



GETTING THE MOST  
OUT OF ARCADIA  
HARNESS DESIGN:  
**A HOW-TO GUIDE**



# IT'S EASY WHEN YOU KNOW HOW

You've taken the first step to working more efficiently with Arcadia Harness Design. But are you making the most of your new tool?

## HOW LONG SHOULD DESIGNING TAKE YOU?

We conducted a test on a Tesla FACIA harness with 24 bundles, 32 wires, 12 connectors, and 3 splices. What we found:

**A SEASONED PRO**

finished the entire process in just

**15 MINS**

**AN INTERMEDIATE USER**

took approximately

**40 MINS**

**A COMPLETE BEGINNER**

without experience, using conventional methods and none of our time-saving functions or even basic tools like Visio or AutoCAD, would take, we estimate

**4 HRS**

YOU CAN GET A CLEARER PICTURE BELOW.

### AUTOMATED VS. MANUAL

#### TESLA FACIA HARNESS

	🕒 Import	🕒 Manual	REMARKS
Wire Packing	00:00:30	00:10:00	Time taken to inspect each connector, map the wires, & add the right PN basis, i.e. wire CSA, wire OD, color, material and gauge
Update cavity parts (terminals, seals and plugs)	00:00:20	00:22:00	30s per cavity if the user looks at the wire specification & the connector datasheet manually
Choose the right Bundle covering	00:00:30	01:20:00	Includes calculating the bundle size manually, using a formula, & working out conduit size for calculated bundle diameter
Run Design Rule check	00:00:05	00:25:00	Arcadia applies its own rules to check if harness design meets its standards. Publishes report in 5 secs for an average-sized harness, whereas manual inspections require significantly more time to carry out checks
	Approx = <b>1.5 m</b>	Approx = <b>3 hrs</b>	

# WE'VE PUT TOGETHER THIS GUIDE TO SHOW YOU FEATURES THAT YOU MIGHT NOT EVEN KNOW ABOUT.

Once you do, you'll find more value in Arcadia Harness Design, and work a lot faster. Let's get started.



## 1 IT'S TIME TO SET UP YOUR PROFILE SETTINGS

Profile lets you customize settings so that you can optimize your experience with Arcadia Harness Design. Essentially, you're tailoring the software to your specific needs and preferences. Profile controls both the aesthetics and the configuration settings of the components you're going to use in your design.

### Why set up Profile?

#### 1. Improve the appearance of your drawings

Customize the layout, colors, fonts, and other design elements to make your drawings easier to understand.

#### 2. Uniform settings to all your drawings

Gives all of your drawings consistency by maintaining standardized settings. This gives your work a cohesive and professional look.

#### 3. Multiple profiles specific to each supplier

Tailor profiles to different suppliers or specific project requirements. For example, if your suppliers use different units of measurement, you can address that in your Profile set up.

#### 4. Predefine the manufacturing settings for the reports

Ensure manufacturing documentation aligns precisely with your preferred style and requirements.

### Who should set up Profile?

Your company's Admin should do this for the first time. This ensures that everyone works with uniform preferences, reducing the potential for errors and discrepancies.

### Highlights: Key sections in Profile

Understanding Profile in a little more detail will help you realize why you should get this set up.

COMPONENT PREFIX EDITOR

Identifier	Identifier Type	Prefix
battery	Part	BAT
capacitor	Group	CAP
coil	Group	COIL
connector	Group	X
cust-pin	Part	U
diode	Group	D
fuse	Group	F
generator	Part	GEN
inductor	Group	L
lamp	Group	LMP
led	Group	LED
load	Group	LOAD

Showing 1 to 23 of 23 rows

### Decide the prefix for the components

Establishing standards ensures that all team members follow a uniform naming convention. This is particularly important when multiple users are working on the same project.

# 1 IT'S TIME TO SET UP YOUR PROFILE SETTINGS CON'T

## Get familiar with the Macros you can use across designs

Macros allow you to automate repetitive tasks and processes. By using consistent macros across designs, you ensure that similar tasks are performed in the same way every time, maintaining design consistency and reducing the risk of errors.

## Set the default company to use your company's own internal part number

This will promote consistency and simplify inventory management and documentation within your company.










Component DB - Advanced

Company	CADONIX
PN Hyperlink	
Components Display Count	25
Highlight when no Supplier PN available	Yes
Highlight when no Company PN available	Yes
Default Connector View	Loading x Top x
Default Terminal View	Top x
Component DB Display Order	Connector x Terminal x Seals x Splice x Other Parts x Junction Parts x Sleeve Tube x Multico
Default Seal View	Top
Default Splice View	Top
Default Other Part View	Top
Default Component DB	Quickstart

# 1 IT'S TIME TO SET UP YOUR PROFILE SETTINGS CON'T

## Decide the font sizes/colours for your drawing

Again, this will ensure your drawings are consistent and everyone is on the same page.

