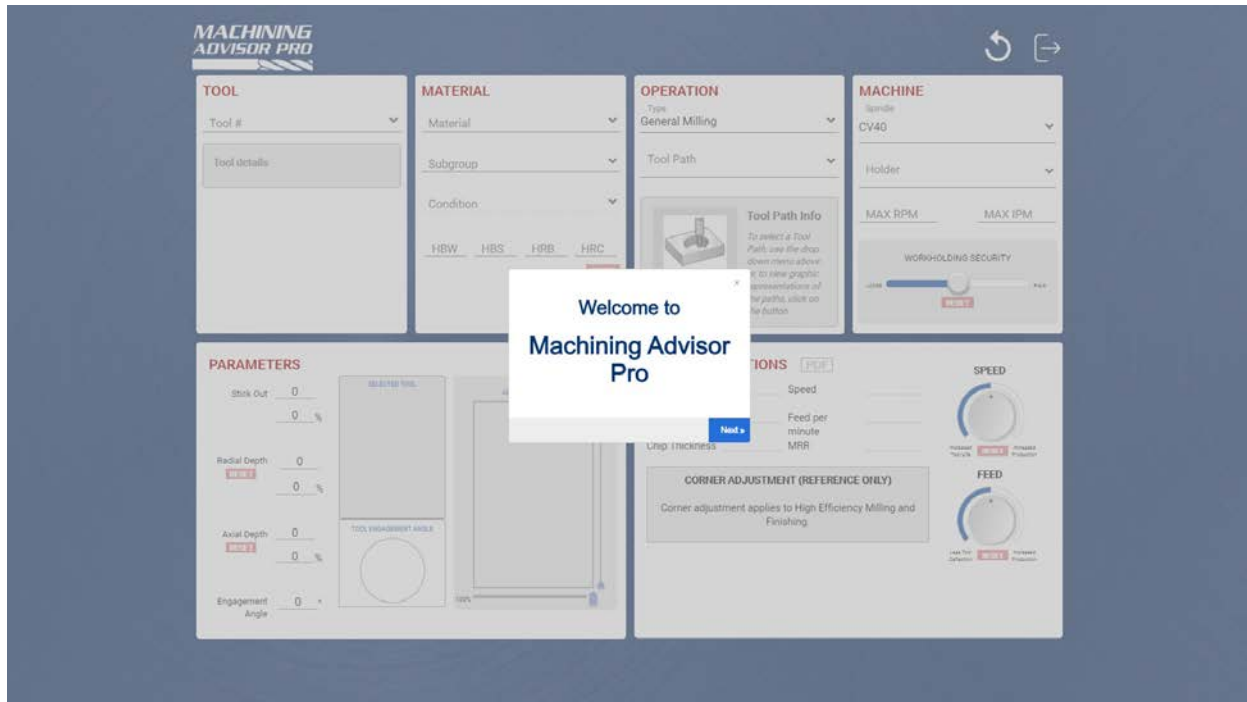


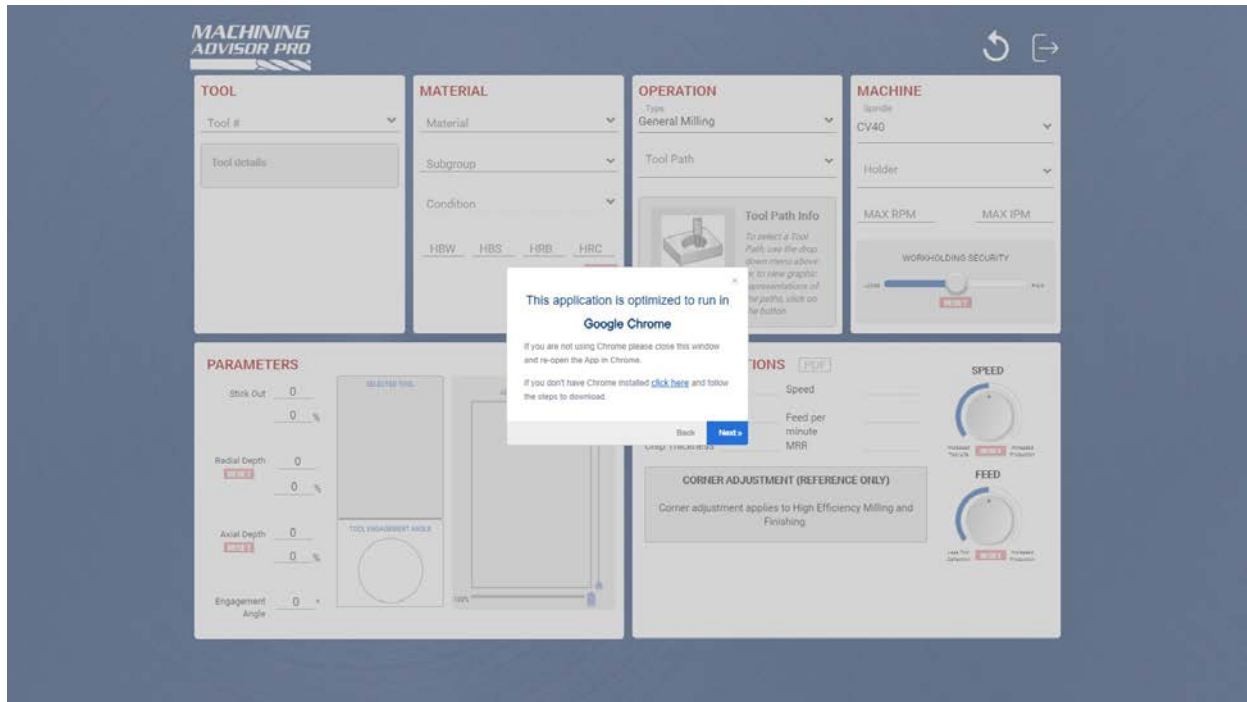


# Geng St arted User Guide

Last updated: 1/25/2018

---





For best user experience, please use Google Chrome.

The screenshot displays the MACH Advisor software interface for tool configuration. A modal dialog box at the top center prompts the user to "Enter your tool number" with a "More Information" link. The main interface is divided into several sections:

- TOOL:** Shows the selected tool as "00030 (H45AL-SR-20125)". A "Tool details" panel lists specifications: Brand: Helical, Tool: End Mills for Aluminum - 2 Flute - Square, Type: 5/16" Helix, Units: Inches, Profile: Square Corner, Cutting Diameter: 0.125, Length of Cut: 0.375, Flutes: 2, Shank Diameter: 0.125, Coating: UNCOATED.
- MATERIAL:** Includes dropdown menus for Material, Subgroup, and Condition. Condition options are HBW, HBS, HRB, and HRC.
- OPERATION:** Shows "General Milling" as the operation type and "Tool Path" as the tool path. A "Tool Path Info" section includes a 3D model and instructions: "To select a Tool Path, use the drop down menu above or to view graphic representations of the path, click on the button".
- MACHINE:** Lists "Spindle" and "CV40" as machine components, and "Holder" as the tool holder. It includes fields for "MAX RPM" and "MAX IPM", and a "WORKHOLDING SECURITY" slider.
- PARAMETERS:** Features input fields for "Stank Out", "Radial Depth", "Axial Depth", and "Engagement Angle". It includes visual diagrams for "SELECTED TOOL", "WORKHOLDING SECURITY", and "TOOL ENGAGEMENT ANGLE".
- RECOMMENDATIONS:** Provides fields for "Surface Speed", "Feed per tooth", and "Chip Thickness", with corresponding "Speed", "Feed per minute", and "MRR" outputs. It also includes "CORNER ADJUSTMENT (REFERENCE ONLY)" with a note: "Corner adjustment applies to High Efficiency Milling and Finishing".

Enter your tool number.

