GIMBEL
AUTOMATION

Gimbel Automation
Two-Op Automation Pallet Programming Guide

2024 Q2

INTRO

TWO-OP MODULE
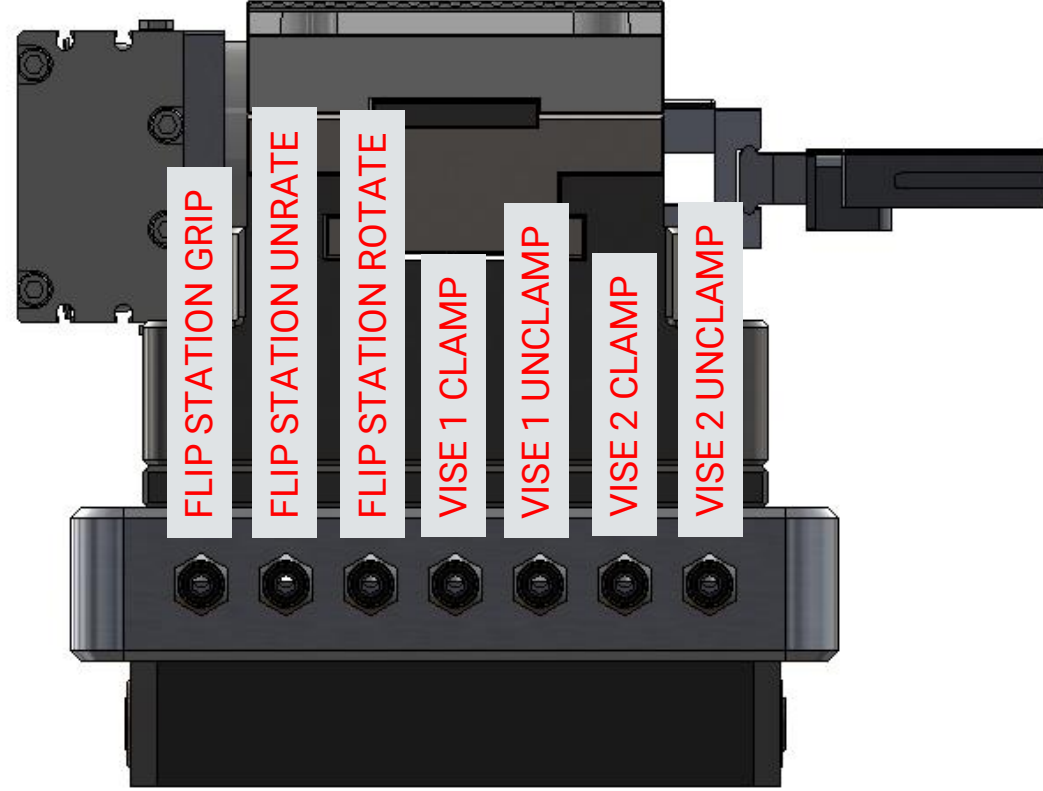
- ## **<u>Two-Op Module</u>**
  - Enables Two-Op One-Cycle Parts
  - Includes Two 75 or 100mm Vises
  - Includes Integrated Part Flipper
  - Internal Air Line Routing
  - Built-In 96mm Pullstuds for 5th-Axis/LANG/Jergens Zero-Point

FROM $6849

AIR ROUTING & INFO

AIR LINE ROUTING GUIDE

- **<u>STANDARDIZING ROUTING</u>**
  - To make routing easier, we highly recommend adopting a standard for your air line colors
  - Use the same bundle color-coding on signal wires to the control

- **<u>Recommended Line Color Coding</u>**
  - Black is [FLOWS NORMALLY]
  - Red is [FLOWS ENERGIZED]

- **<u>Recommended Bundle Color Coding</u>**
  - For each Instant Solenoid Kit, designate a color-coded bundle
  - Wrap each bundle of four air lines with the designated color of electrical tape

Bundle each cable coming off each individual Instant Solenoid Kit

Two-Op Auto. Pallet Work Offsets

MACRO PROGRAM TEMPLATE

- **<u>Macro Program Template</u>**
  - Your purchase of a the Two-Op Automation Pallet comes with the Machine-Appropriate Template

