

# EXTRUSION SOLUTIONS



Chooses



Leading Wood-Plastic Composite Decking Producer Uses ENTEK for Higher Productivity – MUCH Higher Productivity



Wood-plastic composite decking continues to show exponential growth in the marketplace as an alternative to traditional cedar, treated pine and other woods for deck construction. Consumer demands for low maintenance, durability, quality and affordability combined with the continued strong movement toward outdoor living spaces is fueling this growth.

Louisiana-Pacific Corporation (LP), headquartered in Nashville, TN, is one of the leading manufacturers of premium building products in North America, with 2004 sales in excess of \$2.8 billion. The company's line of LP WeatherBest® Decking products is an industry leader in selection and quality.

To meet their growth goals and manufacturing needs, LP uses ENTEK, and not just because of the company's twin-screw extruders, which are providing the highest output in the industry. "With ENTEK, it's not just about selling us their machinery," said John Sooker, General Manager – Outdoor Living for LP. "They stand side by side with us to help us achieve our goals, and are a good partner."

## Manufacturing Challenges

LP first approached ENTEK at the NPE show in 2003, eager to find a twin-screw extruder supplier that could help them meet their manufacturing challenges. After the first meeting between the companies, LP saw a "better platform for growth that others could not offer," according to Sooker. "High output is critical when manufacturing our decking products and the output from the ENTEK extruders is significantly better than any other machinery we had worked with," he said. "ENTEK also understands manufacturing and plant operations."

Manufacturing wood-plastic composite decking is a challenging process. The finished deck boards need to look like real wood, and resist warping, splitting, termite and mold damage. This requires the best formulation of wood flour, plastic, and additives, extruded under high pressure and heat. "We have worked with LP to run extensive lab trials to perfect the process," said Dr. Kirk Hanawalt, Vice President-Worldwide Sales for ENTEK. "It's an ongoing process, as the formulations to produce the best quality deck boards change and the technology continues to evolve."

LP is processing their decking using several ENTEK 103mm extruders at plants throughout the U.S., and has more machines on order. The extruders are used to produce a variety of LP WeatherBest decking products, including the company's new, popular line of Premium Grain Decking.

## Cost Savings

"The process has improved our ability to impact conversion costs," said Sooker. "ENTEK does not require any kind of fees or licenses, and their co-rotating twin screw design is providing us with much higher output than conical screw models that others use."

Business is good at LP, so good that the company is planning an expansion of its Outdoor Living group's operations. This includes increasing the capacity at its LP WeatherBest Decking Products manufacturing locations. "With the expansions, we expect to work with ENTEK to further improve our technology base as well," said Sooker. "We have learned from experience. Other extruder suppliers were always telling us 'we'll be doing it' when we asked about increasing output – ENTEK did it!"



# Welcome

*"We don't just want to sell you a twin-screw extruder, we want to partner with you to improve your process."*

I'd like to welcome you to the first issue of our new newsletter, *Extrusion Solutions*. It is our hope that you will find real value in these pages by learning more about the benefits of twin-screw extrusion, and ways in which ENTEK is applying its technology to improve processing applications around the world.

For example, in this issue we feature two customers who are benefiting from ENTEK technology. Our cover story highlights our partnership with LP here in the U.S., where ENTEK has helped them significantly increase output of their high quality LP WeatherBest® line of wood-plastic composite decking. And on p. 4 you'll read about our relationship with Plantic of Melbourne, Australia, who uses ENTEK machinery to compound their line of innovative, biodegradable materials.

These are just two examples of real-life "extrusion solutions" where ENTEK is helping customers achieve their production goals. Whether your application is color compounding, pelletizing, sheet extrusion or fiber-plastic composites, we encourage you to contact us to discuss *your* goals.

### Try Us - We're Different

You've probably heard this before from many companies, but we at ENTEK believe we're different. Different because we don't just want to sell you a twin-screw extruder, we want to partner with you to improve your process. Different because we actually encourage you to come to us with your toughest, most difficult-to-process formulation. Different because our experienced team of engineers really can add value to your entire process, providing a variety of ways to improve your productivity. We work with customers tirelessly until we have met or exceeded their goals.

In closing, I'd like to say thank you for taking the time to look through our new newsletter and I hope you find it useful. Please contact me anytime at [khanawalt@entek-mfg.com](mailto:khanawalt@entek-mfg.com), or visit our web site at [www.entekextruders.com](http://www.entekextruders.com).