Harness - Font		
	Font Size	Colour
<b>Node</b>		
Child Element	1.6	
Name	1.6	
Functional Description	1.6	
Attached Parts	1.6	
Attached Parts Name	1.6	
<b>Bundle</b>		
Name	1.6	
Length/Wire Bundle Diameter	1.6	
Sub Dimension Length	1.6	
Coverings/Piece ID	1.6	

## Give your labels even more details about the design

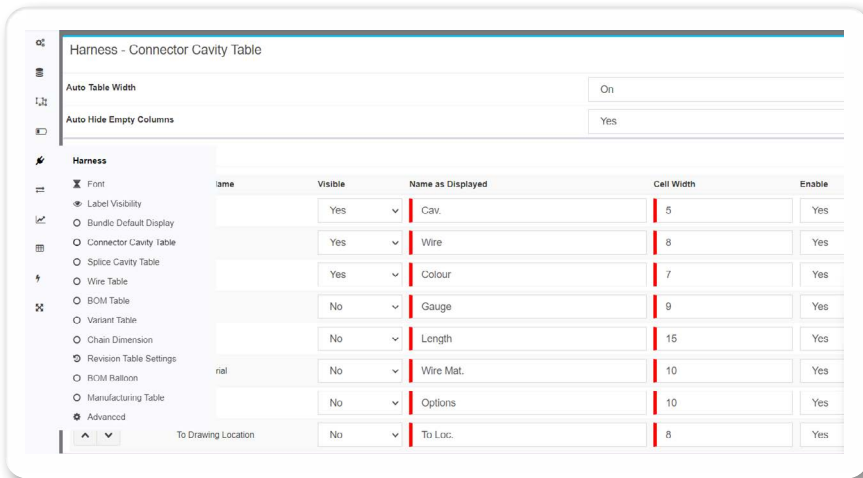
Enhance clarity and documentation with more information on your drawings' labels.

Harness - Label Visibility			
Harness Components	Show	Hide	Don't Change
<b>Node</b>			
Node	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Child Element	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Name	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Func Description	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Attached Parts	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Attached Parts Name	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Attached Parts Description	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Attached Parts Variants	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
<b>Bundle</b>			
Bundle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Name	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Length	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bundle Tolerances	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Wire Bundle Diameter	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Piece ID	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Piece ID Length	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Covering PN	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coverings Part Description	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Coverings Part Variants	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Coverings Length	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
<b>Label - Connector Cavity Table</b>			
Label - Connector Cavity Table	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Name	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

# 1 IT'S TIME TO SET UP YOUR PROFILE SETTINGS CON'T

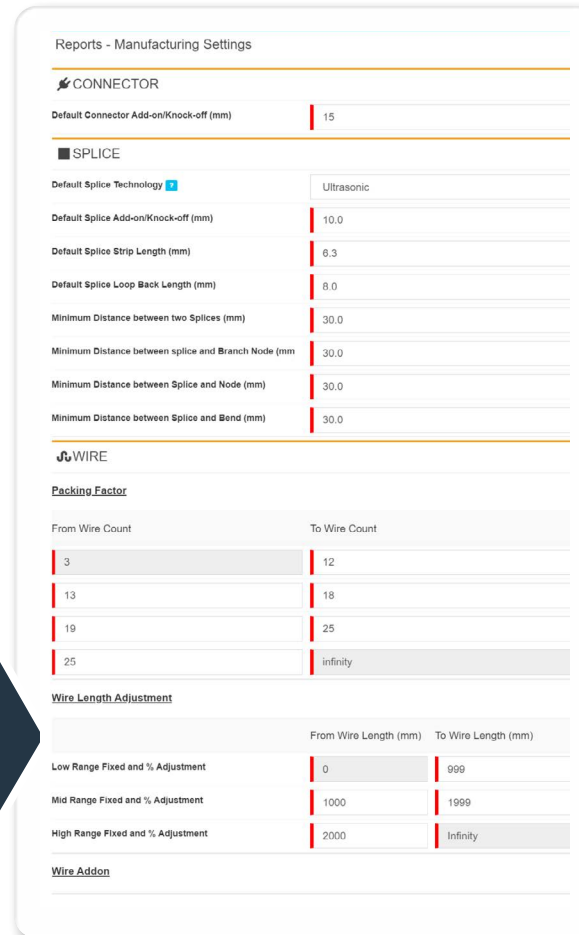
## Choose which columns are displayed in the tables

Select the content of tables within your drawings. You decide what's displayed, such as cavities, BOMs, and wire lists. You can also specify the order in which these columns appear, tailoring the tables to include relevant details.



