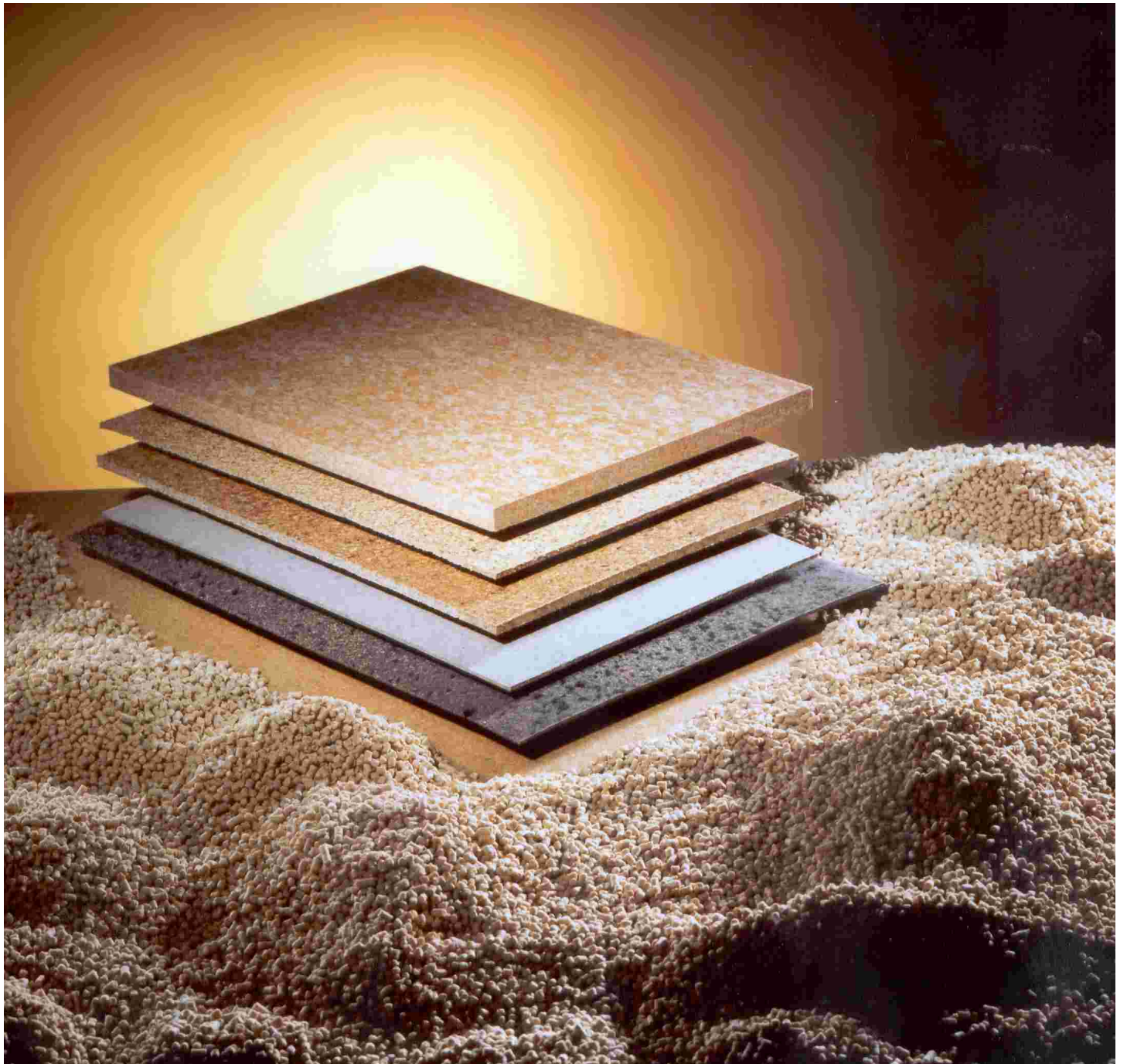


P - LINETM

Manufacturing of Panels from Wood-Plastic Composites



Manufacturing of Panels from Wood-Plastic Composites

More efficient, economical, better. These are the market demands for systems for the manufacturing of panels from wood plastic composites.