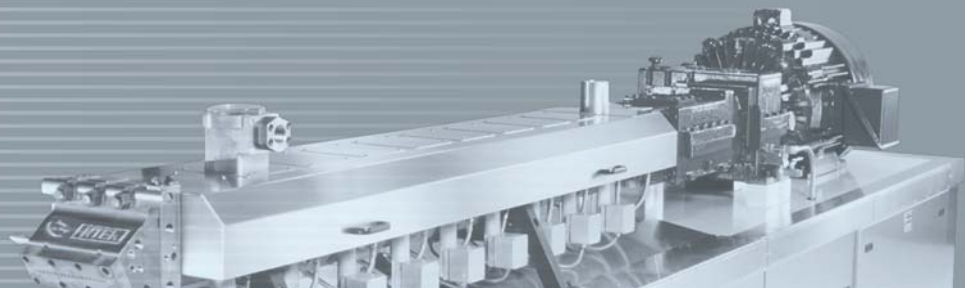
Sincerely,



Dr. Kirk Hanawalt

Dr. Kirk Hanawalt  
Vice President  
Worldwide Sales  
ENTEK Manufacturing, Inc.





## Who is ENTEK?

*“ENTEK is a customer focused manufacturer of turnkey production systems, twin-screw extruders, and components.”*



*Aerial view of ENTEK headquarters in Lebanon, Oregon USA.*

ENTEK is different. A brief history of our company helps explain why.

ENTEK Extruders are produced by ENTEK Manufacturing, Inc. Headquartered in Lebanon, Oregon, ENTEK is a customer focused manufacturer of turnkey production systems, twin screw extruders, and components. We are leaders in the extrusion of natural fiber-plastic composites (wood decking), pelletizing, custom compounding (mixing of colorants, fillers, etc), specialty sheet lines, and other markets including food and medical applications. In addition to producing state-of-the-art twin screw extruders, ENTEK's highly-trained engineering department helps companies optimize production, and ENTEK's turnkey expertise helps customers establish complete plant-wide operations, often from the ground up.

ENTEK began operations in the 1980's as a producer of high molecular weight polyethylene-based, highly filled sheet for the maintenance-free automotive battery market. At that time the company was purchasing commercially available twin-screw extruders to support its core business, but quickly determined that it needed to develop its own extrusion solutions to support production of this difficult to process material. ENTEK Manufacturing, Inc. was established initially as a sister company to ENTEK International, to provide machinery and all turnkey engineering support. ENTEK International operates multiple ENTEK Extruders on a daily basis, and the innovative practices and equipment solutions developed by ENTEK Manufacturing, Inc. to minimize downtime are available to all of the company's customers.

Building off this success with its sister company, ENTEK has grown to become one of the industry's leading providers of twin screw extrusion solutions. ENTEK provides complete, turnkey engineering support that enables customers to develop and operate highly productive, efficient processing plants for a wide variety of materials. ENTEK Extruders feature high throughput and wear resistant components that can successfully process highly abrasive materials with minimal downtime.

Today, ENTEK is committed to continuing its dynamic growth by helping customers meet or exceed their business objectives, worldwide. We encourage extruders and compounders to contact us to experience for themselves, the ENTEK difference. Our friends at LP and Plantic called ENTEK, and they're glad they did! Will you be next?

## Upcoming Events

**Wood-Plastic and Natural Fiber Composites 2005**

Baltimore, Maryland USA  
October 24-26, 2005

**Wood-Plastic Composites**

Vienna, Austria  
December 5-7, 2005

**NPE 2006**

Chicago, Illinois USA  
June 19-23, 2006

## PARTNERSHIPS



**PLANTIC**  
Plastic from plants

Chooses



Biodegradability – the ability of a material to be ‘eaten’ by microbes, leaving nothing but carbon dioxide and water - is the foundation of Plantic Technologies, Ltd. of Melbourne, Australia. Founded in 2002, Plantic’s materials are derived from plants and are being used to produce products such as trays for chocolates, and packaging for cookies and other products. The plastic alternative material works like plastic, but is made from renewable and sustainable resources.