- **<u>Turnkeys</u>**
  - For Turnkeys, this Template will be edited specifically for your setup, tool numbers, and exact part

- **<u>Self-Installs</u>**
  - For Self-Install, you will have to edit the Program Template provided with your specific machine information

TWO OP AUTO PALLET WCS SUMMARY

- ## <u>First-Op Vise: G54</u>
  - First-Op Vise is the vise closest to the user in Y-Axis configurations
  - G54 X0.000 should be set to the left-to-right center of the vise for X
  - G54 Y0.000 should be set to the front-to-back center of the vise for Y
  - G54 Z0.000 should be set to bottom face of the stock location during Op1 machining

- ## <u>Second-Op Vise: G55</u>
  - Second-Op Vise is the vise farthest from the user in Y-Axis configurations
  - G55 X0.000 should be set to the left-to-right center of the vise for X
  - G55 Y0.000 should be set to the front-to-back center of the vise for Y
  - G55 Z0.000 should be set to bottom stock height theoretical value (this is where the material from Op1 would have been, had that material not been removed

- ## <u>Integrated Flip Station: G56</u>
  - Integrated Flip Station is centered between the two vises
  - G56 X0.000 should be set X end location of the Flip Station fingers
  - G56 Y0.000 should be set to the front-to-back center of flip location
  - G56 Z0.000 should be at Flip Station flipping center of rotation
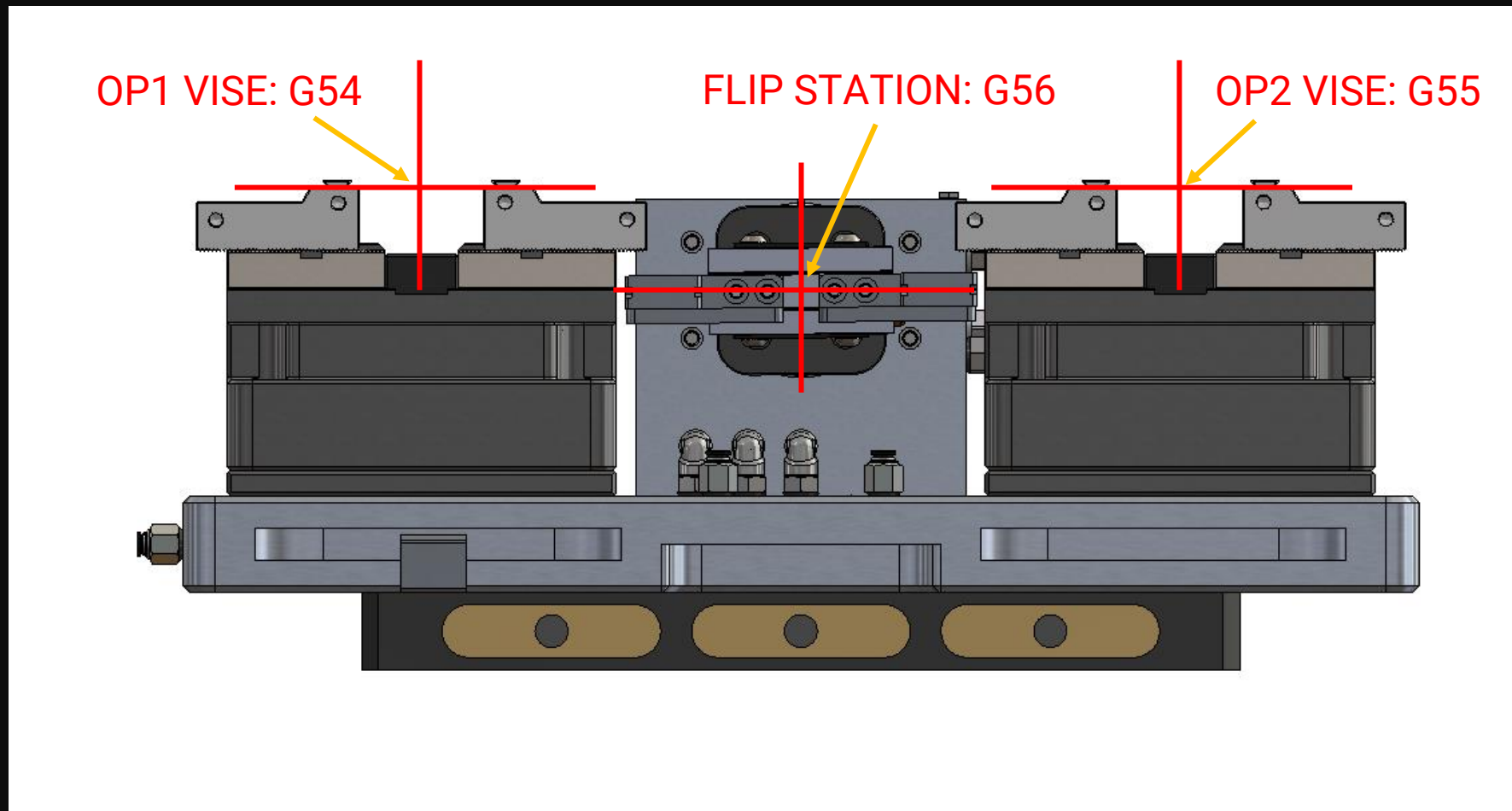
TWO OP AUTO PALLET WCS SUMMARY