PALLMANN offers, together with competent partners, EPS and TPS technically matured systems with economically convincing capacities. Our goal during the development of P-LINE™ :

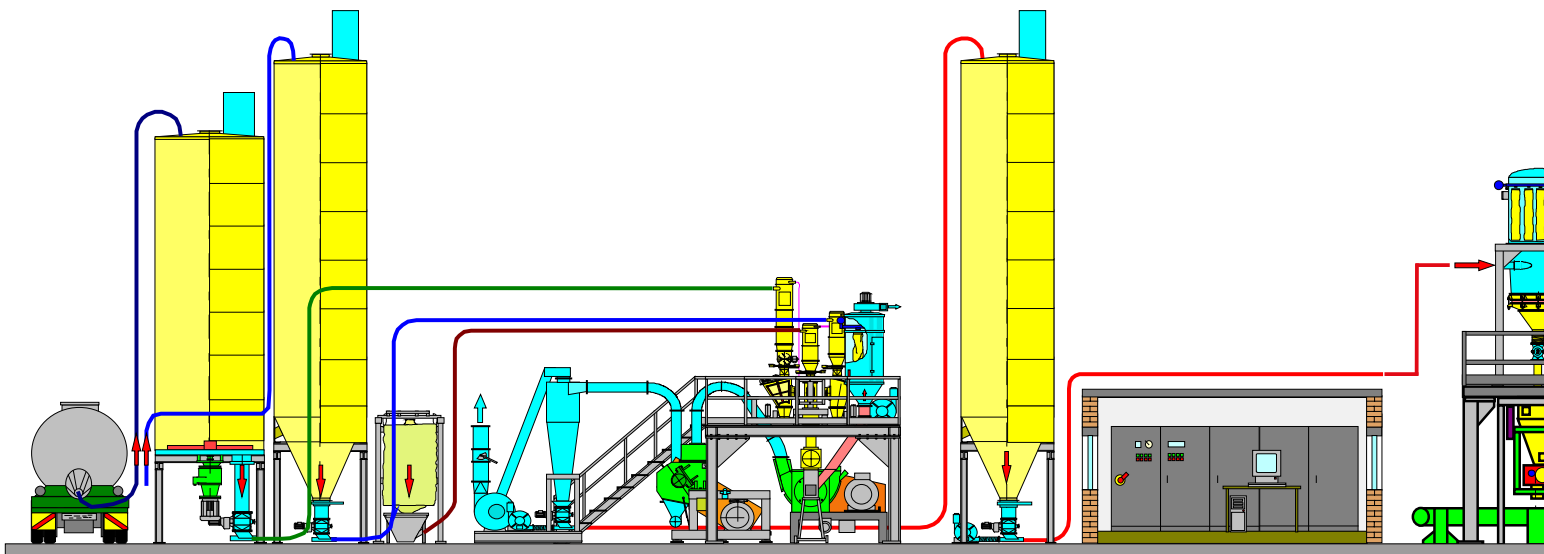
To give our customers the possibility to economically produce the highest quality panel with our combined know-how in processing technology.

Three essential processing steps characterize the technology of P-LINE™:

- **Palltrusion™** - Manufacturing of wood plastic composites (WPC) with the PALLTRUDER®.
- **Scattering** – of the WPC by means of a precision scattering machine with a rotating brush system -P-SCATT™.
- **Pressing** – and calendering of the panel material with double belt press technology-P-FIX™.



