CAMWorks Wire EDM Pro

Demo Kit

# Contents

[Contents 2](#_Toc143265076)

[Using this demo kit 3](#_Toc143265077)

[Part 1 (Overview, Feature Recognition, Data Grid) 4](#_Toc143265078)

[Part 2 (Advanced Feature Recognition, Feature Creation) 6](#_Toc143265079)

[Part 3 (96 Features, Optimization) 7](#_Toc143265080)

[Part 4 (4 Axis Open, Colors) 8](#_Toc143265081)

[Part 5 (Colors) 9](#_Toc143265082)

[Part 6 (Coreless, Start Holes) 10](#_Toc143265083)

[Part 7 (Decals) 11](#_Toc143265084)

[Part 8 (Variable Height) 12](#_Toc143265085)

[Part 9 (On Contour) 13](#_Toc143265086)

[Part 10 (Form Tool) 14](#_Toc143265087)

# Using this demo kit

This demo kit provides the overall structure of a standard demo of CAMWorks Wire EDM Pro. With the example parts provided it moves through the primary features of the system and highlights some of its key features. Certain aspects have been left out, such as in-depth coverage of the different dialogs and settings. These are usually covered as the customer asks questions throughout the presentation.

In the outline, possible opportunities to stop for questions are suggested.

What this presents is a generalized flow.

A video example of this presentation is also available. Time stamps are mentioned at the beginning of each section.

Parts 9 and 10 may not be presented depending on customer needs.

## Additional Suggestions

In general, we also recommend using customer parts in leu of the example parts given where possible. Highlighting key features using parts that the customer works with everyday is a powerful tool. This also informs what features might be more useful, or which settings to highlight in the presentation.

The example parts are currently set to use the Mitsubishi FAS machine. Using a machine similar to the customer’s machine is also a helpful way of personalizing the demo, especially when it comes to posting and cutting conditions.

## Contents

1. Demo Kit PDF
2. Demo Kit example presentation (video)
3. Demo Kit Example parts (10 files)

# Part 1 (Overview, Feature Recognition, Data Grid)

## Setup

(Time stamp – 0:00-6:55)

Use example part: *Demo\_1 Die Block.sldprt*

***Find Outer, Inner, Holes*** – On

***Start Circles***  - On (Min- .1 in, Max- .2 in)

## Outline

1. Introduction to the Addin
   1. Layout (Feature Tree, Command Manager, Data Grid)
2. Introduction to the Part
   1. Die Block, 2 axis, 2 axis w/ taper, 4 axis features
3. Solid to G = Code
   1. One Button
   2. Status bar
   3. Steps of S2G
4. Start points
5. Glue stop sizing
   1. Automation is controllable (settings available)
   2. Adjustable in EDM Settings
6. Feature Tree
   1. Machining Order (random)
   2. Plane Optimization (X direction, Top Left)
7. Simulation
   1. Shows machining order, slug removal
   2. Adjust speed and image quality

\*\*\* Stop for Questions

1. Other common features
   1. Links/Groups
   2. Duplicate
2. Feature Grid
   1. Glue Stop
   2. Lead in/out
   3. Start Position
   4. Land and Taper
      1. Rough – Taper
      2. Skim – Land

\*\*\* Stop for Questions

1. Benefits
   1. Automatic Feature Creation – Fast. Saves time
   2. Feature grid – fewer clicks for common settings. Saves time.

# Part 2 (Advanced Feature Recognition, Feature Creation)

## Setup

(Time stamp – 6:55-10:04)

Use example part: *Demo\_2 Surfaced Face.sldprt*

***Find Outer, Inner, Holes*** – On

***Check Interference***  - Off

## Outline

1. Introduction to the Part
   1. Planar Bottom, Surfaced Top
      1. Can’t use upper/lower loops
      2. Traditionally have to create geometry
   2. Angular features
      1. Can’t thread wire
2. Solid to G Code
   1. Angular Threading
      1. Automatic in Premium, manual in professional (for machines that support it)
   2. Automatically creates upper geometry
3. Manual Feature creation
   1. Delete Large, middle feature
   2. Create new a feature with Faces
      1. Repeat with edges, partial loop, loops

\*\*\* Stop for Questions

1. Benefits
   1. Intuitive feature creation – easy to learn/train, fewer errors
   2. Efficient feature creation – time savings

# Part 3 (96 Features, Optimization)

## Setup

(Time stamp – 10:04-12:34)

Use example part: *Demo\_3 Trigger.sldprt*

***Find Outer, Inner, Holes*** – On

***Start Circles***  - On (Min- 3 mm, Max- 5 mm)

## Outline

1. Click Solid to G-Code first
2. Introduction to the Part
   1. Trigger assembly with 96 Features
   2. Created from Dxf file
   3. Part originally from a customer using competitive software
      1. Took 5 hours to import, select geometry and settings, and post
   4. Compared to CAMWorks:
      1. Import and Extrude
      2. Solid to G-Code
         1. Finds features, Start holes, applies settings, and posts
         2. Does it in minutes instead of hours
      3. Can Optimize
      4. Search Conditions
         1. Shows offsets in toolpath
         2. Can adjust conditions individually or in groups

\*\*\* Stop for Questions

1. Benefits
   1. Almost 5 hours time settings.

# Part 4 (4 Axis Open, Colors)

## Setup

(Time stamp – 12:34-15:07)

