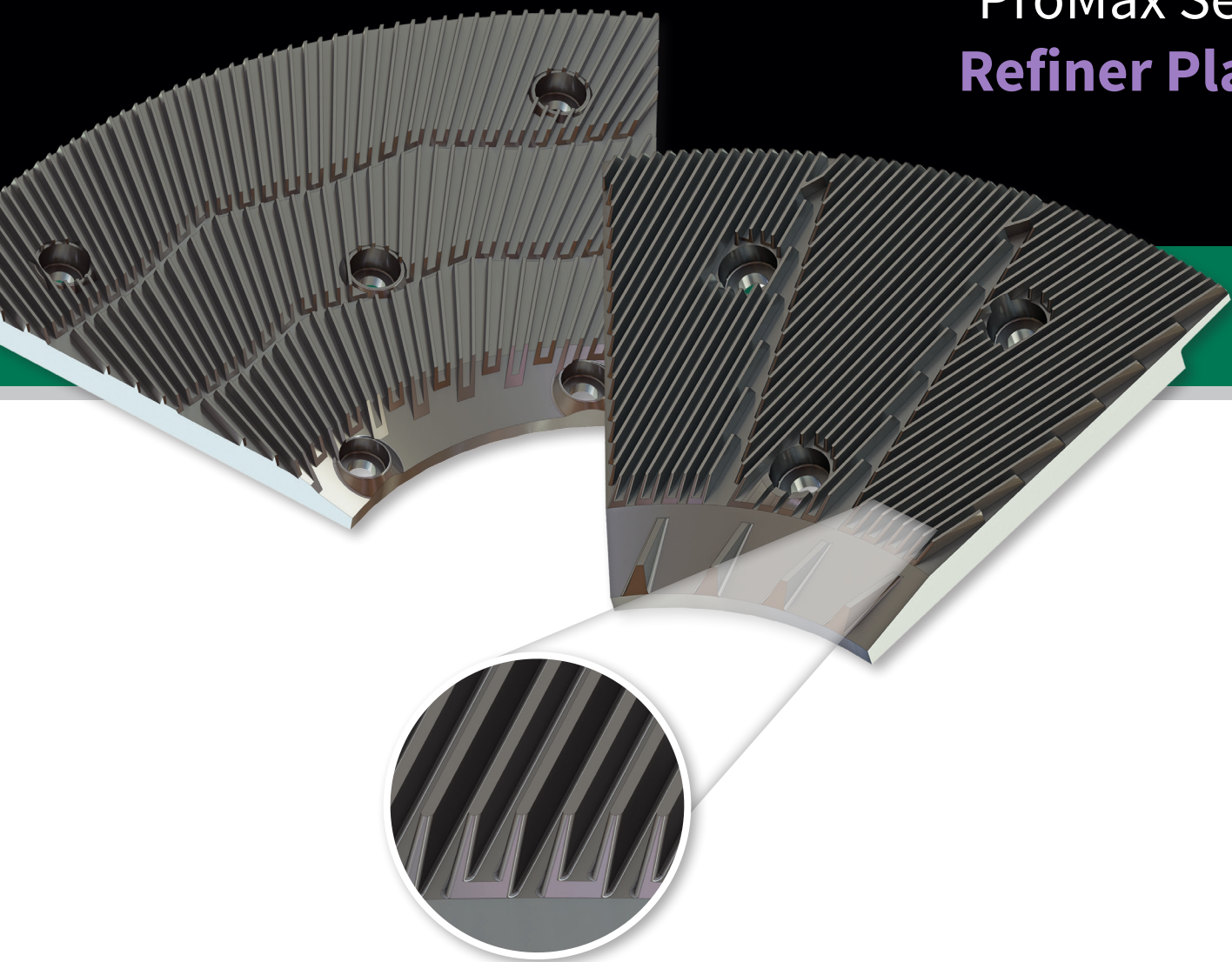


## ProMax Series Refiner Plates



Custom Solutions // Long Lasting // Energy Efficient

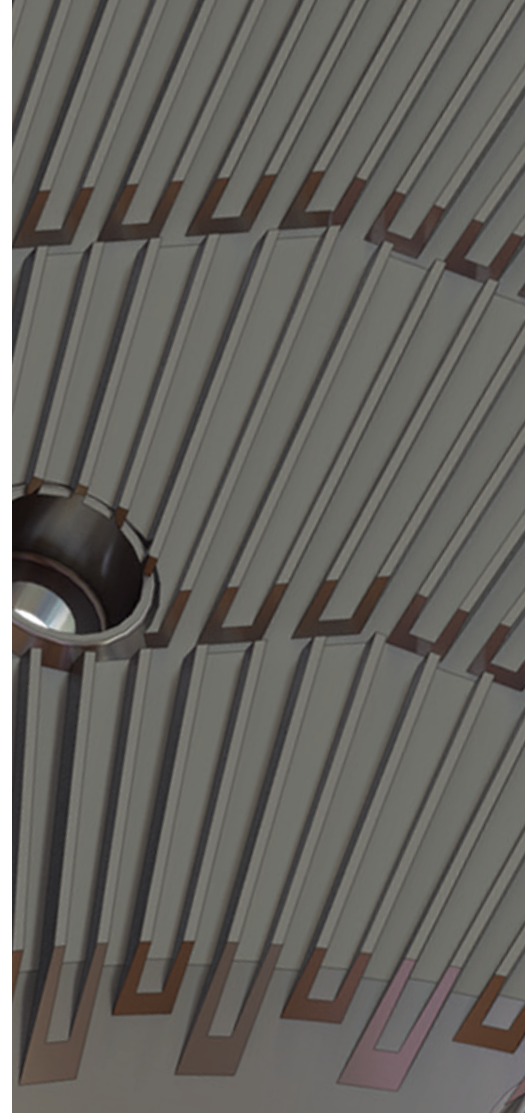
# Customized Solutions Using ProMax Series Refiner Plates

The ProMax series of refiner plates from J&L Fiber Services enables customized solutions through optimized designs for long lasting and more energy efficient fiber development. The series incorporates all of our latest plate technology, including J&L Fiber Services' patented alternating deep groove design as well as our flagship alloys.

Created with our proprietary PowerCast™ technology, the ProMax Series is uniquely different than competitive offerings because of its customization flexibility. Plate patterns can be customized to increase fiber quality, refining efficiency, capacity and life, while reducing wear and plugging.

The ProMax series demonstrates J&L's latest design technology made possible through our optimum design features which include:

- ReverseFlare™ Anti-Plugging Grooves
- Low Bar Draft Angles
- Alternating Deep Grooves
- Radial Feed Grooves
- Flagship Alloys: C90, C91, C96 and the new AeroMax MX Series



## The ProMax Advantage

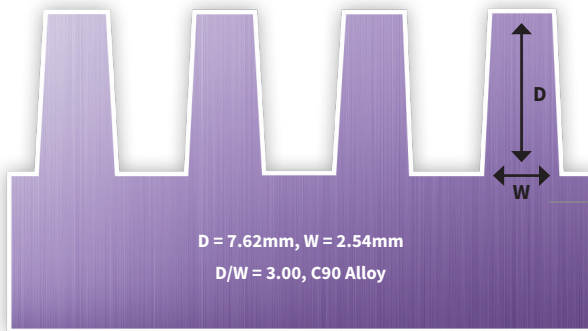
**Maximize KM/Rev for lower intensity refining** while maintaining hydraulic capacity and plate life

**Maximize hydraulic capacity** while maintaining refining intensity and wear resistance

**Maximize plate life** with more wear resistant alloy while maintaining capacity and refining intensity

**Maximize groove width for less plugging** while maintaining refining intensity and wear resistance

# Optimization with ProMax



**Starting Point**

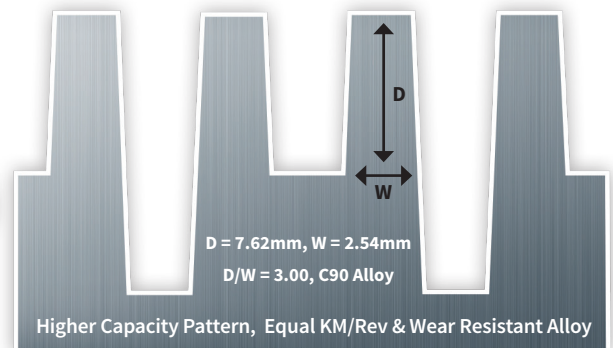
## J&L's Patented Alternating Deep Groove Technology

Our engineered alternating deep groove design optimizes bar height/width ratios and is a significant factor in enabling pattern customization flexibility.