PALLTRUDER®



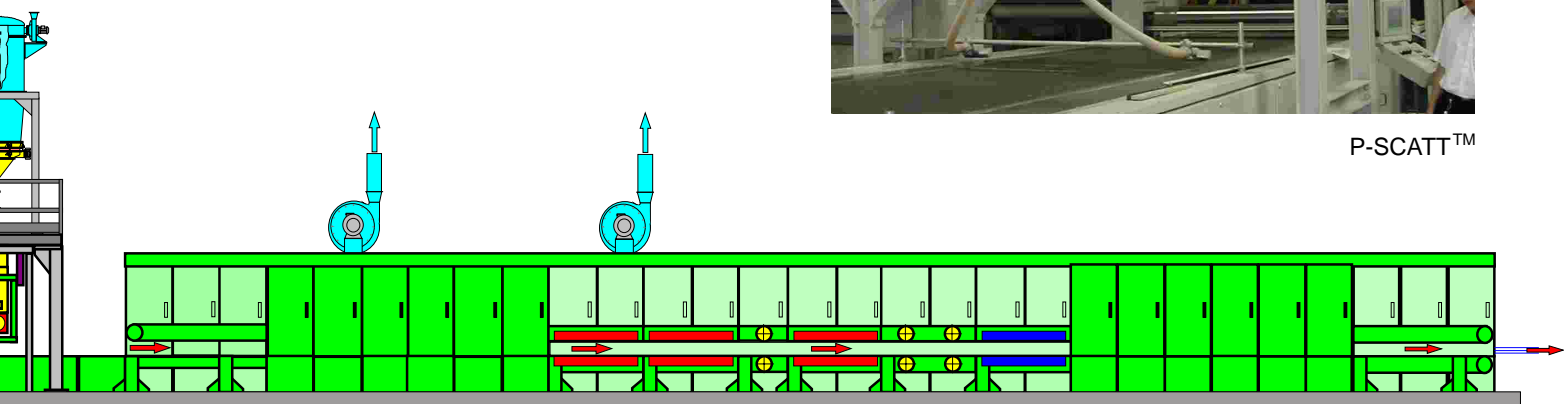


P-FIX™

P-LINE™ systems manufacture panels with a width of 1200 mm to 2200 mm with a panel thickness of 2 mm to 20 mm. Production capacities will be laid out according to customers' material, specifications and requirements.



P-SCATT™



Palltrusion™ - Technology

PALLMANN has set new standards in the production of wood plastic composites with the development of the PALLTRUDER®.

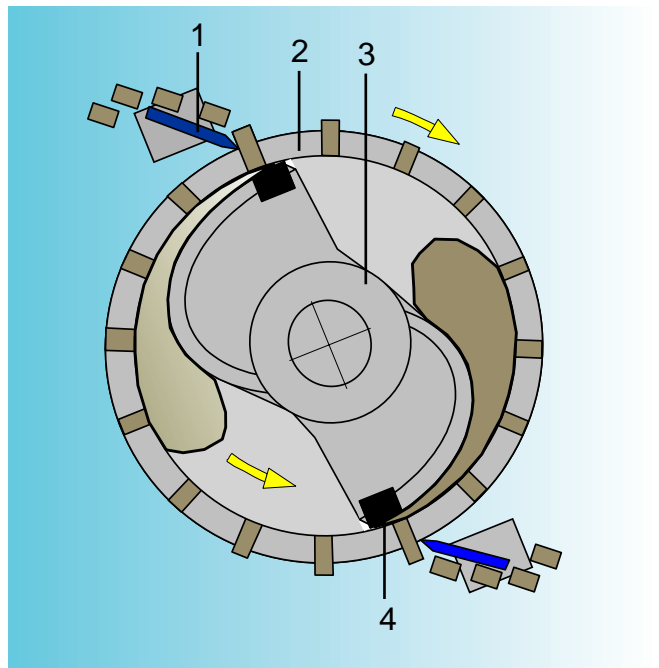
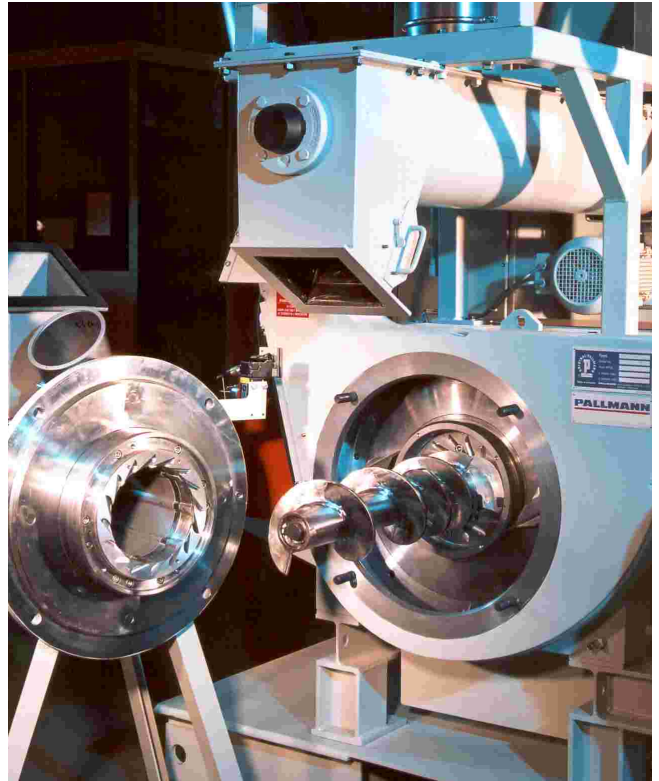
An improved product quality, higher throughput rate and a broad processing range characterize Palltrusion™ technology.

The PALLTRUDER® produces an optimum end product: Granules with reproducible quality affecting a wide material spectrum – at low cost.