Trying to manufacture this new material posed a number of challenges to Plantic. The material, made up largely of corn starch and other ingredients, is extruded into sheet for use in a variety of packaging applications. After trying as many as seven extruder suppliers to successfully compound their materials, ENTEK became Plantic’s supplier of choice. A large part of this success was due to the extensive lab trials run at ENTEK’s headquarters in Lebanon, Oregon.

### Service and Support Make the Difference

Plantic began searching for a twin-screw extruder supplier that would help improve their manufacturing process as they scaled up to commercial production. Several companies were contacted, including ENTEK. According to Linda Campbell, Inside Sales Manager at ENTEK, an important part of the process was working with Plantic to trial a wide variety of formulations to optimize the material performance.

“We have had many trials with Plantic that helped them refine their process,” said Campbell. “On some of these trials, we ran up to 30 formulas in one day. This requires a lot of preparation before the trials; for instance, we helped Plantic source several different raw materials in small batches from around the world, and had the materials shipped in advance to our headquarters in Oregon. It was this type of effort, which we do with all customers, that showed Plantic that we were committed to partnering with them to improve their process and results.”

Due to the success of the trials, Plantic decided to purchase a turnkey 53mm ENTEK extruder line. Another example of outstanding ENTEK service involved the start-up of the extruder at Plantic’s headquarters in Melbourne. Although ENTEK had agreed to provide one engineer to attend the start-up, Plantic requested that a second Controls specialist from ENTEK also attend. ENTEK sent the controls specialist at its own expense to ensure a smooth start-up. “Our core values mean doing the right thing – whatever it takes,” said Campbell.

### Another Happy Customer

Since then, Plantic has ordered two additional ENTEK extruders, a 27mm system and most recently a 103mm system for high production to support demand for its materials, particularly in Europe. They have also recommended ENTEK to other companies in Australia; in fact their recommendation to one of their partners in research, the University of Queensland, led to their ordering an ENTEK machine.

Says Brendan Morris, Chief Operating Officer of Plantic Technologies Ltd., “We have installed ENTEK extruders at our Melbourne plant. We are using them to manufacture our environmentally sustainable and biodegradable Plantic® material. We are delighted with the performance of our ENTEK machines and ENTEK’s commitment to service and would recommend ENTEK to any potential customers.” More information about Plantic can be found at [www.plantic.com.au](http://www.plantic.com.au).



*100% biodegradable thermoformed trays from Plantic are used for a variety of food packaging applications.*

## ENTEK Fiber-Plastic Composite Extrusion Systems

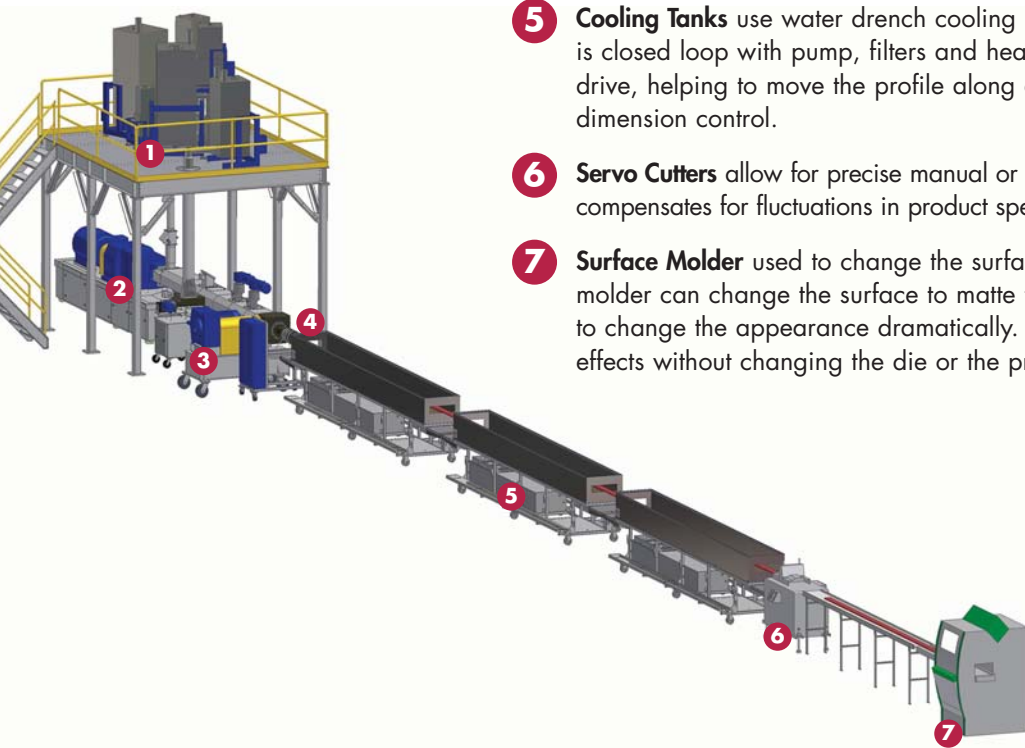
*"We are experienced with developing complete production systems for some of the largest producers of wood-plastic decking."*