The screenshot displays the MACHING ADVISOR PRO software interface. A central pop-up window titled "Enter or select a material" is active, showing a dropdown menu with "Aluminum Alloy, Cast" selected. The interface is divided into several panels:

- TOOL:** Shows tool details for "Tool # 00030 (H45AL-SR-20125)", including brand (HSCOR), type (End Mills for Aluminum - 2 Flute - Square), and various dimensions.
- MATERIAL:** The active panel, showing "Material: Aluminum Alloy, Cast" and options for Subgroup and Condition (HBW, HBS, HRB, HRC).
- OPERATION:** Shows "Type: General Milling" and "Tool Path" options.
- MACHINE:** Shows "Spindle: CV40", "Holder", and "WORKHOLDING SECURITY" controls.
- PARAMETERS:** Includes "Stank Out", "Radial Depth", "Axial Depth", and "Engagement Angle" settings, along with visual diagrams of tool engagement.
- RECOMMENDATIONS:** Provides "Surface Speed", "Feed per tooth", and "Chip Thickness" settings, along with "SPEED" and "FEED" dials.

Enter or select a material

## Material Subgroup

The screenshot displays the MACHINING ADVISOR PRO software interface. A central pop-up window titled "MATERIAL" is open, showing the selection process for a material subgroup. The pop-up contains the following information:

- Material:** Aluminum Alloy.
- Subgroup:** 242 - Copper series cast alu...
- Condition:** T571
- Properties:** HBW 0, HBS 85, HRB 45, HRC 0.

A tooltip above the pop-up reads "Enter or select a material subgroup." The background interface shows various settings panels:

- TOOL:** Tool # 00030 (H45AL-SR-20125), Tool details including Brand, Material, Type, and Geometry.
- MACHINE:** Spindle CY40, Holder, MAX RPM, MAX IPM, and WORKHOLDING SECURITY.
- PARAMETERS:** Slab Out, Radial Depth, Axial Depth, and Engagement Angle, along with diagrams for BALL END MILL and AGGRESSIVE MILLING.
- RECOMMENDATIONS:** Surface Speed, Feed per tooth, Chip Thickness, and CORNER ADJUSTMENT (REFERENCE ONLY).

Enter or select a material subgroup.

The screenshot displays the MACHING ADVISOR PRO software interface. The main window is divided into several sections:

- TOOL:** Shows tool details for tool # 00030 (H45AL-SR-20125).
- MATERIAL:** Shows material selection for Aluminum Alloy. A dropdown menu is open, displaying a list of conditions (T571) and hardness values (HBW 0, HBS 85, HRB 45, HRC 0). A tooltip is visible over the dropdown, stating: "If applicable, select a condition and/or adjust the hardness values. Click Next to Continue".
- MACHINE:** Shows machine details for Spindle CV40 and Holder.
- PARAMETERS:** Shows adjustable parameters for Slot Out, Radial Depth, Axial Depth, and Engagement Angle. It also includes diagrams for BALL END MILL and ASSOCIATED ALIQUOT.
- RECOMMENDATIONS:** Shows recommended values for Surface Speed, Feed per tooth, and Chip Thickness. It also includes a section for CORNER ADJUSTMENT (REFERENCE ONLY).

If applicable, select a condition and/or adjust the hardness values

The screenshot displays the MACHING ADVISOR PRO software interface. The main window is divided into several sections:

- TOOL:** Tool # 00030 (H45AL-SR-20125). Details include Brand: HSS-Co, Type: End Mills for Aluminum, 2 Flute - Square, and various dimensions like Flute Square Dia and Cutting Diameter.
- MATERIAL:** Aluminum Alloy, Cast. Subgroup: 242 - Copper series cast alu... Condition: T571. A table shows properties: 1800, 1805, 1805, 1800, 0.
- MACHINE:** Spindle CV40, Holder Weldon. MAX RPM and MAX IPM are shown with a WORKHOLDING SECURITY slider.
- PARAMETERS:** Stock Out: 0.5, Radial Depth: 0.075 (59.98%), Axial Depth: 0.1938 (155%), Engagement Angle: 101.51°. Includes visualizations for SELECTED TOOL and TOOL ENGAGEMENT ANALYSIS.
- RECOMMENDATIONS:** PDF icon. Surface Speed: 1,844.709, Speed: 56,370, Feed per tooth: 0.0016, Feed per minute: 176.0, Chip Thickness: 0.0016, MRR: 2.558. Includes CORNER ADJUSTMENT (REFERENCE ONLY) section.
- TOOL PATH:** A pop-up window titled "Select your tool path." with a "More Information" link, "Back" button, and "Next >" button. It shows "Traditional Roughing" selected and a "Zig Zag Tool Path" visualization with the text: "Equidistant parallel lines that fit with the cut area.".