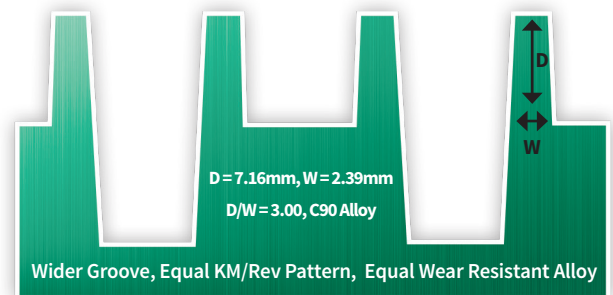
With our alternating deep groove design, we increase bar strength at the base of the bar and maximize the bar height and the volumetric groove area. This gives us the ability to customize patterns for optimum fiber development, high durability, maximum capacity and plate life, in addition to maximize alloy wear resistance.



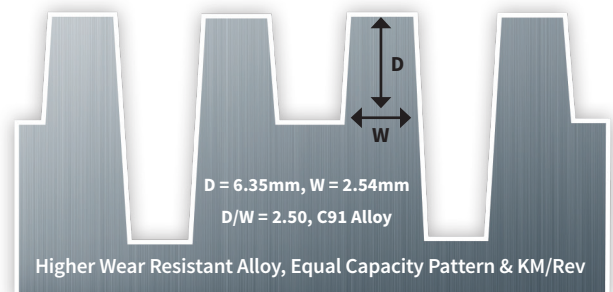
**Maximize KM/Rev with Thinner Bars while Maintaining Hydraulic Capacity and Plate Life**



**Maximize Capacity with Deeper Grooves while Maintaining KM/Rev & Wear Resistance**



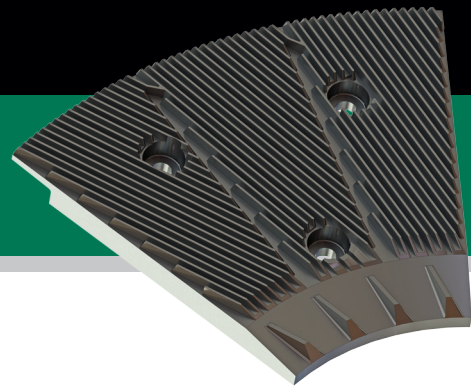
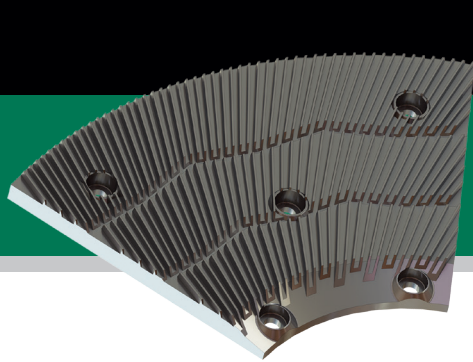
**Maximize Groove Width for Less Plugging while Maintaining KM/Rev & Wear Resistant Alloy**



**Maximize Life with Wear Resistant Alloy while Maintaining Capacity & KM/Rev**



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## ProMax Constant Angle Multi-Zone

### Advantages:

- J&L Fiber Services' patented alternating deep grooves
- Uniform bar crossing angles over entire plate surface
- Fibers refined at constant crossing angle
- Homogeneous fiber treatment and quality
- ReverseFlare™ Anti-Plugging Grooves
- Individual refining zone customization for bar and groove width, as well as bar angle
- Dam patterns are available for pulp mill applications

## ProMax ReverseFlare™

### Advantages:

- J&L Fiber Services' patented alternating deep grooves
- Continuous ReverseFlare™ Anti-Plugging Grooves
- Radial feed grooves – improved feeding into refining zone
- No transitions zones, no pinch points – reduces plugging potential
- Lower pumping angle designs available for longer plate life, lower pressure rise and less fiber channeling in lower flow conditions
- Dam patterns are available for pulp mill applications

