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Tooling News

PRECISION BOARD PLUS HDU
FEATURED CUSTOMER SERIES

NEWSLETTER 5



Lormac Plastics machining PBLT-40



"More chips
less dust.
Works for me!"



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Speeds and Feeds

One of the more frequent inquiries we receive at Coastal Enterprises involves questions about machining Precision Board Plus HDU. For those that are experienced in working with the product, we typically hear things like, "this stuff cuts like butter", "my cutters last longer", "I can set my CNC to a higher feed rate" or our favorite, "I get more chips and less dust". Of course we remind these customers that these performance factors are the result of Precision Board Plus HDU being a non-abrasive cellular product that has no grain.

But if you've never used the product, you may want to know "what type of cutter works best" and "where do I start with my speed and feed settings"? First of all, a wide variety of HSS cutters commonly used for wood and plastics work very well for machining Precision Board Plus HDU, and a wide range of settings will produce great results.

Part # D/P	Material	Thickness	CED	Helix	RPM	Feed (IPM)
52-554	PBLT-15	1.5"	0.125"	Up	18000	300 1"
52-564	PBLT-15	1"	0.25"	Up	18000	100 1.5"
52-554	PBLT-18	1.5"	0.125"	Up	14000	200 1"
52-564	PBLT-18	1.5"	0.25"	Up	18000	75 1.5"
52-554	PBLT-20	1.5"	0.125"	Up	18000	300 1"
52-564	PBLT-20	1.5"	0.25"	Up	14000	100 1.5"
52-554	PBLT-30	1.5"	0.125"	Up	18000	150 1"
52-564	PBLT-30	1.5"	0.25"	Up	14000	75 1"
52-554	PBLT-40	1.5"	0.125"	Up	18000	25 1"

CED = Cutting Edge Diameter
Helix = Flute Direction (Up, Down, Straight)

IPM = Inches per minute
D/P = Depth per Pass

Chip Load

Remember it's always a good idea to optimize your chip load by setting your feed rate and cutter speed to yield the largest chip that produces the desired surface finish. While Precision Board Plus HDU does not conduct heat and is non-abrasive, this will ensure that heat is carried away from the cutter, prolonging tool life. Onsrud reminds us of this useful formula:

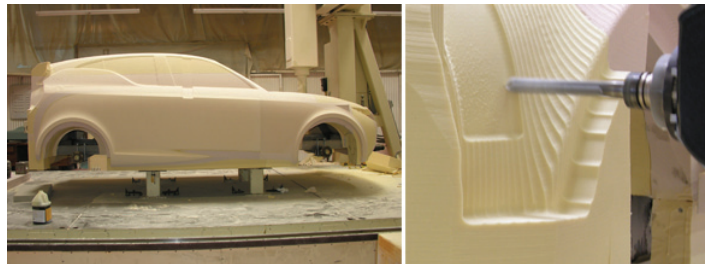
Chip Load = Feed rate/ RPM x # of flutes

To increase chip load:

- Increase feed rate
- Decrease RPM
- Use a cutter with fewer flutes

To decrease chip load:

- Decrease feed rate
- Increase RPM
- Use a cutter with more flutes



BMW concept car by Alex Alexiev and his fellow Art Center College of Design students being machined by ADM Works, Santa Ana CA

Initial Setup

As a starting point, consider the testing done by cutter manufacturer Onsrud on various densities of Precision Board Plus HDU. Using a carbide double-edge upcut spiral 0.125" cutter with PBLT-18 (18lb. density), best results were achieved with an RPM of 14,000, a feed rate of 200 IPM, at a depth of 1" per pass. Similarly good results were achieved using a carbide double-edge upcut 0.25" cutter spinning at 18,000 RPM, with a feed rate of 75 IPM at a depth of 1.5" per pass. Both settings produced a smooth surface finish.

Keep in mind that while this data was generated with carbide cutters, HSS cutters also perform very well due to the non-abrasive nature of Precision Board Plus HDU. Adam Prentiss of Lormac Plastics has extensive experience machining Precision Board Plus HDU, particularly PBLT-30 and PBLT-40. He finds dialing in the right speed and feed very easy with both HSS and carbide cutters.

Here are settings used by Onsrud that produced the best results across a range of Precision Board Plus densities. These and other data for machine settings for a variety of materials can be found at www.plasticrouting.com

With a little experimentation you'll become an expert at machining Precision Board Plus in no time. Proper cutter selection and machine setup will produce a smooth cut, leaving chips that fall to the ground and do not become airborne. And because we've added an anti-static agent to Precision Board Plus, chips will not cling to your work or your equipment.

Did You Know?

Precision Board Plus Precision Board Plus does not out-gas during the autoclave curing process, so it's ideal for prepreg layup tools and mold patterns (see autoclave ramping procedures). To learn more about the capabilities of Precision Board Plus, view or download our product data sheets.



Call (800) 845-0745 or visit
www.PrecisionBoard.com for a
FREE sample of Precision Board Plus.
email: hdu@precisionboard.com

Great Pricing • Fast Shipments • Made in USA

PRECISION BOARD PLUS

Precision Matched for Your HDU Needs

Widest Range of Densities Available

4 through 60 pound densities all in stock, with custom densities on request.

Any Thickness You Require

From 1/4" to 24" and everything in between.

WIDEST VARIETY OF SHEET SIZES AVAILABLE

- 20"x60"
- 45"x60" **NEW**
- 5'x8'
- 24"x60"
- 4'x8'
- 5'x10'
- 30"x80"
- 4'x10'

**ALL IN STOCK AND
READY TO SHIP**

Interested in Having Your Company Featured in Our Newsletter?

You may have noticed we like to share interesting stories from our customers about their projects using Precision Board Plus. If you would like us to feature your company in one of these stories, we want to hear from you.

Here's what we're looking for:

- *In process photos working with Precision Board Plus*
- *Finished project photos*
- *Advice for those who are new to Precision Board Plus*
- *Tips for working with HDU*

Send us an e-mail at hdu@precisionboard.com along with any interesting details about the project.

These newsletters are sent to thousands of our customers and are a great way to build recognition for your company and share your expertise.

Certified Green

Precision Board Plus has been reformulated with eco-friendly, "Green" urethane components. The new Plus formulation has achieved a certified "Carbon Balance" of 3 to 1 and a "Rapidly Renewable Resource Content" of 18.9%. This major environmental improvement has also produced a tighter cell structure which results in more chips and less dust when cutting and machining.

Precision Board Plus now assists in meeting LEED requirements for obtaining USGBC and ICC 700 Building Credits.



Coastal Enterprises also offers a complete line of companion primers, adhesives and specialty coating products.



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