- ## <u>Stock Tray: G59</u>
    - Stock tray should be located on the table to the right of the Automation Pallet
    - G59 X0.000 should be set to the left-to-right center bottom left stock pickup point
    - G59 Y0.000 should be set to the front-to-back center bottom left stock pickup point
    - G59 Z0.000 should be set to bottom face of the stock at the bottom-left pickup point
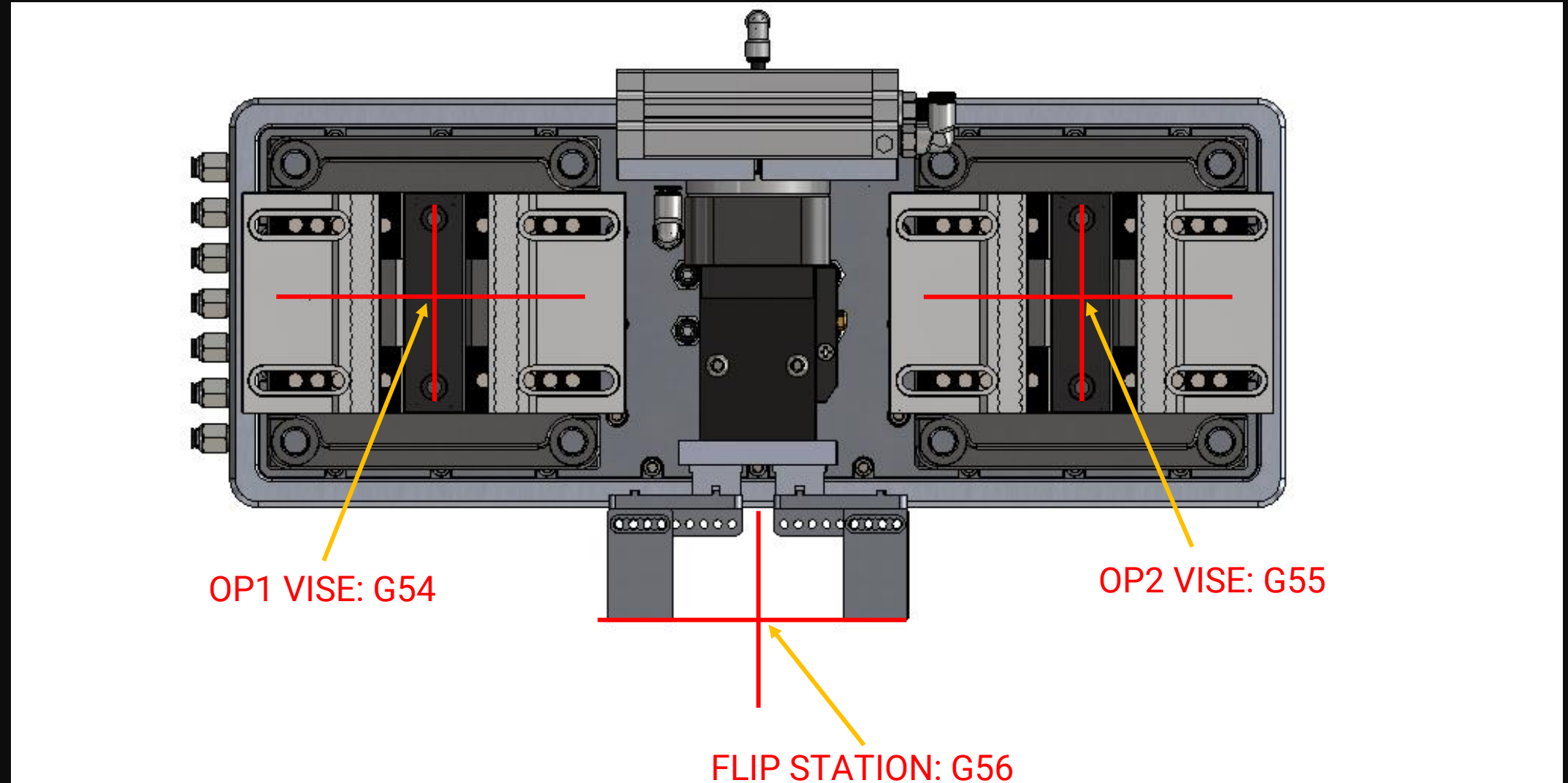   - Stock Tray should be aligned to the X-Axis of the Machine (dialed-in)
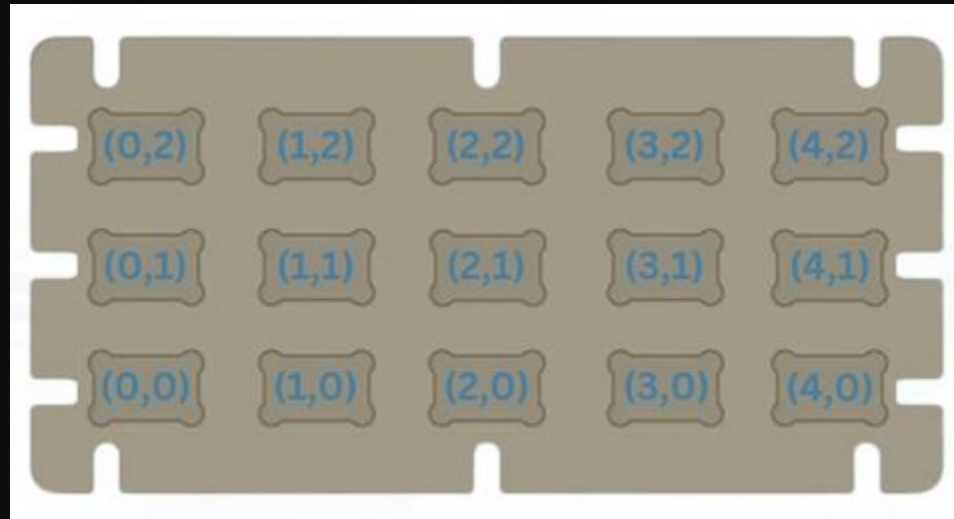
Bottom left pickup point is (0,0) in the part tray shown above