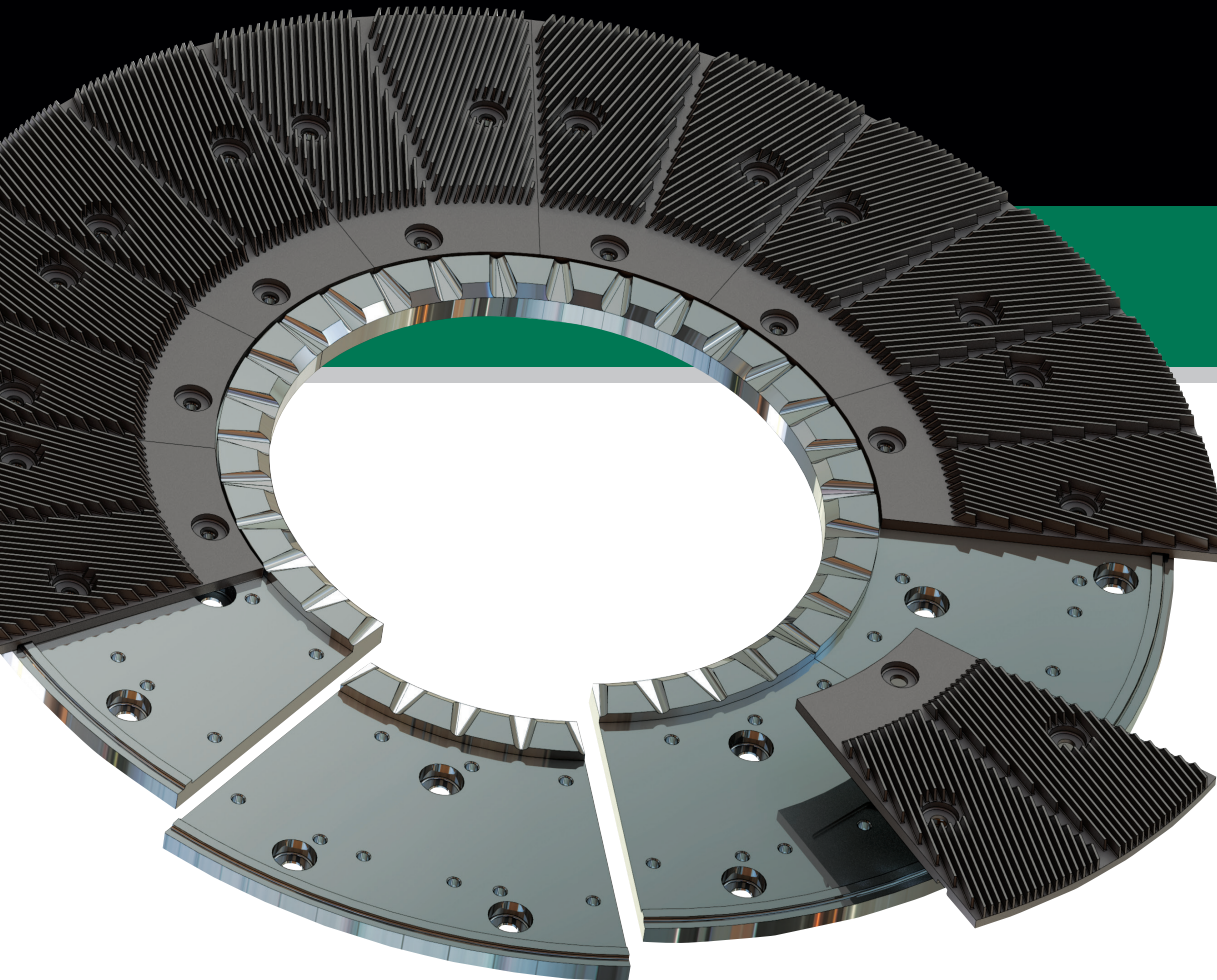
Corporate Office: 831 Progress Avenue, Waukesha, Wisconsin 53186 USA

PHONE: 262-544-1890 // FAX: 262-547-8166 // TOLL FREE PHONE: 1-888-4TEAMJL // [www.jlfiberservices.com](http://www.jlfiberservices.com)

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## ProSafe **Segments**



**Lighter and Safer // Pattern Diversity // Multiple Premium Alloys**

## Why J&L Fiber Services ProSafe Segments?

J&L Fiber Services' cast ProSafe segments are a lighter and safer alternative to traditional plates. They are easier to position while bolting to the mounting surface, reducing the risk of personal injury.

### Benefits:

#### Lighter and Safer

At 12 to 14 pounds, our ProSafe segments weigh 75% less than traditional full-size segments.

#### Pattern Diversity

No one can match the broad choices of patterns we make available through our ProSafe segments.

#### Multiple Premium Alloys

Any of our proven alloys can be used in the casting of our ProSafe segments.

#### Best-in-Class Lead Time

We can deliver ProSafe segments and holders within three to six weeks of receiving an order.



