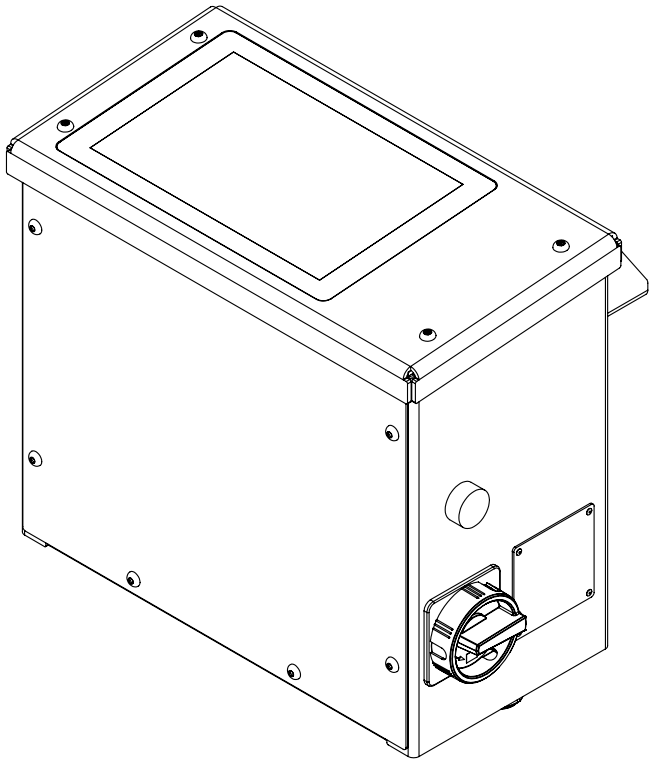
M54 Tube Bender
HMI1000 Operation Manual



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Contents

Powering the Machine

1.1 Powering on the Machine

Turn the disconnect handle to the **ON** position to power the machine on. The M54 user interface launches automatically after the machine boots.

Figure 1.1: M54 Power Disconnect Handle

1.2 Powering off the Machine

1. Safely shutdown the machine by navigating to the main menu and selecting the Power workspace.
2. Select the **Power Off Machine** button.
3. When the screen goes black, turn off the power disconnect.

Note

The machine has large capacitors in the power supply. If you are power cycling the machine:

1. Shutdown the machine normally.
2. Wait for the LED indicator light to extinguish.
3. Count 20 seconds.
4. Power the machine on normally.

Settings

2.1 User Settings

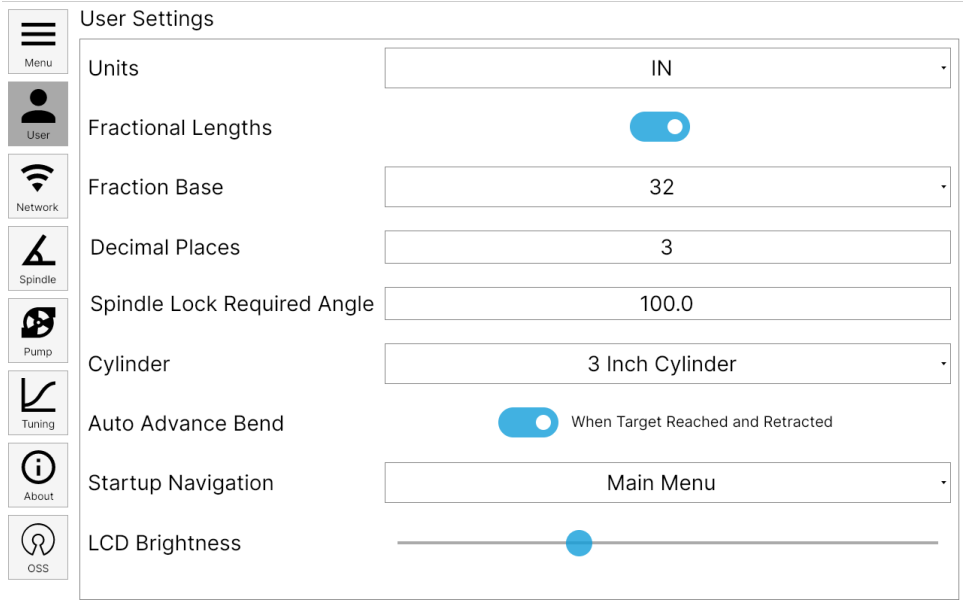

Figure 2.1: Attachment Settings

User Settings

Setting	Description
Units	The length unit system. Angles are always shown in degrees.
Fractional Lengths	Enable to show lengths as fractions instead of decimals
Decimal Places	The number of decimal digits to display
Spindle Lock Required Angle	The spindle target angle that causes the spindle lock icon reminder to appear
Cylinder	The installed cylinder size
Auto Advance Bend	Enable to automatically move to the next bend after retracting the spindle in part mode
Startup Navigation	The first page to show after startup
LCD Brightness	Adjust the display brightness

2.2 Network Settings

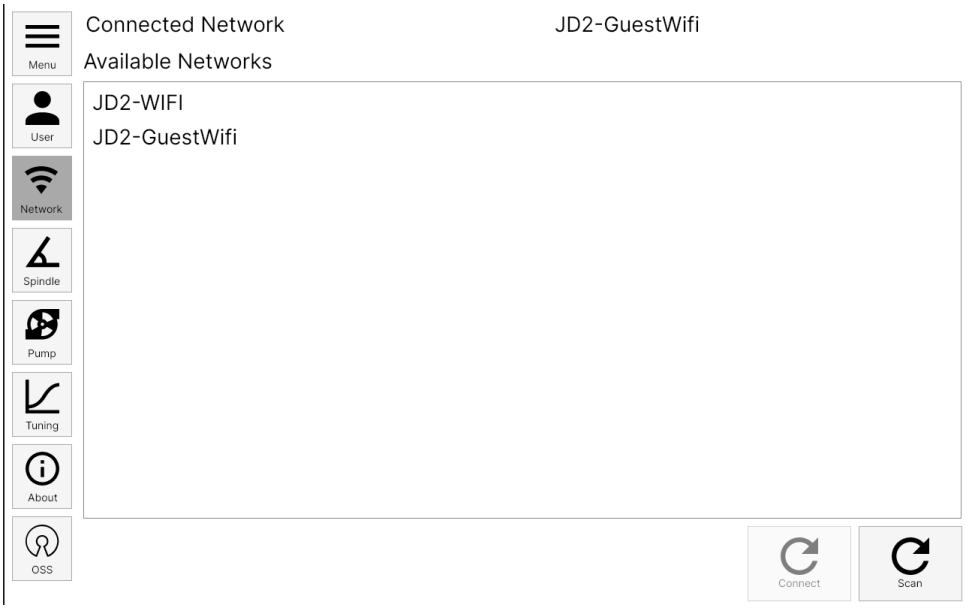

Figure 2.2: Network Settings

Connection to a publicly broadcast WIFI network that requires a simple password can be done directly in the HMI.

