5 2.5	Systematic downtime analysis → faster trouble shooting
Waste reduction in %	1.0	1.0 2.0	Online quality check
Cut in material consumption in %	2.0	1.5 3.0	Reduced process fluctuations → lighter boards – consistent quality
Speed increase in %	0.5	0.5 6.0	Closest approach to the quality limit

Plant automation



Within the Siempelkamp Group, the ATR Industrie-Elektronik GmbH stands for high-performance automation solutions that integrate ideally into your business process. This enables optimal product quality and productivity. You have the choice between as high a degree as possible of standardization and solutions customized to your needs.

Our plant automation provides a harmonious overall concept all to do with electric components, open- and closed-loop control systems, network components, drive technology as well as the operating and monitoring of the entire machine or plant. In addition, the solutions are integrated into process control technology. Last but not least, we also cater for safe assembly and fast initial operation of the system in this field.

Control units, the core competence of ATR, form the technical "central nervous system" of a plant. They secure power circuits, control drives, network and act as the interface for all information regarding the current state of the plant and processing. Increasingly more industrial branches are relying on this competence so that our company is regarded as one of the largest providers in Germany.

Services:

- Power, control, drive and microprocessor cabinets up to 1,000 V
- Manufacture of the switch- and control gear assembly in compliance with national and international regulations and norms, e.g. DIN, EN, ISO, NEC, UL, cUL, CSA and EAC
- Acceptance and certification of UL and cUL plants in the building by authorised personnel
- High development and production competence for instrumentation and control electronics
- Intelligently optimised and standardised manufacturing processes
- 100 percent final inspection of all switch- and control gear assemblies
- Contract manufacturing in made-to-order and mass production



SICO SPC – Siempelkamp Press Controller



ATR specialists carrying out the final checks of switch cabinets



Packaging of the plant components for dispatch

Press assembly



Transport, assembly, start-up

Siempelkamp customers can be found all over the world. To this extent, elaborated country-specific transport concepts from A to Z are part of what we offer. This includes the professional assembly and start-up of the plants at the construction sites themselves – the perfect round-off of the “all from one source” concept!

Transport

Our tailor-made logistics concepts include the organization and implementation of the entire logistics chain of worldwide suppliers down to your works. We organize the timely collection of the machine and plant parts from the manufacturers and cater for the necessary packaging, to match the mode of transport and the transport route.

Services:

- Detailed planning and control of the transport chains
- Barcode-based interface monitoring down to the customer construction site
- Complete storage planning for the construction site – at times down to the delivery of the foundations
- Implementation of the storage planning by trained staff on site

- Support in documentation and payment of customs duty in the recipient country

Assembly

We deliver all plant components for installation based on the detailed installation process and staff plans at your construction site. Our experts focus themselves in many cases on supporting the customer’s own assembly team. Increasingly often, however, we are commissioned to do the entire assembly work. The fulcrum here is the Siempelkamp assembly manager who manages the entire set-up on site and who coordinates and controls the deliveries and works together with the project management team in Krefeld.

Services:

- Stipulating dates, deliveries, tools and assembly staff
- Coordination of the entire assembly on site
- Speedy assembly process
- Transparency among everybody involved
- Binding coordination between suppliers, customers and Siempelkamp
- Monitoring of time and cost planning

Transport, assembly, start-up

Assembly of a ...



... ContiRoll® for LVL

The first board



Services:

- Mechanical and electrical start-up of all equipment
- Start-up of the plant control system without and with material
- Training of the customer's staff on the operation and maintenance of the plant (mechanics, electrics, hydraulics)
- Start of board production with technological training including a technology manual
- Increase in production capacity until test operation of the plant
- Hand-over of the running plant to the customer

Start-up



Service, conversion, modernisation

Worldwide customer support to maintain Siempelkamp's machinery and equipment throughout their service lives - this is the core competence of our subsidiary Siempelkamp Logistics & Service GmbH. Its portfolio comprises planning and realisation of maintenance and complex retrofitting projects, spare part service, field service as well as teleservice.

At three locations, the team at Siempelkamp Logistics & Service GmbH is dedicated to quick service maintaining the highest quality standards and smooth processes. This service enjoys a first-class reputation when it comes to qualified field service, on-time spare-part deliveries, and retrofits of all kinds.

The team in Krefeld focuses on modernisations and retrofits, spare-parts service, worldwide inspections, maintenance, and support during production downtimes. In Bad Kreuznach, at the Logistics Centre for global deliveries, we handle the standard spare-part business and the supplies to Siempelkamp's production locations. Standard components for plants made by Siempelkamp, Küsters, Metso, Bison, and Hombak are ready for delivery on demand. In Wolfratshausen, Siempelkamp specialists concentrate on services particularly relating to finishing lines. Our service subsidiaries in all parts of the world complete our fine-meshed service network.