Select your tool path.



The screenshot displays the MACHINING ADVISOR PRO software interface. The main content is organized into several panels:

- TOOL:** Tool # 00030 (H45AL-SR-20125). Tool details include Brand: HSSAR, Type: End Mills For Aluminum, 2 Flute - Square, Flute Angle: 40°, Profile: Square Corner, Cutting Diameter: 0.125, Length of Cut: 0.375, Flutes: 2, Shank Diameter: 0.125, Coating: UNCOATED.
- MATERIAL:** Material: Aluminum Alloy, Cast. Subgroup: 242 - Copper series cast alu... Condition: T571. Performance metrics: 130W: 0, 180: 85, 185: 45, 180C: 0.
- OPERATION:** Type: General Milling. Tool Path: Traditional Roughing. A Zig-Zag Tool Path diagram is shown with the note: "Equivalent parallel line that fit with the cut area".
- PARAMETERS:** Stick Out: 0.5 (400%), Radial Depth: 0.075 (59.98%), Axial Depth: 0.1938 (155%), Engagement Angle: 101.51°. Includes visualizations for Selected Tool, HSS-AR-ALUMINUM, and Tool Engagement Angle.
- RECOMMENDATIONS:** PDF icon. Surface Speed: 1,844.709, Speed: 56,370, Feed per tooth: 0.0016, Feed per minute: 176.0, Chip Thickness: 0.0016, MRR: 2.558. Includes Corner Adjustment (Reference Only) section: "Corner adjustment applies to High Efficiency Milling and Finishing".
- WORK-HOLDING SECURITY:** A slider control ranging from 100% to 400%, currently set at 150%.
- Machine Selection:** A dropdown menu is open, showing options for Spindle (CV40) and Holder (Weldon). A tooltip above the dropdown reads: "Enter or select your Spindle and Holder from the drop downs."

Enter or select your Spindle and Holder from the drop downs.

## Machine Specifics

**MACHINING ADVISOR PRO**

**TOOL**

Tool #  
00030 (H45AL-SR-20125)

Tool details

Brand: HSSAR  
Type: End Mills for Aluminum - 2 Flute - Square  
Size: 40° Helix  
Coating: Soltec  
Profile: Square Corner  
Cutting Diameter: 0.125  
Length of Cut: 0.271  
Flutes: 2  
Stock Diameter: 0.125  
Coating: TiN/AlTiN

**MATERIAL**

Material  
Aluminum Alloy, Cast

Subgroup  
242 - Copper series cast alu...

Condition  
T571

HSW	HSB	HFB	HBC
0	85	45	0

**OPERATION**

Type  
General Milling

Tool Path  
Traditional Roughing

Zig-Zag Tool Path  
*Equivalent parallel lines that fit with the cut area.\**

Optional: Enter Max RPM/ Max IPM and adjust workholding for more precise recommendations.

[More Information](#)

Back Next

MAX RPM MAX IPM

WORKHOLDING SECURITY

Slider: LOWEST HIGHEST

**PARAMETERS**

Stick Out: 0.5

Radial Depth: 0.075 (59.98%)

Axial Depth: 0.1930 (155%)

Engagement Angle: 101.51°

**RECOMMENDATIONS** PDF

Surface Speed	1,844.799	Speed	56,370
Feed per tooth	0.0018	Feed per minute	176.0
Chip Thickness	0.0015	MRR	2.558

**CORNER ADJUSTMENT (REFERENCE ONLY)**

Corner adjustment applies to High Efficiency Milling and Finishing

SPEED FEED

Adjusters: Increase/Decrease, Low/High, Optimal

Optional: Enter Max RPM/ Max IPM and adjust workholding for more precise recommendations.