1. Scan for available networks.
2. Select the network to connect.
3. Press Connect
4. Enter the password

On successful completion, the connected network will be displayed.

2.2.1 Advanced Network Settings

- Close the HMI software, but do not shut down the machine.
- Select the WIFI icon in the top right of the taskbar.

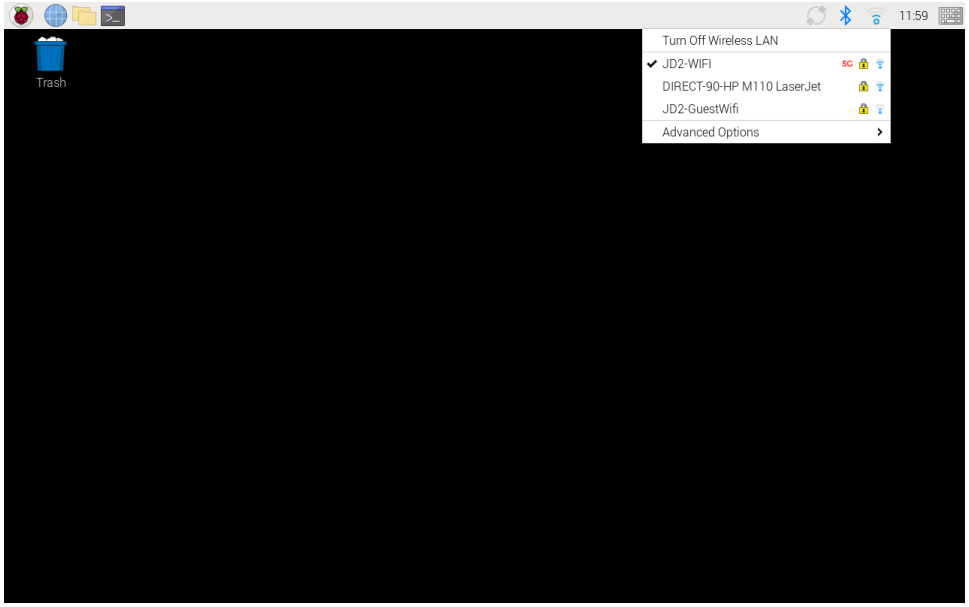

Figure 2.3: Desktop WIFI Drop-Down Menu

- Select Edit Connections

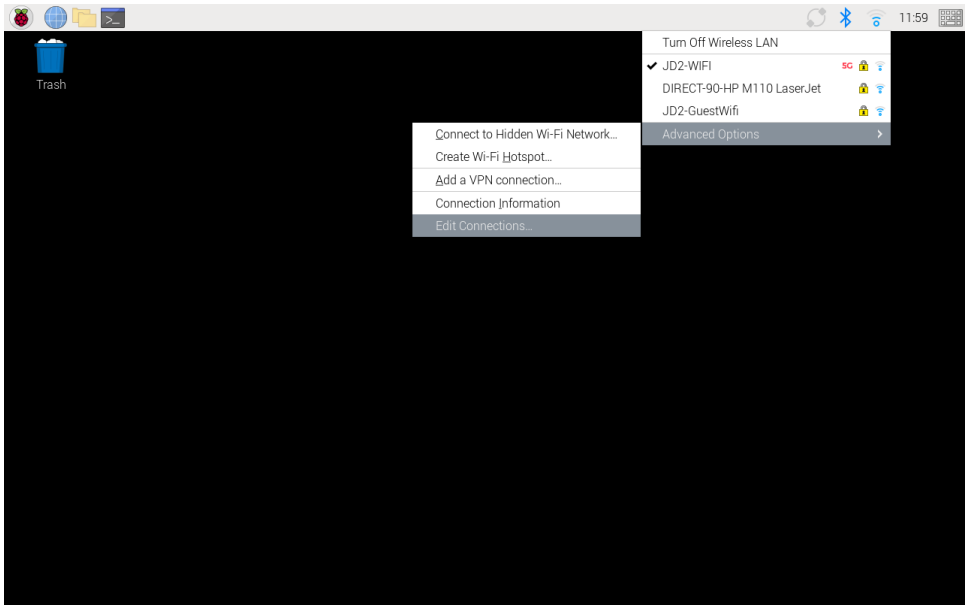

Figure 2.4: Desktop WIFI Edit Connections

- Follow the on-screen prompts

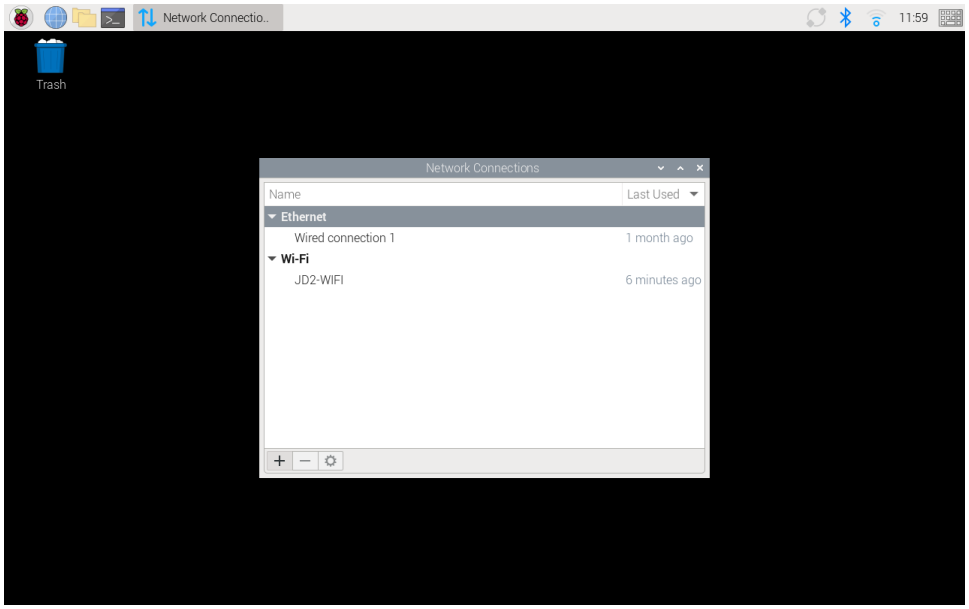

Figure 2.5: Desktop WIFI Dialog

2.3 Pump Settings

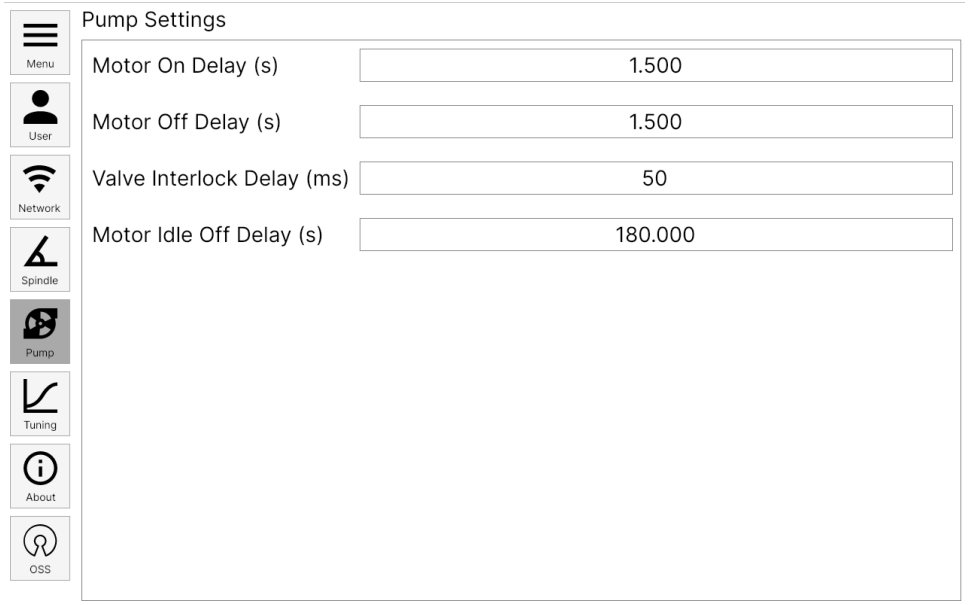

Figure 2.6: Pump Settings

Pump Settings

Setting	Description
Motor On Delay	Seconds to wait for the pump to start before allowing ram motion