Our range of spare parts – machines and components for:

- The wood based-material industry (plants made by Siempelkamp, Küsters, Metso, Bison, Hombak, Pallmann and CMC)
- Metal forming presses
- Rubber presses
- HPL presses
- Fibre-cement board presses
- Gypsum fibreboard presses

The spare parts service covers not only drive, linear and sealing technology, but also mechanics, hydraulics, pneumatics and electronics – including the production of components according to original drawings.



Your advantages

- Better product properties, improved performance, increased plant availability
- Less wear and tear
- Lower shutdown costs through on-site presence
- Greater plant safety
- Siempelkamp expertise with inspection and maintenance work

A service team doing their field job



Service, conversion, modernisation

Siempelkamp Logistics & Service GmbH (SLS) in Bad Kreuznach has always relied on sensible and reliable stocks. With a new service and logistics centre and thus significantly larger storage capacities, SLS is continuously expanding its own demands as the perfect service partner: An additional 7,000 m² of storage space has been developed in the first construction phase. Now, thanks to the new dimensions, even more parts can be stored.

Siempelkamp customers from all over the world thus benefit more than ever from greater performance, i.e. reliable spare part support. The distance is short from Bad Kreuznach to Frankfurt Airport from where any part can reach the world's largest airports within 24 hours. Plant owners can thus rely more than ever on being supported fast and with the right spare parts in the case of an emergency.

Your advantages

- Original spare parts
 - Fast identification of the right parts
 - Punctual delivery
 - Avoidance of unnecessary standstills
 - Effective logistics
 - Status of SLS as "known sender": Customers receive their spare parts in the fastest way possible as controls can be conducted on site in Bad Kreuznach.
-



The new vertical lift shuttle is being equipped

New logistics hall in Bad Kreuznach: View from the outside



Research & development

The demands on the production of plane wood-based materials are high. The focus is on coupling increasingly excellent quality and higher capacities with the gentle use of resources and high energy-saving potentials. We have made it our objective to put these demands into practice together with our customers.

At our own R&D Centre at our head office in Krefeld, employees from various fields develop new processes and solutions for highly complex technological processes. From the initial idea to the finished plant, we dedicate ourselves to feasibility studies as well as analyses of product properties, suitability and risks. Our work also includes raw material assessments of wood and glue as well as product analyses under laboratory conditions.

Since the integration of Pallmann, specialists for size-reduction engineering, in the Siempelkamp Group, we now have another R&D Centre – the largest of its kind! 120 size-reduction machines are ready for operation there. With this equipment we dedicate ourselves to the development of the process, the further development of our machines and the testing of new developments. The intensive dialogue with universities, research institutes and customers promotes this dedication.

Siempelkamp R&D Centre – the topics:

- Size-reduction - e.g. chipping, flaking, refining, grinding
- Separating - e. g. screening, sifting
- Drying - e.g. particles, minerals, materials for special drying
- Mixing - e.g. plastic, granulate, rubber
- Gluing – e.g. bio-based binder, silane, fibres
- Tape laying - forming of fibres or plastic pellets
- Tape placement - e.g. paper, plastic, rubber belts
- Presses - e.g. ContiRoll®, cycle presses, heating and cooling presses



Pallmann's R&D Centre

Sifter at the R&D Centre in Krefeld



Pre-owned plants



Drive drums with friction linings in the press discharge end

Siempelkamp also supports its customers in acquiring and selling used plants for the wood-based panel industry. We buy back and disassemble field-proven machinery tailoring it to customer-specific requirements to lead them back to the market. Our support includes all services leading to the re-commissioning of used plants.

Both the seller and the new plant owner will benefit from our support: When shutting down a plant, the customer contacts us to benefit from our worldwide marketing expertise. Customers buying a pre-owned plant know that they may rely on our experience and the provision of all adequate equipment.

Our service portfolio at a glance:

- Marketing of pre-owned plants for manufacturing particleboard, MDF and OSB with continuous press systems made by Siempelkamp, Küsters, Bison and Metso
- Marketing of pre-owned machinery for surface lamination of particleboards and MDF (short-cycle press plants)
- Support in the placement/purchase of pre-owned plants
- As-is analysis including technical assessment
- Advice on repairs, spare parts, modernizations and possible complementary new equipment
- Plant planning and engineering of tailor-made solutions
- Project-specific planning of all the individual processes
- Appropriate disassembly, "all-round care-free" logistics, professional re-assembly including start up and functional guarantee

Test operation



The advantages

- Reliable Siempelkamp expertise as plant manufacturer and system supplier for complete systems in the wood-based material industry
- Sound basis: Our detailed knowledge and experience in the pre-owned plant business
- Database-based system for collected potential interests worldwide
- Support by an experienced project team during the entire realization process
- Cost reduction, greater availability of the plant, higher capacities, increased product quality and less maintenance costs due to the implementation of innovative modification and modernisation packages
- Project safety with regard to dates and costs
- Complete solutions from one source – a responsible partner



Assembly of hot platens

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