The screenshot displays the MACHING ADVISOR PRO software interface. The top navigation bar includes the logo and a refresh icon. The main interface is divided into several panels:

- TOOL:** Tool # 00030 (H45AL-SR20125). Details include Brand (HSS-E), Type (End Mills For Aluminum - 2 Flute - Square), Length of Cut (3.371), Flutes (2), Shank Diameter (E 12), and Coating (TiAlN/ST70).
- MATERIAL:** Material Aluminum Alloy, Cast; Subgroup 242 - Copper series cast alu...; Condition T571. HRC is 45 and HBW is 0.
- OPERATION:** Type General Milling; Tool Path Traditional Roughing. A Zig-Zag Tool Path diagram is shown with the note: "Equivalent parallel flow that fit with the cut area".
- MACHINE:** Spindle CV40; Holder Weldon. MAX RPM and MAX IPM are indicated. A WORK-HOLDING SECURITY slider is present.
- PARAMETERS:** Stick Out 0.5 (400%), Radial Depth 0.075 (59.98%), Axial Depth 0.1938 (155%), Engagement Angle 101.51°. Includes a diagram of the selected tool and a TOOL ENGAGEMENT ANGLE diagram.
- RECOMMENDATIONS:** PDF icon. Surface Speed 1,844.709, Speed 56,370, Feed per tooth 0.0016, Feed per minute 176.0, Chip Thickness 0.0016, MRR 2,558. Includes a CORNER ADJUSTMENT (REFERENCE ONLY) section with a note: "Corner adjustment applies to High Efficiency Milling and Finishing".

A callout box is overlaid on the PARAMETERS section, stating: "Optional: adjust specific parameters to better reflect your application." with a "More Information" link and "Back" and "Next" buttons.

Optional: Adjust specific parameters to better reflect your application.

The screenshot displays the MACHINING ADVISOR PRO software interface, which is organized into several panels:

- TOOL:** Shows Tool # 00030 (H45AL-SR-20125) and Tool details including Brand (HSS-E), Flute (2nd Flute Per Flute), Flute Length (2.750), Flute Width (0.075), Profile (Square Corner), Cutting Diameter (1.125), Length of Cut (0.875), and Flute T.
- MATERIAL:** Shows Material Aluminum Alloy, Cast, Subgroup 242 - Copper series cast alu..., and Condition T571. It includes a table for hardness values: HBS (0), HB (85), HRC (45), and HRCP (0).
- OPERATION:** Shows Type General Milling, Tool Path Traditional Roughing, and a Zig-Zag Tool Path diagram with the note "Equivalent parallel flow that fit with the cut area".
- MACHINE:** Shows Spindle CV40, Holder Weldon, and a WORK-HOLDING SECURITY slider.
- RECOMMENDATIONS:** Includes a PDF icon and a table of values: Surface Speed (1,844.709), Speed (56,370), Feed per tooth (0.0016), Feed per minute (176.0), and Chip Thickness (0.0016), MRR (2.558). It also features CORNER ADJUSTMENT (REFERENCE ONLY) with a note: "Corner adjustment applies to High Efficiency Milling and Finishing".

A blue box highlights the bottom-left section of the interface, which contains a list of parameters and their current values, along with visual aids:

- Stick Out: 0.5
- Radial Depth: 0.075 (59.98%)
- Axial Depth: 0.1938 (155%)
- Engagement Angle: 101.51°

Visual aids include a diagram of the selected tool, a diagram of the ADD-ROD ADJUSTER (0% to 100%), and a diagram of the TOOL ENGAGEMENT ANGLE (0% to 100%).

An optional tooltip is visible, stating: "Optional: update values in this column to adjust recommendations." Below the tooltip are "Back" and "Next >" buttons.

Optional: Update values in this column to adjust recommendations.

The screenshot displays the MACHING ADVISOR PRO software interface. The top navigation bar includes the logo and a refresh icon. The main interface is divided into several panels:

- TOOL:** Tool # 00030 (H45AL-SR-20125). Tool details include Brand: HSS-Co, Type: End Application for Aluminum - 2 Flute - Square, Size: 1/4" Dia, and various dimensions.
- MATERIAL:** Material: Aluminum Alloy, Cast. Subgroup: 242 - Copper series cast alu... Condition: T571. A table shows properties: 100% (0), 10% (85), 10% (45), 10% (0).
- OPERATION:** Type: General Milling. Tool Path: Traditional Roughing. A diagram shows a Zig-Zag Tool Path with the note: "Equivalent parallel lines that fit with the cut area".
- MACHINE:** Spindle: CV40. Holder: Weldon. Sliders for MAX RPM and MAX IPM. A WORKHOLDING SECURITY slider is also present.
- PARAMETERS:** Stick Out: 0.5 (400 %). Radial Depth: 0.075 (59.98 %). Axial Depth: 0.1938 (155 %). Engagement Angle: 101.51. Includes a diagram of the selected tool and a TOOL ENGAGEMENT ANGLE diagram.
- ADOC/RDOC ADJUSTER:** A vertical slider on the right side of the parameters panel, currently set to 100%.
- RECOMMENDATIONS:** PDF icon. Surface Speed: 1,844.709 (Speed: 56,370). Feed per tooth: 0.0016 (Feed per minute: 176.0). Chip Thickness: 0.0016 (MRR: 2,558).
- CORNER ADJUSTMENT (REFERENCE ONLY):** Corner adjustment applies to High Efficiency Milling and Finishing. Includes a FEED slider.

An optional tooltip is displayed over the ADOC/RDOC ADJUSTER slider, stating: "Optional: ADOC and RDOC values can also be updated using these sliders".

Optional: ADOC and RDOC values can also be updated using the sliders on the side and bottom of the ADOC/RDOC Adjuster

## Tool Engagement Angle Graphic

The screenshot displays the MACHINING ADVISOR PRO software interface, which is organized into several panels:

- TOOL:** Tool # 00030 (H45AL-SR-20125). Details include Stock Metric, Type: AIR Tools, Profile: Square Chamf, Grinding Diameter: 0.153, Length of Cut: 0.279, Flutes: 2, Shank Diameter: 0.123, and Coating: SAFC03705.
- MATERIAL:** Material: Aluminum Alloy, Cast. Subgroup: 242 - Copper series cast alu... Condition: T571. Parameters: HB0: 0, HB1: 85, HB2: 45, HB3: 0.
- OPERATION:** Type: General Milling. Tool Path: Traditional Roughing. A graphic shows a "Zig-Zag Tool Path" with the note: "Equivalent parallel lines that fit with the cut area".
- MACHINE:** Spindle: CY40. Holder: Weldon. Controls for MAX RPM and MAX IPM. A WORKHOLDING SECURITY slider is visible.
- PARAMETERS:** Stock Out: 0.5. Radial Depth: 400% (with a 59% sub-value). Axial Depth: 0.1938 (with a 155% sub-value). Engagement Angle: 101.51. Includes a "TOOL ENGAGEMENT ANGLE" graphic and an "ADJUST" slider. A tooltip states: "Optional: TEA can also be adjusted with the graphic below".
- RECOMMENDATIONS:** Includes a PDF icon and values for Surface Speed (1,844.709), Speed (56,370), Feed per tooth (0.0016), Feed per minute (176.0), and Chip Thickness (0.0016), MRR (2.558).
- CORNER ADJUSTMENT (REFERENCE ONLY):** Note: "Corner adjustment applies to High Efficiency Milling and Finishing". Includes a FEED control with "Lock For Reference" and "Increase Production" buttons.

Optional: Tool Engagement Angle can also be adjusted with the TEA graphic.

**MACHINING ADVISOR PRO**

**TOOL**  
Tool # 00030 (H45AL-SR-20125)

**MATERIAL**  
Material Aluminum Alloy, Cast  
Subgroup 242 - Copper series cast alu...  
Combustion T571

**OPERATION**  
Type General Milling  
Tool Path Traditional Roughing

**MACHINE**  
Serial No CV40  
Weldon  
MAX RPM MAX IPM

**PARAMETERS**

Stick Out 0.5  
400 %

Radial Depth 0.075  
59.98 %

Axial Depth 0.1938  
155 %

Engagement Angle 101.51°

**RECOMMENDATIONS** PDF

Surface Speed	1,844.709	Speed	56,370
Feed per tooth	0.0016	Feed per minute	176.0
Chip Thickness	0.0016	MRR	2.558

**CORNER ADJUSTMENT (REFERENCE ONLY)**  
Corner adjustment applies to High Efficiency Milling and Finishing.

**SPEED**  
Increased Torque Increased Production

**FEED**  
Low Torque Increased Production

Your customized recommendations appear here once the first 4 sections are complete.  
[More Information](#)

Back Next

Your customized recommendations appear once the first 4 sections are complete.