Motor Off Delay	Seconds to wait for the pump to stop before allowing another action
Valve Interlock Delay	Milliseconds between commanding valve extend and valve retract
Motor Idle Off Delay	Seconds to wait before turning off the pump automatically if no ram movement

2.4 Spindle Settings

The spindle encoder can have a software applied offset. Follow the on-screen instructions to install and calibrate the spindle encoder.

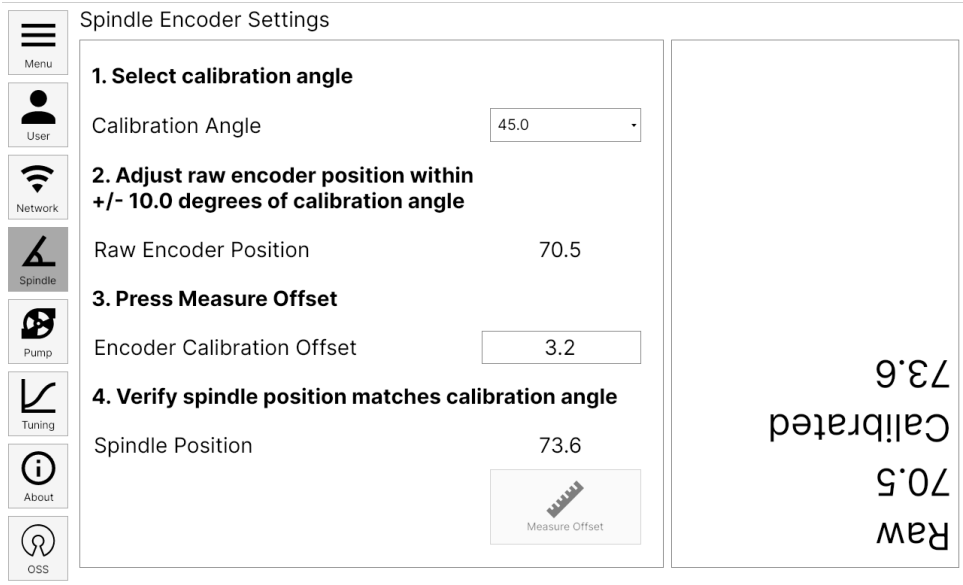

Figure 2.7: Spindle Settings

Workspaces

3.1 Single Bend

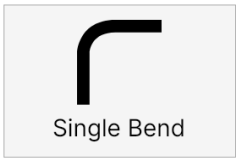

Figure 3.1: Single Bend Workspace Icon

The single bend workspace is used to quickly make one bend without creating a part file. It is still possible to use the technical data tables for springback compensation values.

3.1.1 Single Page

Perform a single bend.

