

Machining Solutions for Processing Plastics

SMART FR60

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TODAYS PRESENTER

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WHY DOES PLASTIC MATTER TO AWFS?

- Aesthetically appealing
- Value add or growth avenue
- Finding its way into traditional “wood” industries
 - Cabinet Components
 - Exhibit components
 - Yacht Interiors
 - Furniture
 - Outdoor living
 - Outdoor Furniture
 - Signage



WHAT DO WE DO WITH IT?

We all have some variation of a machine that can cut it...



What happens when specification calls for an edge quality we can't achieve with current equipment?

TYPICAL MANUAL PROCESS

- Sizing (we can all do this)
 - ...some better than others
 - better original cut quality = less polishing time down line
 - Manual Polishing Examples
- [Scraping](#), Jointing
- [Sanding](#)
- [Buffing](#)
- [Flame Polishing](#)
- Time consuming, inaccurate, labor intensive difficult and non-repeatable
- So...what are the alternative technologies?

PLASTIC MACHINING TECHNIQUES

Panel Saw

- Sizing parts

Sliding Table Saw

- Sizing parts and miter cutting

Dedicated Edge Polishing Machines

- Edge polishing and beveling

Nested Base Router

- Sizing and polishing

“Creating an effective edge with cost-effective machinery instead of labor”

SAWING

Panel Saws

Features to look for:

- Cutting height, horsepower and heft to handle 4" sheet / stacks
- Frequency (RPM) control main saw
- Material related parameters
- Integrated Side Pressure Device
- Mist Coolant for low melt materials
- Reverse cutting for thin, flexible, brittle sheets
- Soft Touch Technology / air flotation

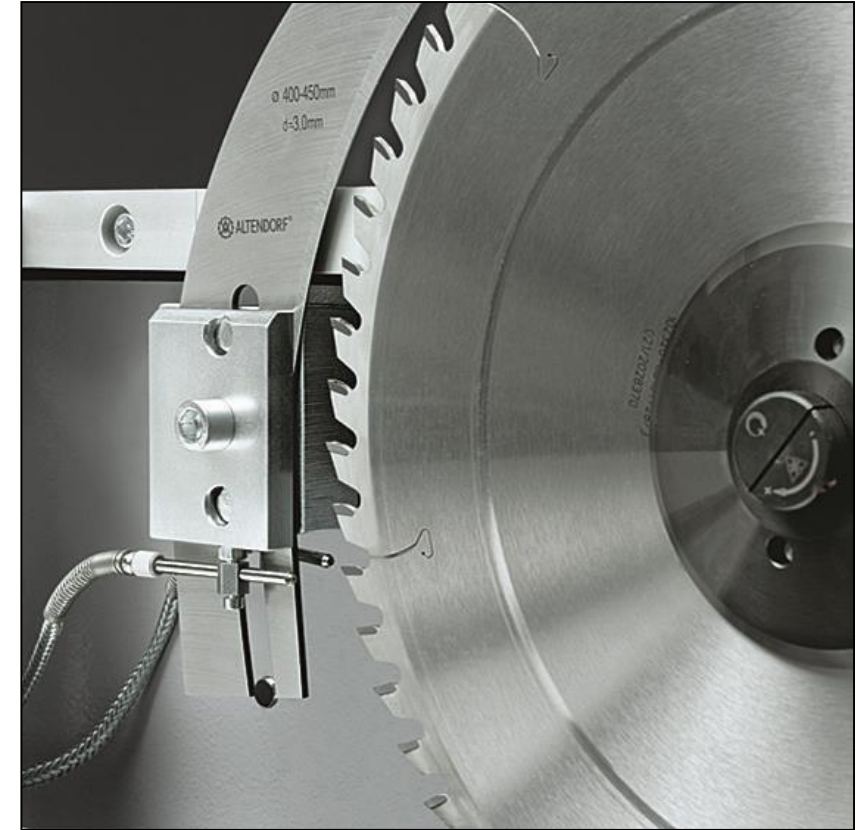


SAWING

Sliding Table Saws

Features to look for:

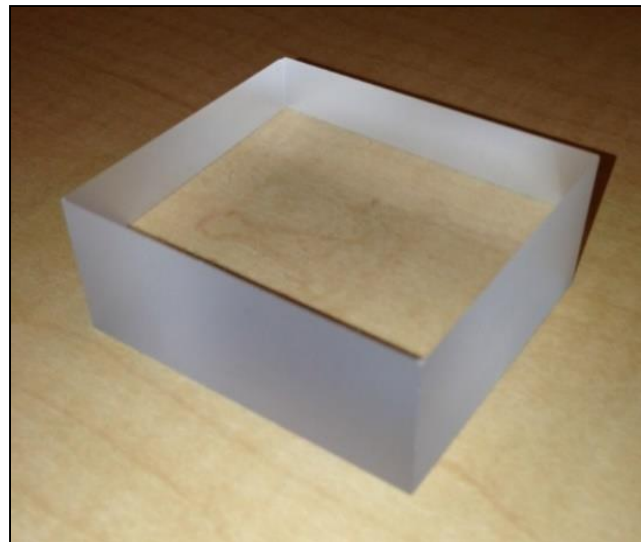
- Cutting height, increased horsepower, heft to handle 4"+ stock
- Mitering Capability
- Mist Coolant for low melt materials
- Frequency (RPM) control main saw
- Pneumatic clamping for thin/thick materials
- Programmable control and motorized rip fence



SAWING

What you will see today...

- King StarBoard®
- King ColorCore®
- 3/4" Acrylic
- Reverse cutting - PETG
- Miter cut on table saw



EDGE POLISHING

What to look for:

- Safe harbor
- History
- Design to manage vibration and enhance edge finish
- Material related parameters
- Large polishing depth to handle thick workpieces / stacks
- Tilting Spindle – Bevel



EDGE POLISHING

What to look for:

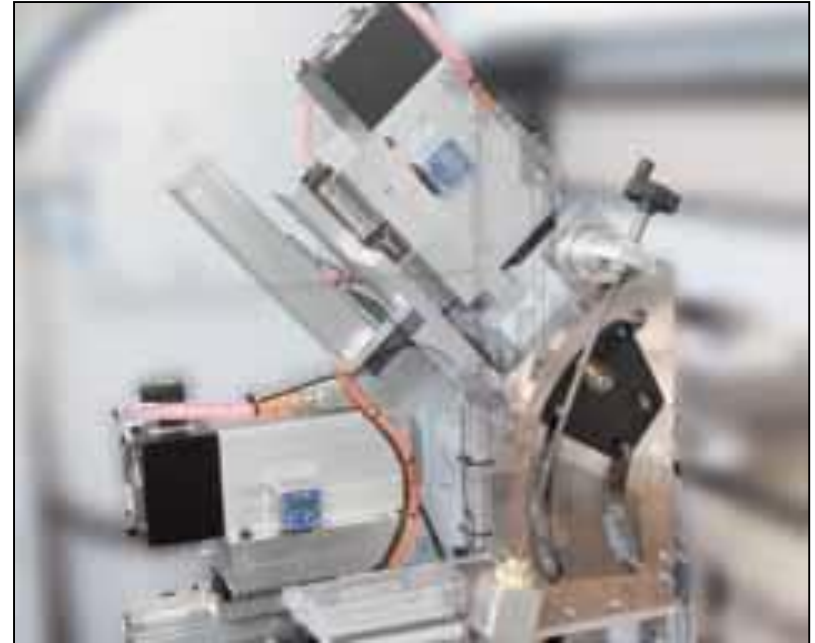
- Tooling System:
 - Natural diamond is key
 - Must be supported
- High degree of flexibility allowing work with a wide range of materials
- PMMA GS & XT, PC, PET-G, SAN, aluminum and solid surface
- User Friendly
 - Quick change



EDGE BEVELING

What to look for:

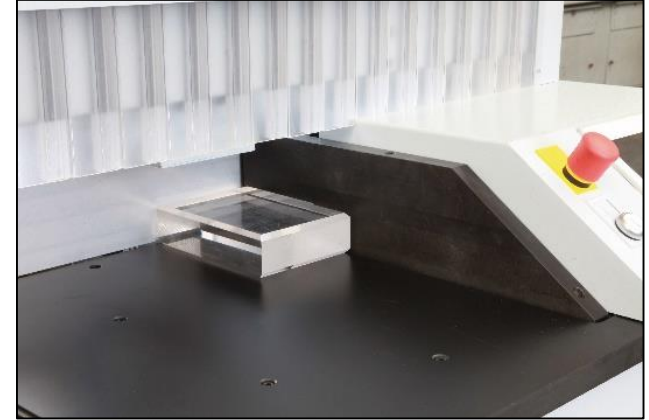
- Top/Bottom Bevel Design
- Bevel Application
 - Aesthetic
 - Fabrication
- Is material thickness consistent
- % of Work to be Beveled
- Machine Focus
 - 90° polish / ability to bevel
 - Beveling



EDGE POLISHING

What you will see today

- Diamond polishing of Acrylic
- Changeover to 45 degree bevel



CNC ROUTER

What to look for:

- Appropriate table sizes
- Quality Drive Package
- Rigid Gantry and Router Carriage Design
- Quality spindle
 - 24,000 rpm
- Automatic Tool Change
- Automated tool pick up/touch off
- Efficient vacuum system



CNC ROUTING AND POLISHING

What you will see today

5' x 10' Nested Base Router

Focus: nesting, engraving and polishing

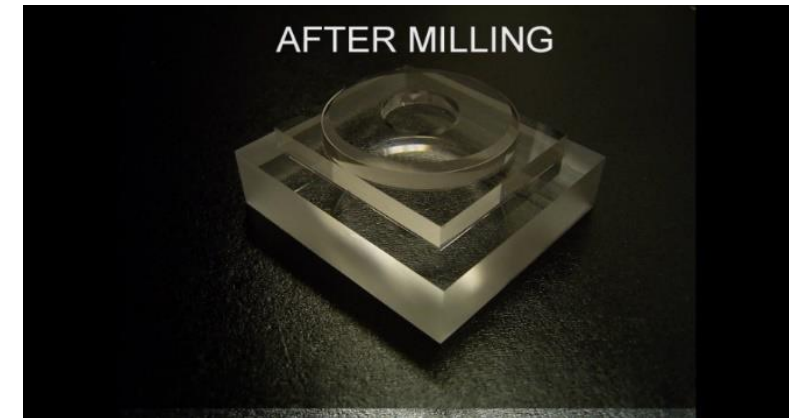
- 3/4" acrylic part: polishing horizontal, vertical, inside and outside radiused surfaces
- King ColorCore®: sizing, shaping and engraving



CNC POLISHING

What you will see today

- Non-rectilinear polishing of “Looking Glass”
- Focus is Tooling
 - Euracryl
 - Rough cutters
 - Natural diamond
 - High degree of flexibility in tool configuration allowing a wide range of materials angles, and depths



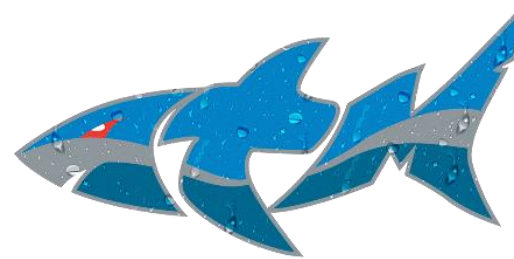
MACHINING SOLUTIONS FOR PLASTICS

Example of Production

- Acrylic Tank Manufacturing (ATM)
(Animal Planet reality television series)
- CNC Router
- Sliding Table Saw
- Beam Saw
- Edge Polisher
- Dust Collection