## Refine your Parameters

The screenshot displays the MACHING ADVISOR PRO software interface. The top navigation bar includes the logo and icons for refresh and back. The main interface is divided into several panels:

- TOOL:** Tool # 00030 (H45AL-SR-20125). Tool details include Brand: HSS-Co, Type: End Mills For Aluminum, 2 Flute - Square, Size: 3/4" Dia, Flute: Square Groove, Cutting Diameter: 0.125, Length of Cut: 3.375, Flutes: 2, Shank Diameter: 0.125, Coating: TiAlN/TiCN.
- MATERIAL:** Material: Aluminum Alloy, Cast. Subgroup: 242 - Copper series cast alu... Condition: T571. A table shows values for 1100, 1105, 1106, and 1107, with 85, 45, and 0 respectively.
- OPERATION:** Type: General Milling. Tool Path: Traditional Roughing. A diagram shows a Zig-Zag Tool Path with the note: "Equivalent path lines that fit with cut area".
- MACHINE:** Spindle: CV40, Holder: Weldon. MAX RPM and MAX IPM fields are present.
- PARAMETERS:** Stick Out: 0.5, Radial Depth: 0.075 (59.98%), Axial Depth: 0.1938 (155%), Engagement Angle: 101.51°. Includes visualizations for SELECTED TOOL and TOOL ENGAGEMENT ANGLE.
- RECOMMENDATIONS:** Surface Speed: 1,844.709, Speed: 56,370, Feed per tooth: 0.0016, Feed per minute: 176.0, Chip Thickness: 0.0016, MRR: 2.558. Includes a PDF icon and a CORNER ADJUSTMENT (REFERENCE ONLY) section.
- SPEED & FEED DIALS:** Two circular dials for adjusting Speed and Feed. The Speed dial has a "Next" button above it. The FEED dial has "Last Tool Path" and "Next" buttons.

An optional tooltip is visible over the Speed dial: "Optional: optimize for tool life or production using the dials below" with a "More Information" link.

Optional: optimize for tool life or production using the Speed & Feed dials.



## Export your Recommendations

The screenshot displays the Machining Advisor Pro interface with the following sections:

- MACHINING ADVISOR PRO** (Logo)
- TOOL**: Tool # 00030 (H45AL-SR-20125). Details include Brand: Helical, Tool: End Mills for Aluminum - 2 Flute - Square, Type: 45° Helix, Units: Inches, Profile: Square Corner, Cutting Diameter: 0.125, Length of Cut: 0.375, Flutes: 2, Shank Diameter: 0.125, Coating: UNCOATED.
- MATERIAL**: Material: Aluminum Alloy, Cast; Subgroup: 242 - Copper series cast alu...; Condition: T571. Properties: HBW 0, HBS 85, HRB 45, HRC 0.
- OPERATION**: Type: General Milling; Tool Path: Traditional Roughing. Includes a "Zig Zag Tool Path" visualization.
- MACHINE**: Spindle: CV40; Holder: Weldon. Includes MAX RPM and MAX IPM fields.
- PARAMETERS**: Stick Out: 0.5 (400%); Radial Depth: 0.075 (59.98%); Axial Depth: 0.1938 (155%); Engagement Angle: 101.51°. Includes visualizations for "SELECTED TOOL" and "ADJUSTABLE ADJUSTER".
- RECOMMENDATIONS**: Includes a "PDF" button and a table of values:

Parameter	Value	Parameter	Value
Surface Speed	1,844.709	Speed	56,970
Feed per tooth	0.0016	Feed per minute	176.0
Chip Thickness	0.0016	MRR	2.558
- CORNER ADJUSTMENT (REFERENCE ONLY)**: Corner adjustment applies to High Efficiency Milling and Finishing.
- SPEED** and **FEED** controls: Includes "DRYHOOLDING SECURITY" slider and "MAX RPM" / "MAX IPM" buttons.

Optional: Click PDF to download your recommended parameters.