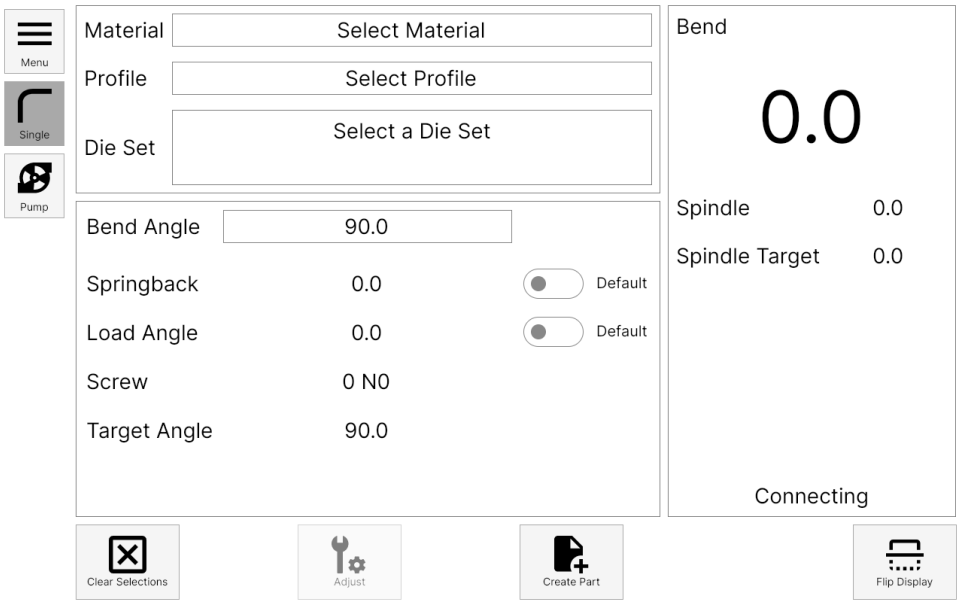

Figure 3.2: Single Bend Workspace

3.1.2 Pump Page

Select the pump button to toggle the pump motor power state manually.

3.2 Part Mode

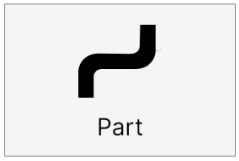

Figure 3.3: Part Bend Workspace Icon

The part bend workspace is used make whole parts with multiple bends.

3.2.1 Browse Page

Organize parts in folders, create new parts, or load existing parts.

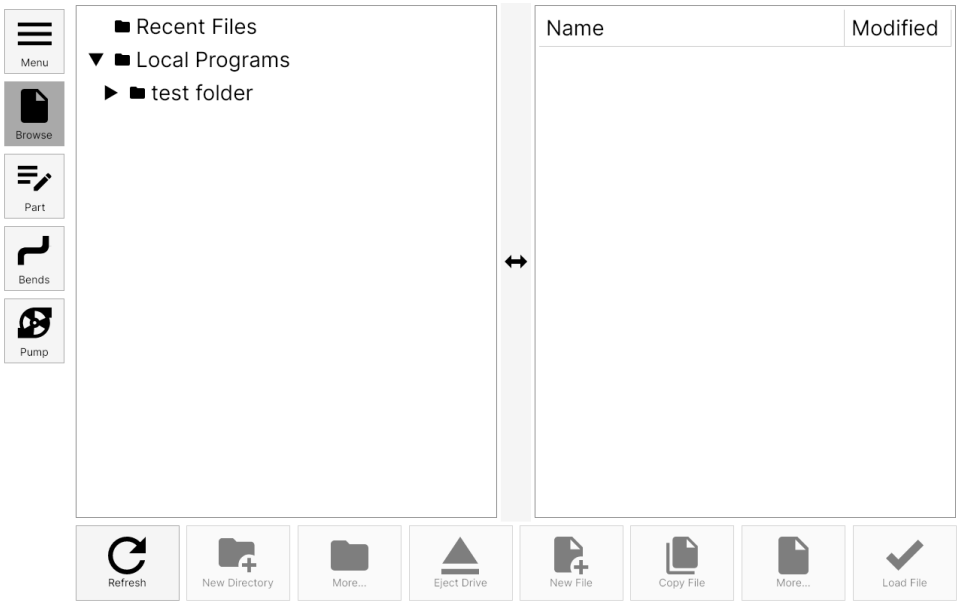

Figure 3.4: Part Bend Workspace Browse Page

3.2.2 Part Page

The part page shows a summary of the part, material, profile, and bends.

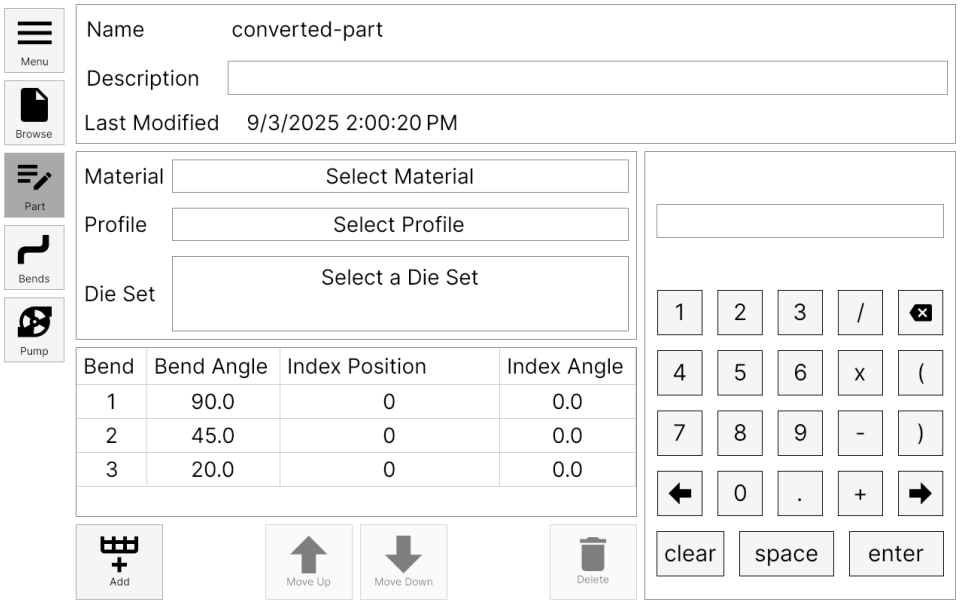

Figure 3.5: Part Bend Workspace Part Page

3.2.3 Bends Page

The bends page shows the current bend, allows selecting the active bend, and is where bending is performed.