ENTEK is your full-service supplier for the production of Fiber-Plastic Composites. We are experienced with developing complete production systems for some of the largest producers of wood-plastic decking, and have even developed turnkey plants for some of these companies as well. In addition, ENTEK machines feature industry-leading output rates.

At ENTEK, our engineering strengths are your competitive advantage. Our team of engineers works with you to optimize the performance of your particular formulation. Extensive lab trials are run at ENTEK's headquarters in Lebanon, Oregon and we don't rest until we have met or exceeded your expectations!

The schematic pictured here illustrates a typical layout for an ENTEK wood-plastic composite system for producing deck boards. If fiber-plastic composites are your business, we would like to talk with you. We're confident we can partner with you to improve your productivity and as a result, improve your bottom line.

- 1 Loss in Weight Feeders** for accurate formulation and steady state operations. Feeder controls are fully integrated into the extruder controls.
- 2 E-MAX™ Twin-Screw Extruders** feature segmented barrels and screws for optimization of any formulation. The co-rotating design yields excellent dispersive and distributive mixing for high throughput and consistent finished product.
- 3 Melt Pump** for pressure generation and control. Allows for combined compounding and direct profile extrusion.
- 4 Dies** can be ENTEK or customer supplied. ENTEK will supply all adapters to connect downstream equipment to the outlet of the extruder.
- 5 Cooling Tanks** use water drench cooling for maximum heat transfer. The cooling tank is closed loop with pump, filters and heat exchanger. Rollers are powered by a belt drive, helping to move the profile along and reducing stress on the profile for better dimension control.
- 6 Servo Cutters** allow for precise manual or automatic cutting of profiles. A rotary encoder compensates for fluctuations in product speed to maintain accurate cut lengths.
- 7 Surface Molder** used to change the surface appearance of the extruded part. The molder can change the surface to matte finish or can put a linear pattern on the part to change the appearance dramatically. The molder allows for different surface effects without changing the die or the process.



*Drawing depicts a typical layout for a 103mm ENTEK system. Systems based on the 53mm, 73mm, and 133mm extruders are also available.*

# CUSTOMER SERVICE

## Your Advocates at ENTEK



Tammy Heider



Linda Campbell

If you are an ENTEK customer and you need help, Linda Campbell and Tammy Heider are your "go-to" people.

When you call for service and support, the person you will speak with more often than not is Tammy Heider. Tammy has been with ENTEK since 1999. As ENTEK's Customer Care Specialist, she works to ensure your requests are handled quickly and effectively to ensure satisfaction. Tammy handles all customer requests for replacement parts for ENTEK E-Max Extruders, and also for barrels, screws and related parts for other OEM twin-screw extruders.

Linda Campbell is ENTEK's Inside Sales Manager. A 17-year ENTEK employee, she joined the sales department in 2000 and provides quotations for machines and ancillary equipment, and serves as the liaison between customers and engineering.

"Linda and Tammy are an asset to our customers," said Dr. Kirk Hanawalt, Vice President-Worldwide Sales. "They embody the company's culture, which means not just providing a machine/commodity, but listening to customers and meeting, or exceeding, their needs."

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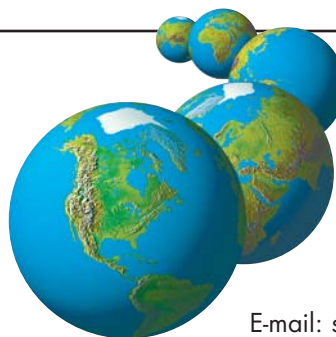
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