Fibers from natural materials – especially wood flour, plastic chips, fibers or powders as well as lubricants and other additives are equally metered into the PALLTRUDER®.

Frictional heat and high pressure, produced by a screw ending in a special pressure disc work the plastic into the natural fibers.

Rotating knives at the outside diameter of a die cut the protruding material into free flowing granules - PALLWOOD®.



PALLTRUDER® - Technology

1. Knives
2. Die
3. Pressure Disc
4. Pressure pieces



The mixing ratio, the type of plastic and the natural fibers as well as their moisture content are decisive for the throughput rate to be achieved by the system.

The effectiveness of the PALLTRUDER[®] is improved by the integration of intelligent, gravimetric sensor technology. The quality of the granules produced is kept constant by the stabilization of the mass throughput.

The PALLTRUDER[®] preferably processes material with a moisture content of up to 8 percent. Steam arising in the process is directed through a filter unit into the atmosphere by a vacuum device. Fines separated are automatically re-introduced into the process. The moisture content of the granules produced is below 1 percent.



Wood flour



Plastic granules



PALLWOOD[®]

Scattering and P-Fix™ Double Belt Press Technology

Scattering technology from EPS and TPS is used to distribute the PALLWOOD® onto the lower belt of a double belt press. With the help of the stiff doctor blade, the "pockets" of the scattering roller are filled with material. After a quarter rotation counter clockwise, the material is brushed out by the brush-off roller, also rotating counter clockwise, and with the centrifugal force through the mask with the sliding plane, and simultaneously, it is evenly distributed onto the bypassing carrier.

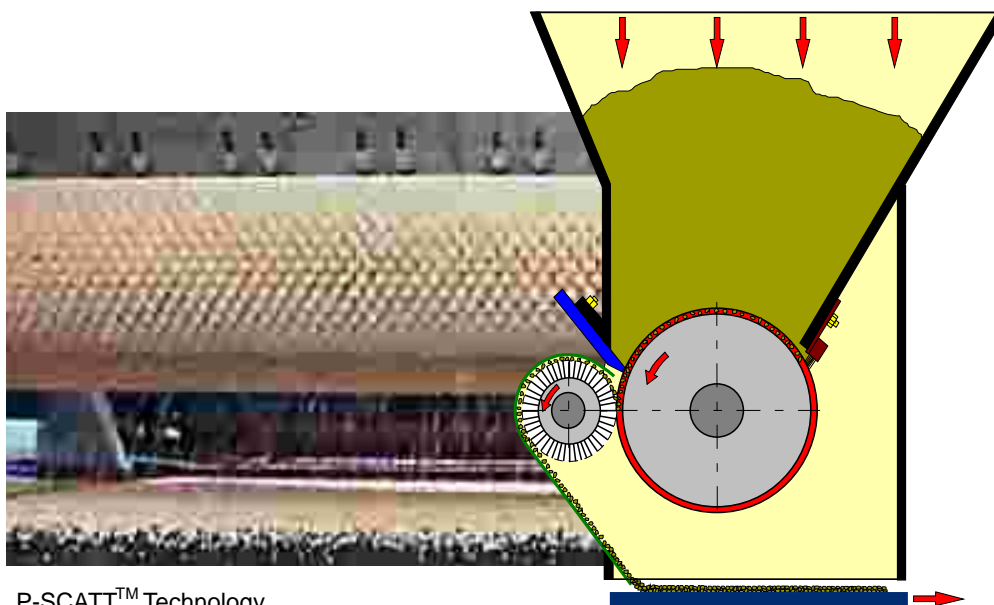
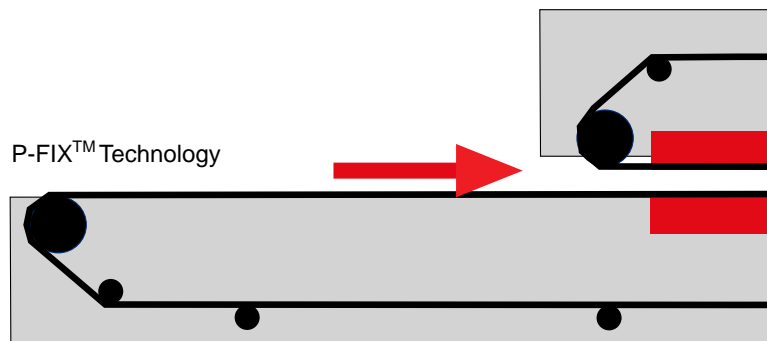
The economically efficient and high quality production of panel material from wood plastic composites cannot be achieved without automation. Therefore our scope of supply contains all relevant components:

- Complete line automation for reproducible production at high quality and low cost
- Centralized operation

Low initial investment, minimized space requirement with an increase in product quality. These are the arguments that speak for P-LINE™.