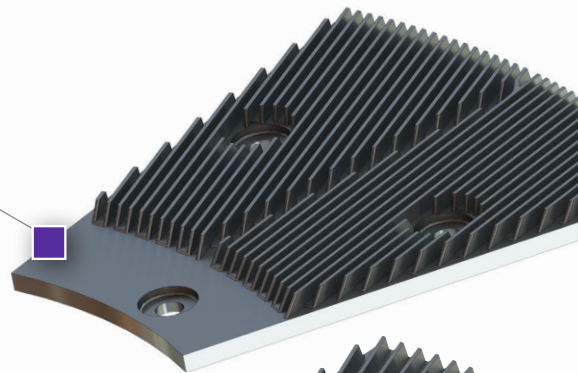
Easy to lift and position for mounting, our lightweight ProSafe segment plates help prevent knuckle, hand and back injuries.



# ProSafe Pattern Offerings

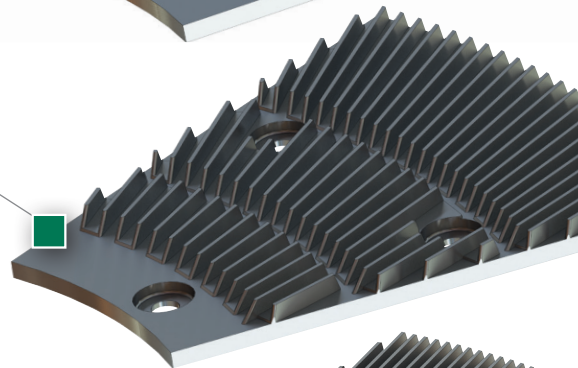
## ProMax ReverseFlare™

- Alternating Deep Groove
- Radial Feed Grooves – Improved Feeding into Refining Zone
- No Transition Zones
- Lower Angle Pattern Designs
- Long Plate Life



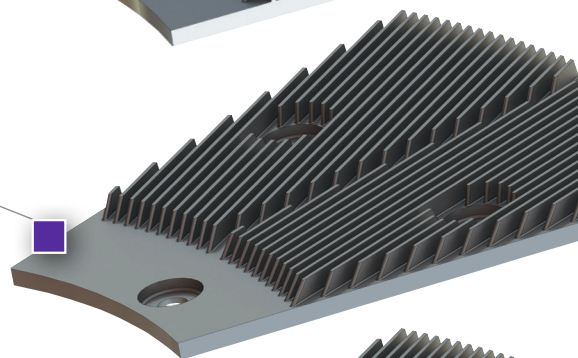
## ProMax Constant Angle Multi-Zone

- Alternating Deep Groove
- Uniform Bar Crossing Angles over the Entire Surface of the Plate
- Fibers on the Refiner Plate are Refined at a Constant Crossing Angle
- Homogeneous Fiber Treatment and Quality
- Long Plate Life
- Individual Refining Zone Customization – Bar and Groove Width & Bar Angle



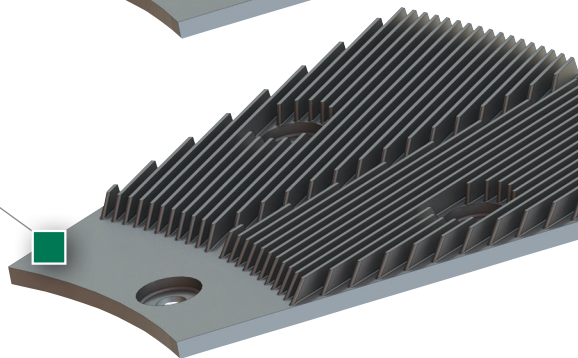
## ReverseFlare™

- Grooves widen from ID to OD
- Less Prone to Plugging
- Long Plate Life
- Low Operating Costs