Use example part: *Demo\_4 Open.sldprt*

***Find Outer, Inner, Holes*** – On

## Outline

1. Introduction to the Part
   1. So far, most features have been a part of Professional
   2. Some Premium features that make things faster
   3. Complex 4 axis open shape
2. Program Manually
   1. Select faces
   2. Turn off glue stop
   3. Adjust lead ins
3. Color Coding
   1. Assigns technology based on color
      1. Only one pass needed
   2. Apply color to desired faces
4. Define Search Settings
   1. Set **Feat Level%**
      1. Setting defines where feature search takes place
      2. Move down to intersect with desired faces
   2. Turn on **Find Use Type**
   3. Turn on **Find Open**
5. Solid to G-Code
   1. Creates 4 Axis open feature based on color with only 1 pass

\*\*\* Stop for Questions

1. Benefits
   1. Colors: Visually define what your cutting – reduce errors

# Part 5 (Colors)

## Setup

(Time stamp – 15:07-16:36)

Use example part: *Demo\_5 Land and Taper.sldprt*

***Find Outer, Inner, Holes*** – On

***Find AutoLevel, UseType***- On

***Start Circles***  - On (Min- 5.5 mm, Max- 7 mm)

## Outline

1. Introduction to the Part
   1. More in depth with colors.
   2. Die Block
   3. Land and Taper designed in Solid Model
2. Apply Colors
   1. Color: Taper\_1cut, Feature: Taper-Extrude
   2. Color: Land\_4cuts, Feature: Land-Extrude
   3. Color: 3\_cuts, Feature: Hole-Extrude
   4. Not coloring CounterBore holes
3. Solid to G-Code
   1. No color on other holes, or Outside shape
      1. Not found. Allows for filtering features by color
4. Feature Tree
   1. Colors sort Land and Taper together
   2. Features include the selected number of faces

\*\*\* Stop for Questions

1. Benefits
   1. Dynamic filtering – Only programs desired operations
   2. Speeds up programming and reduces errors

# Part 6 (Coreless, Start Holes)

## Setup

(Time stamp –16:36:18:01)

Use example part: *Demo\_6 Coreless.sldprt*

***Find Outer, Inner, Holes*** – On

***Find AutoLevel, UseType***- On

***Start Circles***  - On (Min- 2.5 mm, Max- 3.5 mm)

## Outline

1. Introduction to the Part
   1. Another color option will define coreless
   2. Pre-defined start hole
2. Solid to G-Code
   1. Notice that it didn’t select the start hole
3. Start Circles
   1. In data grid Start Circles- Circle Min/Max defines start hole sizes
      1. Anything outside of range isn’t use
      2. In case model has additional sketches
4. Change **Circle Min** to 2.0 mm
5. Select Find Start Points
6. Select Rebuild
   1. Toolpath updated to use start point
   2. Also updated to machine around void created by start hole
      1. Can be adjusted in Operation settings

\*\*\* Stop for Questions

1. Benefits – Efficient Coreless operations and intelligent Start hole recognition

# Part 7 (Decals)

## Setup

(Time stamp – 18:01-20:02)

Use example part: *Demo\_7 Decals.sldprt*

***Find Outer, Inner, Holes*** – On

***Find AutoLevel, UseType***- On

## Outline

1. Introduction to the Part
   1. Similar to colors, decals leverage Solidworks Appearances
   2. Created unique decal icons
   3. Part includes decal for a stop code in Middle of a Face
   4. Part includes decal for an entry point in Middle of Face and no Glue stop
   5. The angular entry on this part can be complex to program and glue stops can also be problematic
   6. Also applied 2 cut Color
2. Solid to G-Code
   1. Finds Features
      1. Applies 2 Cuts
      2. Enters at marked location
      3. Includes Stop code at marked location

\*\*\* Stop for Questions

1. Benefits
   1. Reduces errors/training – Can define what to cut and how to cut it all visually (especially when used with colors)

# Part 8 (Variable Height)

## Setup

(Time stamp –20:02-21:23)

Use example part: *Demo\_8 Variable.sldprt*

## Outline

1. Introduction to the Part
   1. Shape of the part means that there is no common height along the entire contour
   2. Feature recognition can’t find it
2. Programming Manually
   1. Selected Faces (Right Click – Tangency)
   2. Select **Variable Land** – on
3. Creates feature with geometry automatically projected to top/bottom of the feature

\*\*\* Stop for Questions

1. Benefits – Faster than creating separate geometry

# Part 9 (On Contour)

## Setup

(Time stamp –21:23-22:54)

Use example part: *Demo\_9 On Contour.sldprt*

## Outline

1. Introduction to the Part
   1. Simple part that shows how the feature works
2. Uses for On Contour
   1. Moving between operations without cutting the wire
      1. For efficiency
      2. Manuever around fixturing
   2. Cutting along a path out offset
3. Define On Contour Operation
   1. Point to Point
   2. Line to Line
   3. Line to Point
4. Simulate (simulation speed Medium or slower)

\*\*\* Stop for Questions

1. Benefits – Additional Flexibility in unique scenarios

# Part 10 (Form Tool)

## Setup

(Time stamp –21:23-22:54)

Use example part: *Demo\_10 Form Tool.sldprt*

## Outline

1. Introduction to the Part
   1. In this part I’ve created a 3D example of these kind of features
      1. Most often created for wood router or lathe blades
      2. Typically are designed as a single sketch of the cutting edge
2. Create a Form Tool with the Sketch
   1. Form Tool Feature allows for defining the tool height, taper and side taper to recreate these types of part parametrically.
   2. Set Form Tool Parameters
      1. **Stock Thickness:** 25.4
      2. **Face Taper Angle:** 1.0
      3. **Side Taper Angle:** 0.5

\*\*\* Stop for Questions

1. Benefits– When needed, provides a very simple way of creating these complex parts.