TWO-OP AUTO. PALLET WCS

TWO-OP AUTO. PALLET WCS

OP1 VISE: G54

OP2 VISE: G55

FLIP STATION: G56

Programming Variables

PROGRAMMING MACRO VARIABLES

- **<u>Part Information</u>**

```
#1 = 1;                 (desired part count)
#2 = 1;                 (flip and second op; 1=true, 0=false)
#4 = 0;                 (tray return or bucket; tray=0, bucket=1)
```

- **<u>Tray Information</u>**

```
#6 = 2.500;             (x spacing distance)
#7 = 4;                 (number of x instances i.e. x matrix width)
#8 = 2.500;             (y spacing distance)
#9 = 6;                 (number of y instances)
```

- **<u>Stock Size Information</u>**

```
#10 = 2.000;            (x starting stock size)
#11 = 2.000;            (y starting stock size)
#12 = 0.500;            (z starting stock size)
#13 = 0.088;            (first op z stock removal)
#14 = 0.206;            (second op z stock removal)
#15 = 0.000;            (vise z preload)
```

PROGRAMMING MACRO VARIABLES

- ## Clearance Planes & Stock Removal

```
#16 = 1.000;          (gripper z clearance plane)
#17 = 0.000;          (gripper post-op1 offset)
#18 = 0.000;          (gripper post-op2 offset)
#19 = 0.250;          (tray clearance plane)
#20 = 0.097;          (tophat thickness for flip)
```

- ## WCS & Feedrates

```
#21 = 54;             (1st op vise offset)
#22 = 55;             (2nd op vise offset)
#23 = 56;             (flip station offset)
#24 = 59;             (first tray position offset)
#25 = 58;             (bucket offset if using bucket)

#28 = 300.0;          (fast feedrate)
#29 = 050.0;          (slow feedrate)
```

Jaw Configurations

OP-1 VISE JAW CONFIGURATION
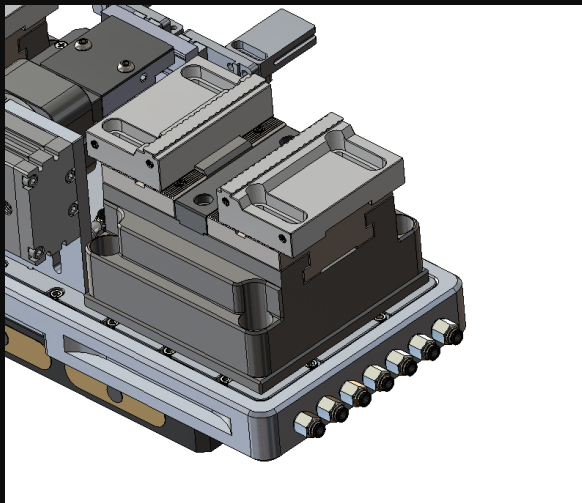
- **First-Op Jaw Configuration**

  - **Rectangular Stock**
    - For rectangular stock, use the provided adjustable hard jaws
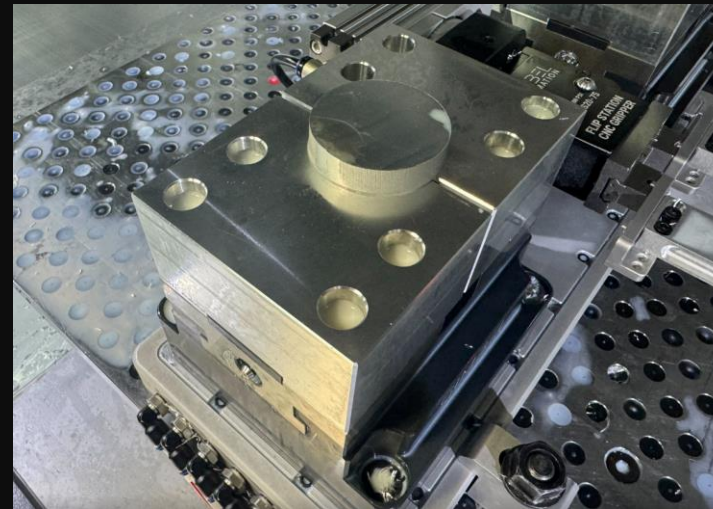
  - **Round Stock**
    - In the case of round stock, we recommend cutting Op1 Soft Jaws

  - A note about WCS: Once the soft jaw has been cut, the Z-axis G54 WCS should be moved so that the stock bottom in the Op1 Jaw is at G54 Z0.000

Most rectangular starting stock removes need to cut Op1 Soft Jaws

Stock that is initially round will require a soft jaw for the Op1 Vise

OP-1 VISE JAW CONFIGURATION

- **Second-Op Jaw Configuration**

  - **Rectangular Parts**
    - For rectangular stock, it is sometimes possible to use the square jaws
    - When doing this, be careful as the serrated teeth can mar the part

  - **Most Parts**
    - In most cases, the Op2 Vise Requires soft-jaws to match the part profile

APPENDIX