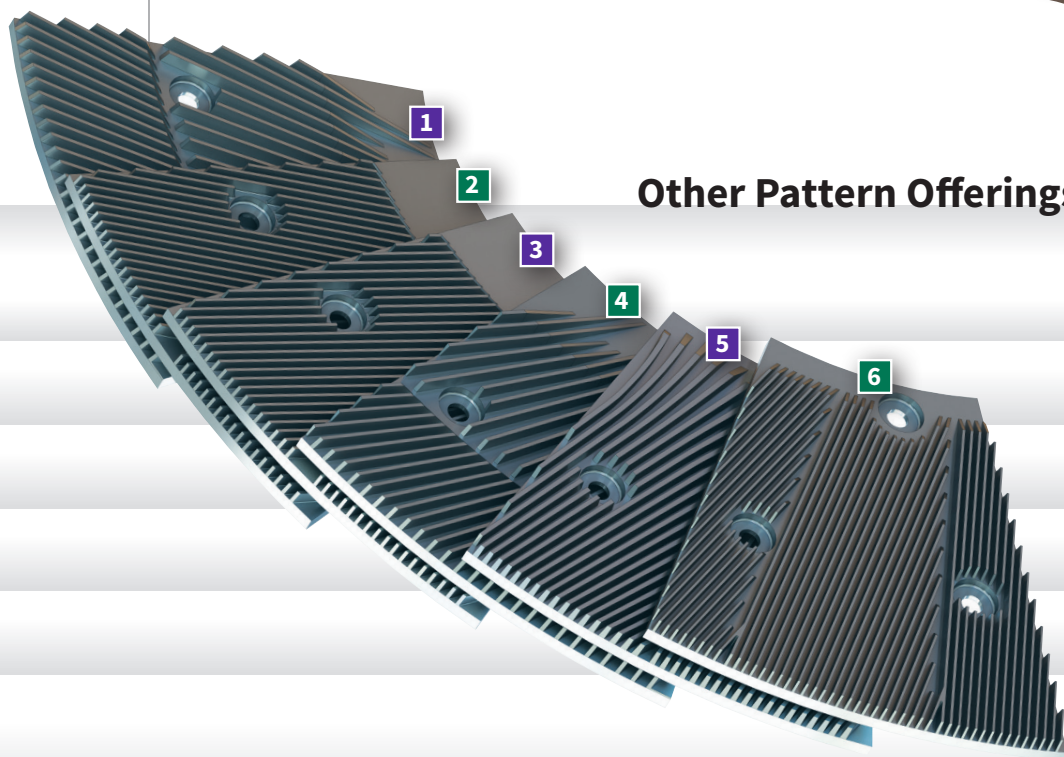


## Ultra Bar

- Low-Intensity Pattern Means Increased Pulp Strength
- Taller Bar Heights Mean Longer Plate Life
- Deeper Grooves Mean Higher Refining Capacity
- 0.5° Bar Draft Angle



## Other Pattern Offerings:



1. Traditional Constant Angle

2. Traditional Parallel Bar

3. Parallel Bar Flared

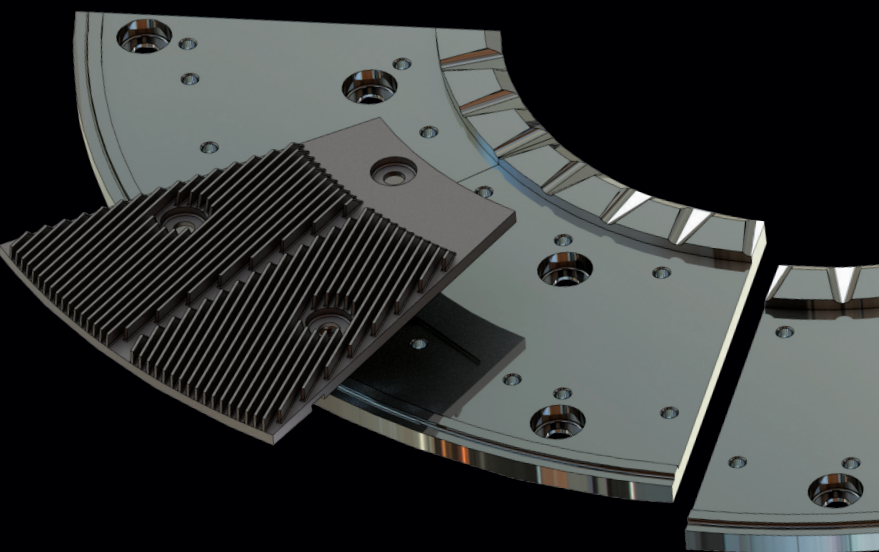
4. 2-Zone

5. DynaFlow

6. Milled Bar

# More Patterns, Optimum Design

J&L Fiber Services' casting process enables us to offer more plate patterns than our competitors can through their fabrication processes. In fact, we can create ProSafe segments with any of our optimum design features and flagship alloys.