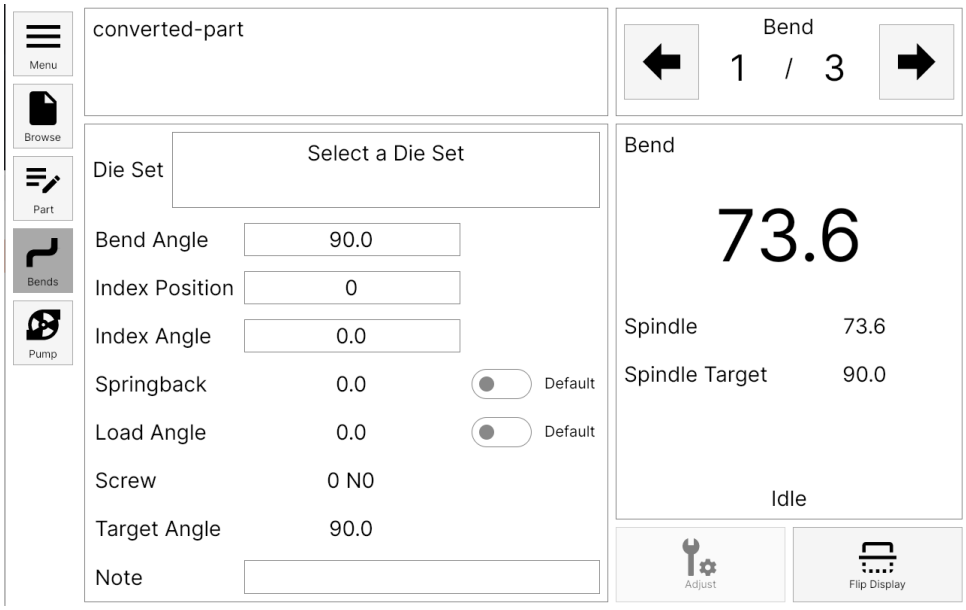

Figure 3.6: Part Bend Workspace Bends Page

3.2.4 Pump Page

Select the pump button to toggle the pump motor power state manually.

3.3 Library

Figure 3.7: Library Workspace Icon

The Library workspace is for adding and editing technical data.

3.3.1 Die Set Page

All standard manufactured die sets are installed into the machine database. Favorite die sets that are used frequently to speed up selection when operating the machine.

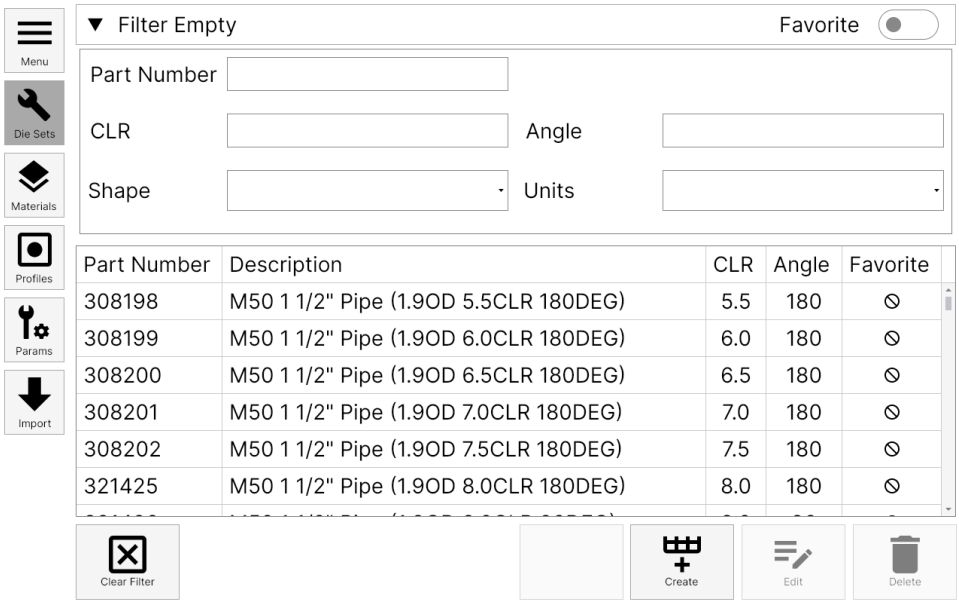

Figure 3.8: Library Workspace Die Set Page

Die Set Edit and Entry Page

The die set profile and fixed parameters can be adjusted.

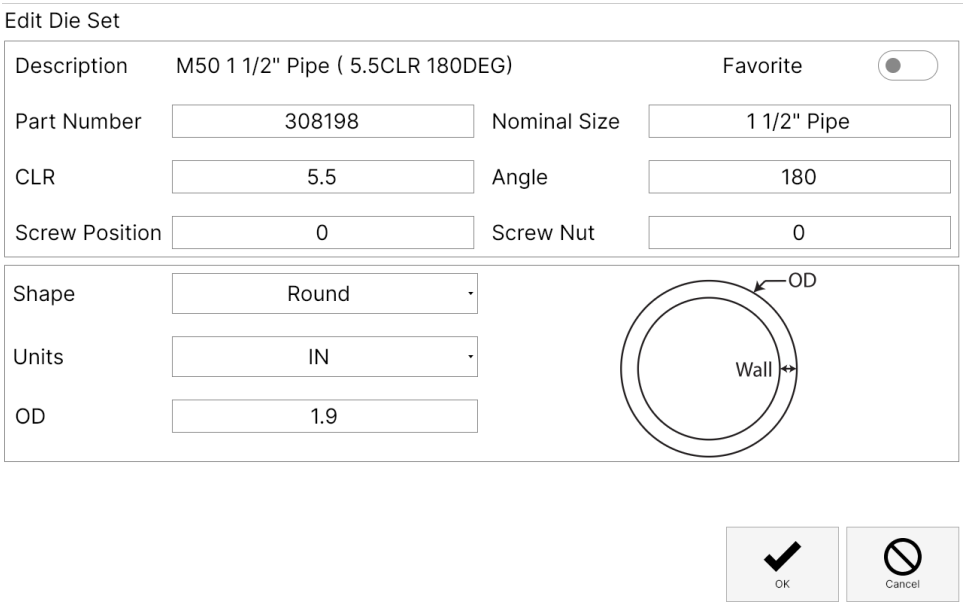

Figure 3.9: Library Workspace Die Set Edit Page

3.3.2 Materials Page

Manage materials available for selection. Typical materials from standard vendors are included from the factory.