P-SCATT™



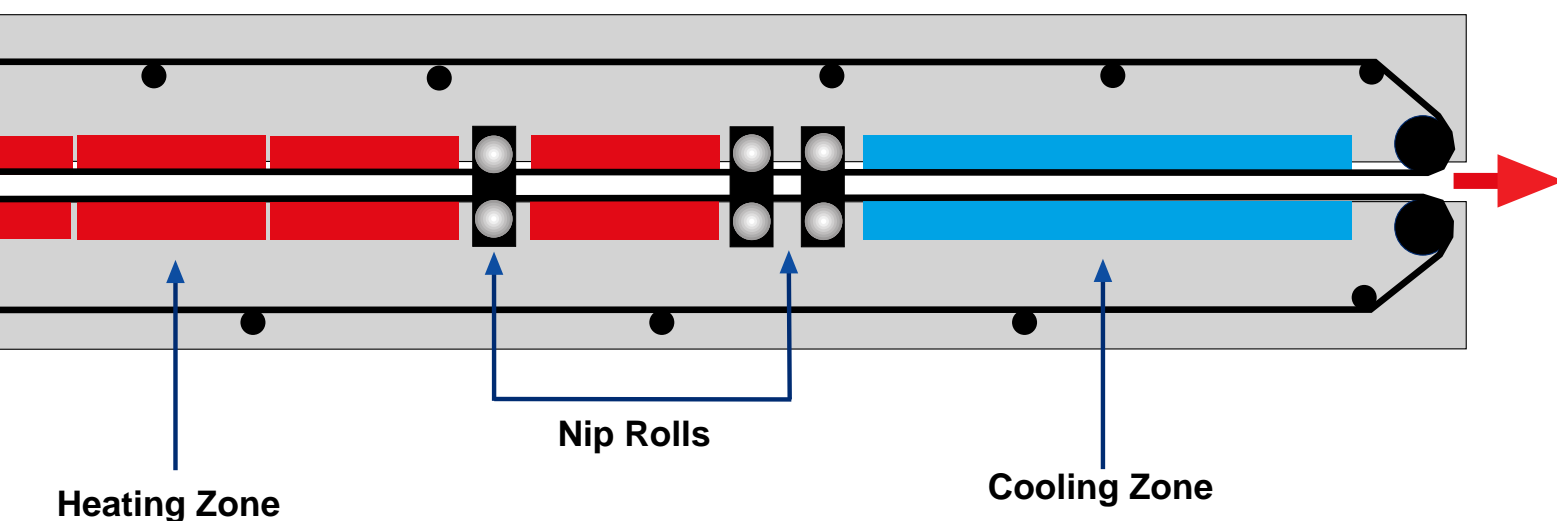
P-SCATT™ Technology



P-FIX™

For the P-FIX™-System two reinforced thermally stable coated belts (Glass + Teflon) are arranged horizontally one on top of the other.

The extended lower belt is transporting the WPC-granules which are applied by the P-SCATT™ scattering machine. The backside of the belts are in contact with heating and cooling platens. While the lower platens are mounted rigidly, the upper platens are moving in vertical direction together with the entire upper belt in order to create a gap according to the required thickness of material. One or more pairs of calibrating nip rolls are mounted between the heating and the cooling zone.



Precision scattered PALLWOOD®



High quality panels



Partners acting worldwide

The PALLMANN group of companies is the leading manufacturer of machines and systems for size reduction technology in the board-, plastic- and recycling industry.

PALLMANN operates, at its headquarters in Zweibrücken, one of the world's largest research and technology centers as well as a training and service center. In addition to the manufacturing facilities in North- and South America, the PALLMANN group of companies maintains a worldwide spare parts-and service network.



Schilling-Knobel GmbH

Schilling-Knobel GmbH - EPS

EPS – well-known in the flooring industry for decades, delivers scattering and double belt press technology, supplies the application know-how and provides services for the P-FIX™

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TechnoPartner Samtronic GmbH - TPS

TPS, a first-class machine shop exclusively co-operating with Schilling-Knobel GmbH - EPS, builds special machines, systems and tailor made designs. Plans and builds the complete electrical system to run the P-LINE™ using newest Siemens S7 PLC-systems with Wonderware in Touch Visualisation.



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