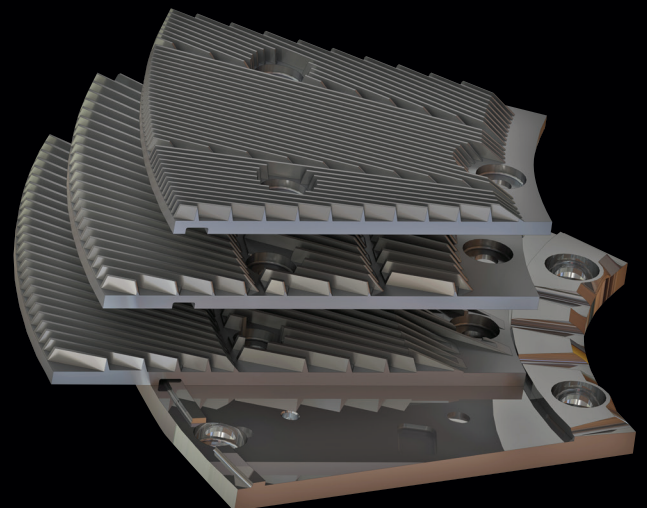


# Unique Overhung Capability

Our ProSafe casting process make us uniquely able to provide overhung designs. That means you benefit from increased capacity at a lower intensity for longer plate life and improved fiber development.

- Higher Capacity
- Longer Plate Life
- Lower Intensity
- Plug-Resistant Patterns

J&L Fiber Services ProSafe segments are sized to fit both our own customized plate holders and competitive plate holders.







[www.jlfiberservices.com](http://www.jlfiberservices.com)

J&L Fiber Services' cast ProSafe segments are designed to fit our customized, long-life plate holders with overhung and underhung capability.

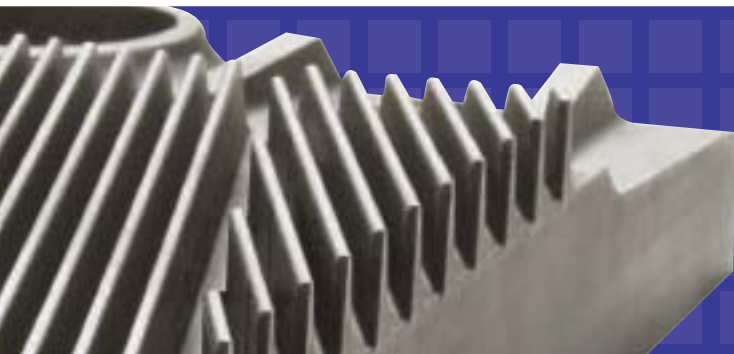
J&L PROSAFE PLATE HOLDER OFFERINGS					
REFINER	PLATE HOLDER MOUNTING DIAMETER	PLATE HOLDER SEGMENT WEIGHT	PROSAFE MAX REFINING DIAMETER	PROSAFE SEGMENT WEIGHT	STANDARD SEGMENT WEIGHT
DD3000	42"	20 lbs	44"	12-14 lbs	36-45 lbs
DD4000	42"	20 lbs	46"	12-14 lbs	36-45 lbs
	46"	30 lbs	47"	12-14 lbs	45-50 lbs
DD4500	42"	20 lbs	46"	12-14 lbs	36-45 lbs
	46"	30 lbs	47"	12-14 lbs	45-50 lbs
TWIN FLOW	42"	20 lbs	46"	12-14 lbs	25-35 lbs

*Other sizes and offerings in development.*

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## PowerCast™ Technology

**SUPERIOR FIBER QUALITY**

**LONGEST PLATE LIFE**

**LOWER OPERATING COSTS**



**Power up your refining process with the new PowerCast™ Technology from J&L Fiber Services.** Application engineers can now design extremely low intensity patterns with taller, ultra fine bars at virtually zero-degree bar draft angles. Plus, our premium alloys give you limitless pattern designs and unparalleled strength for investment grade refiner plate casting.

### Increased Pulp Strength

The low intensity patterns created through the PowerCast Technology allow for maximum fiber development for hardwood, OCC, DIP and Mechanical Pulp Refining applications.

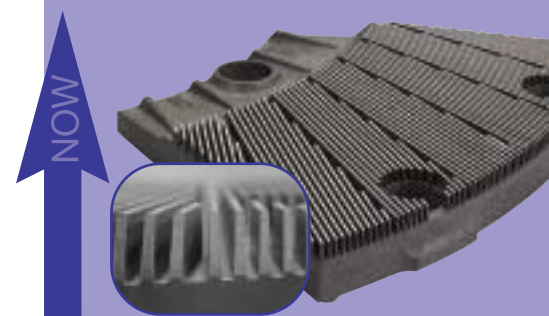
### Longer Plate Life

Taller bar heights, superior alloy offerings and zero-degree bar draft angles extend refiner plate life.