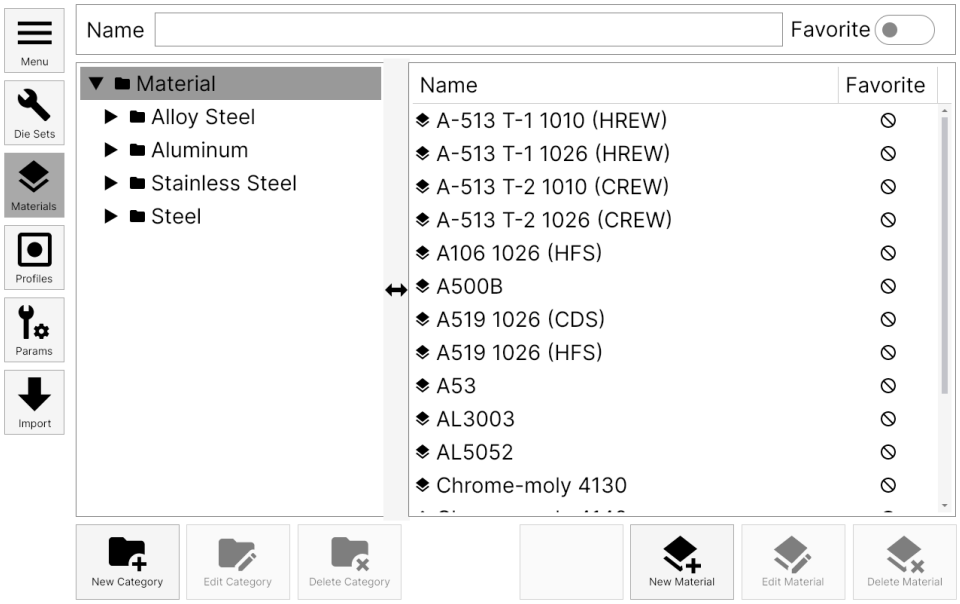

Figure 3.10: Library Workspace Materials Page

Material Edit and Entry Page

A material can be categorized or renamed by editing.

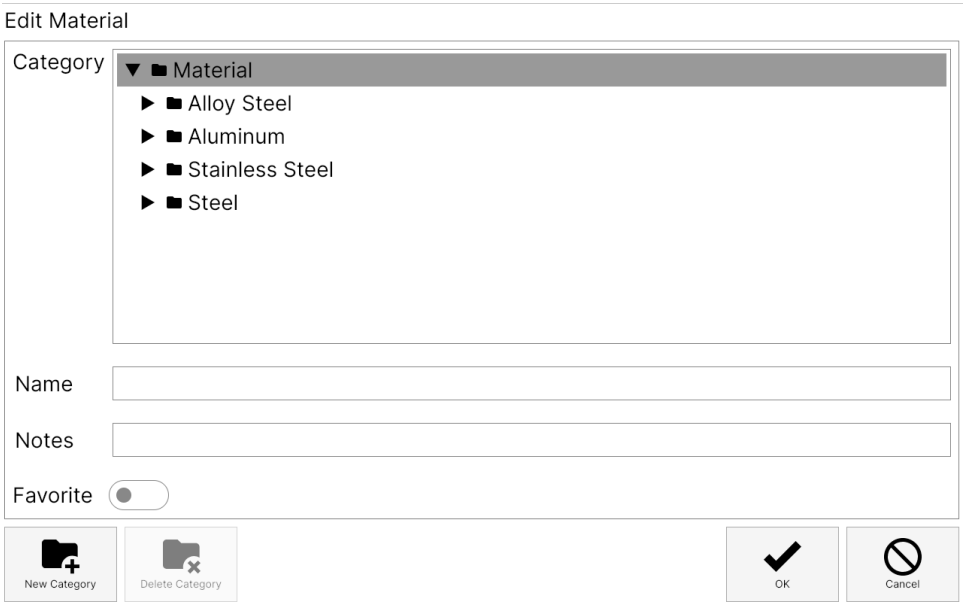

Figure 3.11: Library Workspace Material Edit Page

3.3.3 Profiles Page

Manage material profiles available for selection. Typical profiles from standard vendors are included from the factory.

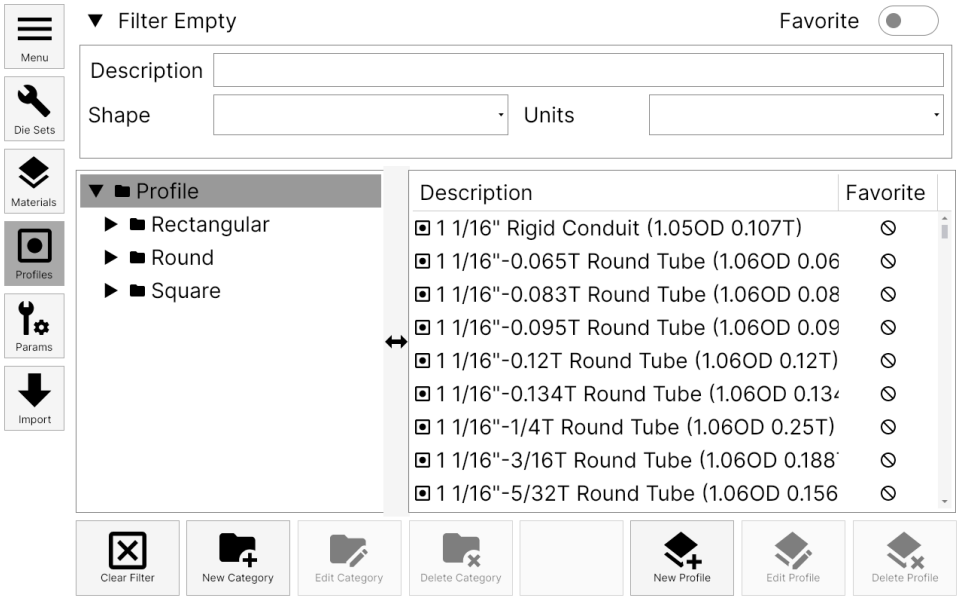

Figure 3.12: Library Workspace Profiles Page

Profile Edit and Entry Page

A profile can be categorized or renamed by editing.