MACHINING SOLUTIONS FOR PLASTICS



ACRYLIC TANK MANUFACTURING



YOUR SUCCESS IS OUR BUSINESS

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TYPICAL QUESTION

“Tool Life?” 15 – 60 days+

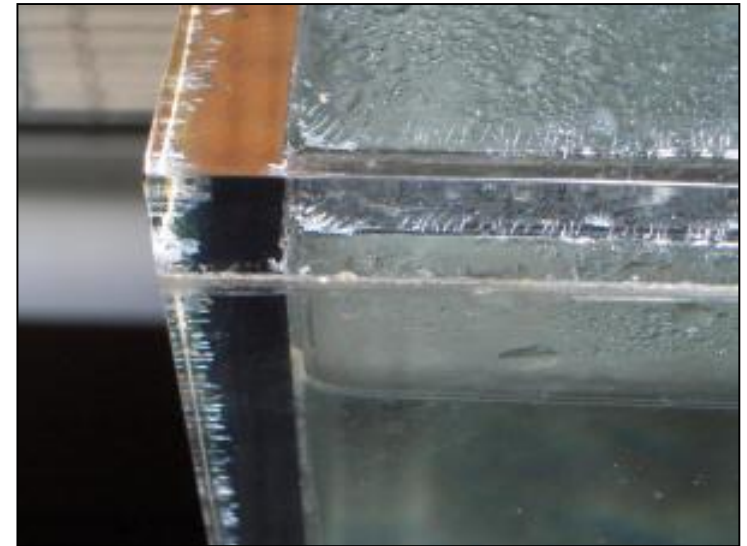
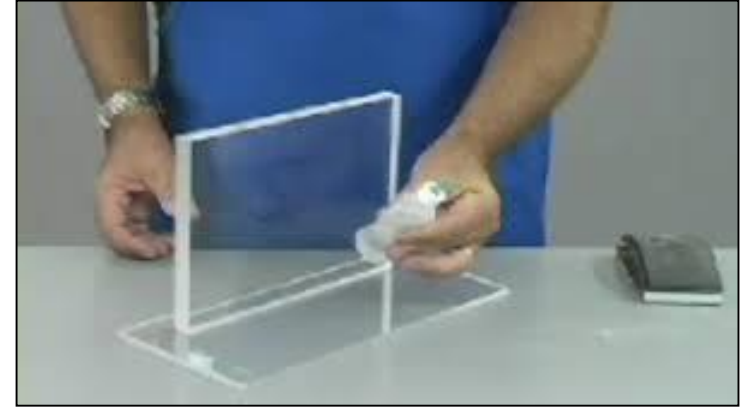
- Polishing a finish applied with a dull diamond is much faster than other alternatives
- Serviceable 15 – 30% of new tool cost

TYPICAL QUESTION

“Can you glue coming off a Mechanical Polisher?”

“Yes”

- Provides square edge for accurate assembly
- Eliminates stress caused by other prep methods
- Reduces risk of crazing



Machining Solutions for Edge Polishing Acrylics

- Quality of initial cut sets the pace
- Beam Saws and Sliders
Robust and accurate sawing
- CNC Machining and Polishing
Routing
Polishing non-rectilinear geometries
- Edge Polishers
Edge polishing and beveling
Flexible tooling configurations

SMART SUMMARY

- [Case Study](#)
- Potential for Increased Profitability
- ROI/Payback
- Time Savings
- Quality Improvements
- Repeatable in terms of size and finish quality
- Improved Work Environment

Questions?

SAMPLES AND MACHINE DEMONSTRATIONS

Take a moment to move into our booth collect samples and/or machine demonstrations

- **Panel Saw**
- **Sliding Table Saw**
- **CNC Router**
- **Polishing Machine**

PART II OF THIS CO-OPERATIVE PRESENTATION

FR63

“Understanding How Plastics Impacts the Woodworking Industry”

- 9:30 – 11:00 am with Michael Fabbri of King Plastics
- Pre-Registered, presentation is in room XXX
- Not Registered? On-site registration is available - \$75.00