### Greater Refining Capacity

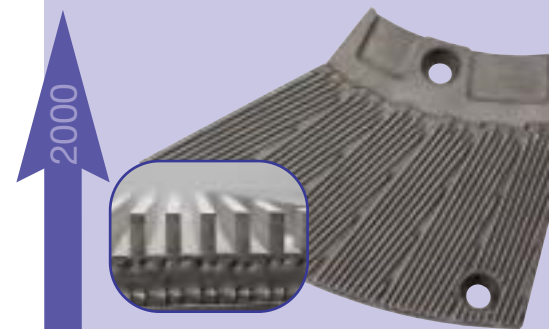
Higher master-plate angle with deeper grooves maximizes hydraulic capacity. For example, the PowerCast Technology, combined with our ReverseFlare™ concept, is ideal for anti-plugging designs.

Choose PowerCast Technology to maximize plate life, improve fiber development and prevent bar bending and breakage in tough applications.



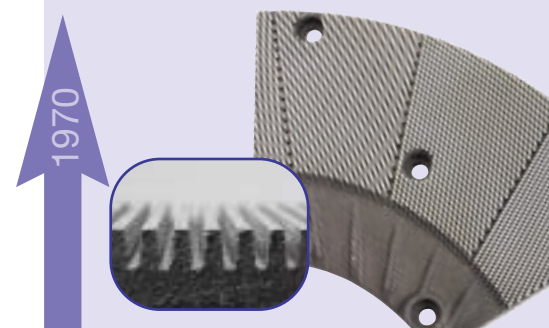
### POWERCAST TECHNOLOGY

Zero-Degree Bar Draft Angles



### COMPETITOR FABRICATED TECHNOLOGY

Two-step welding process limits alloy selection



### ORIGINAL CASTING TECHNOLOGY

Limited fine bar designs

# PowerCast™ Technology

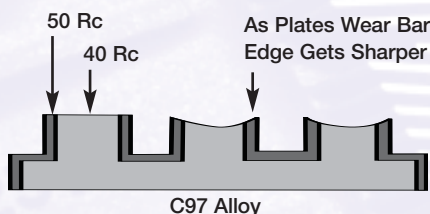
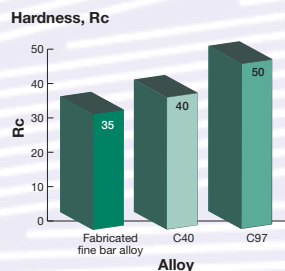
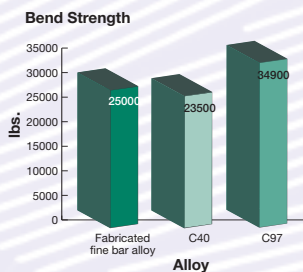
Maximize low intensity applications

Superior alloys

High-strength castings

## Superior Alloys

Our low consistency alloys continue to serve as the benchmark for the industry standard. Our C90 series of alloys provide unique combinations of wear and breakage resistance when used with our PowerCast Technology applications.



## Comparison

	Ultra-Bar Patterns with PowerCast Technology	Fabricated Fine Bar Technology
<b>Alloy</b>	C97 Surface Hardened Duplex Stainless Steel	17-4 Stainless Steel
<b>Bar Bending</b>	39% Additional Strength 34,900 lbs. bend strength	25,000 lbs. bend strength
<b>Bar Wear</b>	20% longer life; 50 Rc*	36 Rc
<b>Construction</b>	Precision Zero-Degree Cast	Fabricated/brazed

\* Bar Wear shown in chart is based on C97 which improves wear resistance through self sharpening edge characteristics. For added protection against breakage, use our C96. J&L C96 and C97 alloys were developed specifically for use with PowerCast.

## Maximize Your Low Intensity Applications

The new PowerCast Technology from J&L Fiber Services delivers specific benefits that will enhance the quality of your mill's output and help to reduce operation costs.

## High-Strength Castings

The PowerCast Technology enables us to provide mills with plates consisting of ultra fine bars with virtually zero-degree bar draft angles.

## Limitless Plate Designs

Armed with the broadest and highest quality collection of alloys anywhere, we can offer an infinite array of plate designs to accommodate your specific application.

Building on four decades of experience, J&L Fiber Services redefines refiner plate casting with its PowerCast Technology. Call us to learn more about how we can extend our casting capabilities to produce ultra-low intensity fine bar patterns for your mill.

**For more information on how PowerCast Technology will improve your plate performance, call 262-544-1890.**