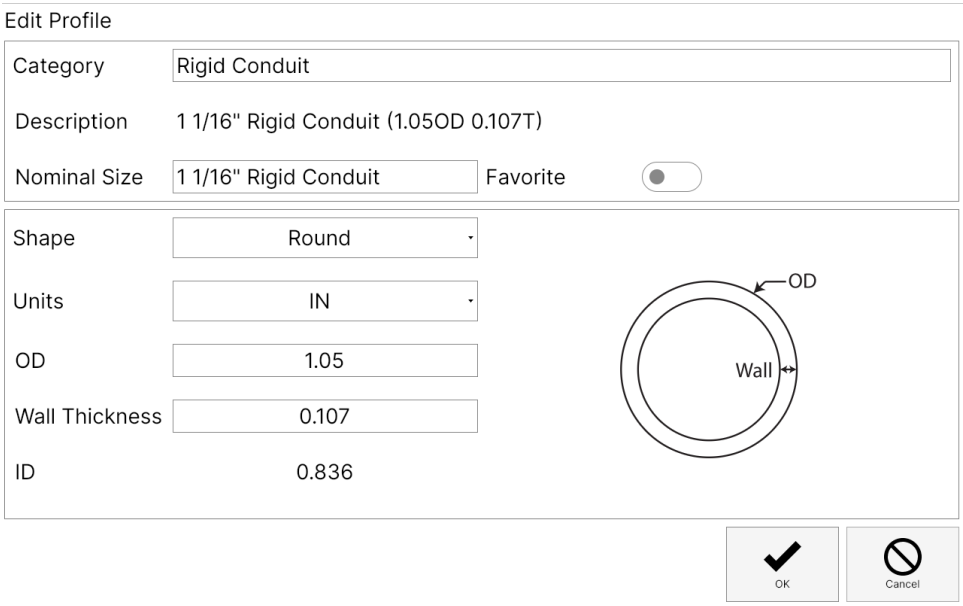

Figure 3.13: Library Workspace Profile Edit Page

3.3.4 Params Page

Manage parameters that are specific to a material, profile, and die set group. Settings such as springback table entries are found using test bends.

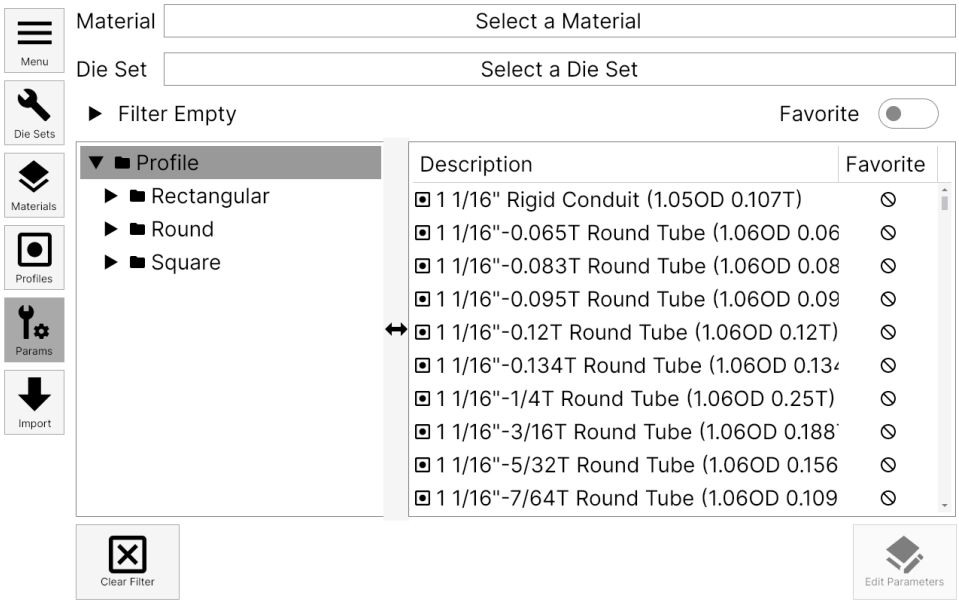

Figure 3.14: Library Workspace Params Page

Parameter Edit and Entry Page

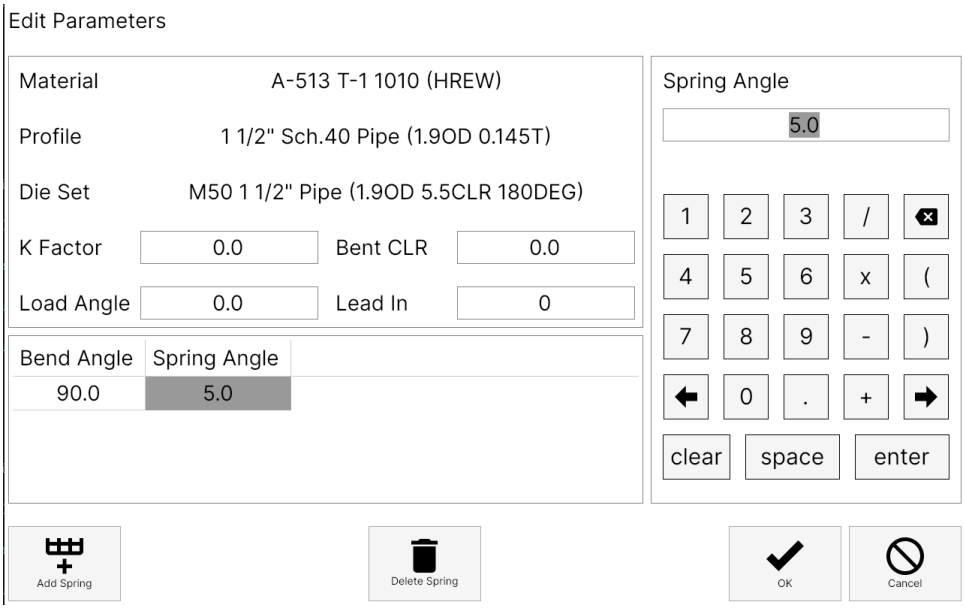

Figure 3.15: Library Workspace Parameter Edit Page

3.4 Calculator

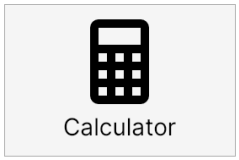

Figure 3.16: Calculator Workspace Icon

A basic calculator is included. It can support basic formulas and mixed fractions.

3.4.1 Calculator Page

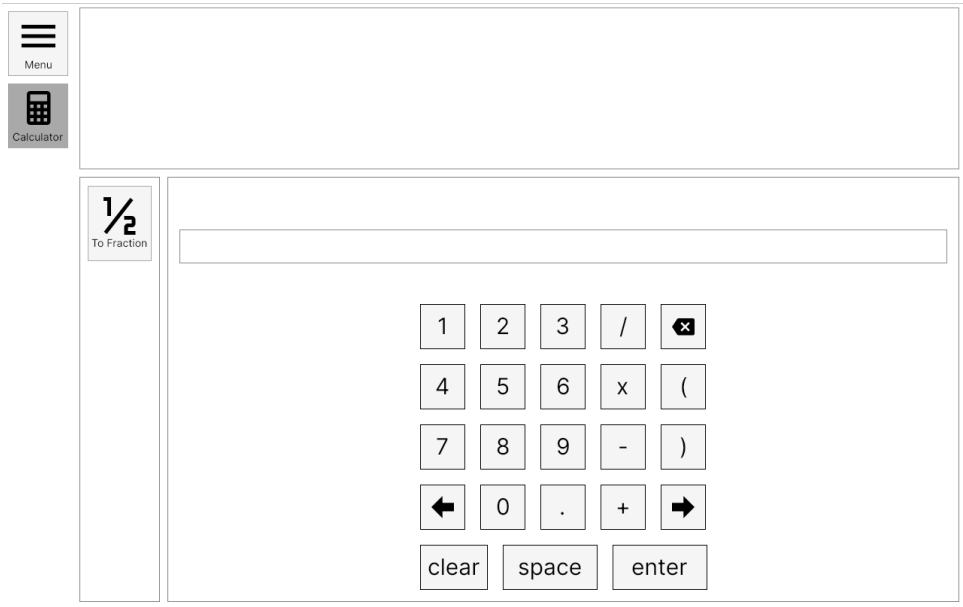

Figure 3.17: Calculator Workspace Calculator Page

3.5 Diagnostics

Figure 3.18: Diagnostic Workspace Icon

The diagnostics workspace has basic and advanced tools to help technical support resolve issues with a machine.

Note

Not all pages are described here.

They are reserved for advanced usage by a trained technician.

3.5.1 IO Page

View status of IO and machine sensors.

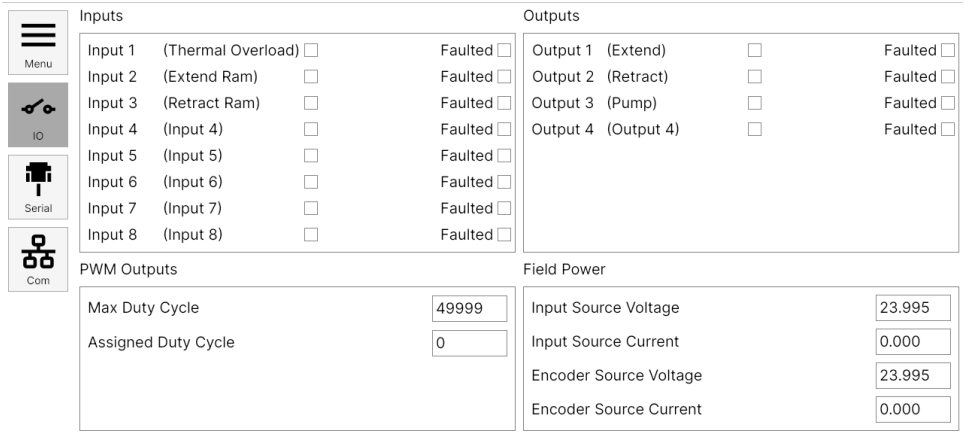

Figure 3.19: Diagnostics Workspace IO Page

3.6 Power Controls

Figure 3.20: Power Workspace Icon

3.6.1 Power Page

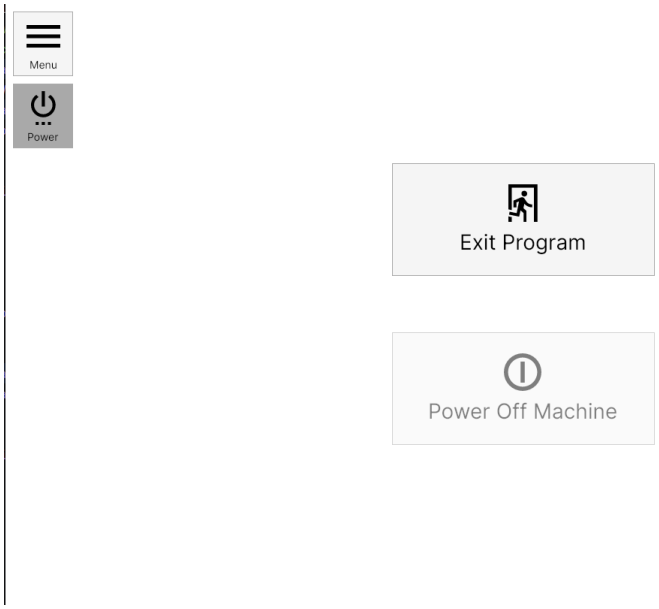

Figure 3.21: Power Workspace

3.6.2 Exiting the Program

1. Select the **Exit Program** button.

3.6.3 Powering off the Machine

1. Select the **Power Off Machine** button.
2. When the screen goes black, turn off the power disconnect.

3.6.4 Power Cycling the Machine

The machine has large capacitors in the power supply. If you are power cycling the machine:

1. Shutdown the machine normally.
2. Wait for the LED indicator light to extinguish.
3. Wait 20 seconds.
4. Power the machine on normally.

3.7 Adjustment Dialog

Figure 3.22: Adjust Dialog

The adjust dialog is a quick way to update springback entries and die set parameters without navigating through the library workspace.

You can measure the appropriate springback angle to apply to the bend angle using the **Adjust Spring** button.