## Configure your manufacturing settings before generating the reports

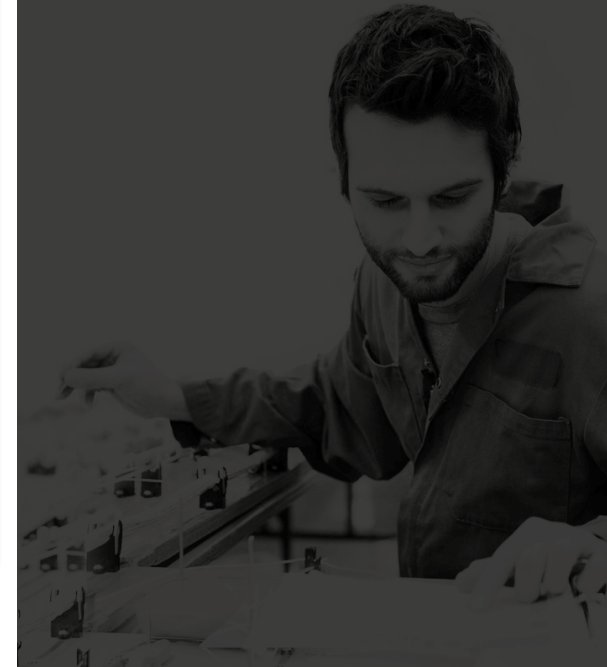
Streamline production by setting up specific parameters and preferences for the manufacturing process. By configuring these settings in advance, you can ensure that the generated reports accurately reflect the requirements and specifications needed.



# ARCADIA

## Getting started with Arcadia Harness Design

Even if you lack connection information initially, don't worry. If you only have a PDF to work from, you can extract the necessary information and assemble it into a wire list template compatible with Arcadia. With this minimal design data, you can follow the steps below to efficiently design your harness.



# 2 HOW TO DESIGN TWICE AS FAST

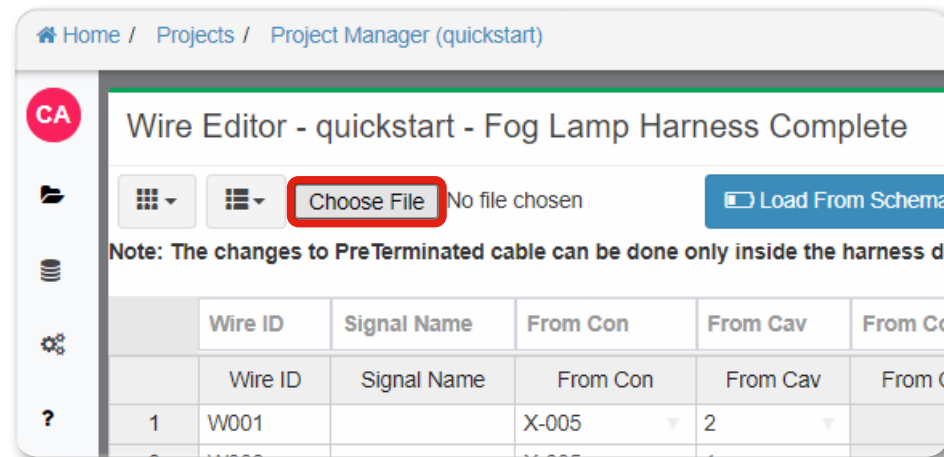
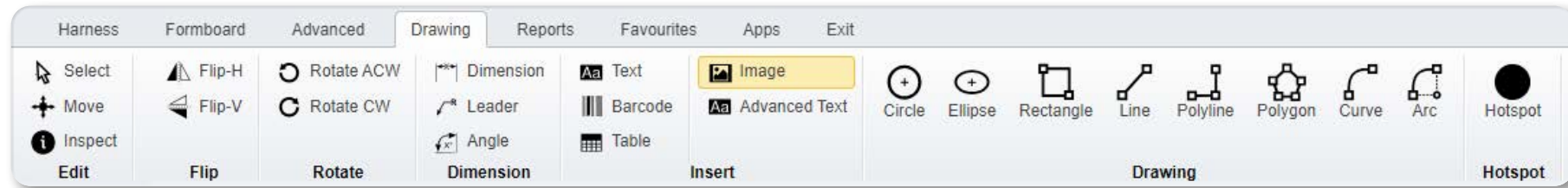
## 1. DRAW THE HARNESS SKELETON



Task time: 00:02:20

Select a frame from the list of default frames. You can customize the frame's content and details later, as needed, through the library project.

Use the bundle tool to create the bundle of wires within the harness. You can trace the bundle from any image of the harness skeleton that you already have. Simply upload this image using the Image tool in the drawing toolbar.



## 2. IMPORT CONNECTIONS VIA CSV



Task time: 00:00:30

You have the option to import wire connection data from an external **CSV file** into your harness design project. This will save you considerable time from manually entering each connection point, while also giving you the same CSV file format for other projects.

If you need a specific format for your CSV file, you can use a template for guidance in structuring the data correctly.

- Simply navigate to the Wire Editor in the toolbar and then import the CSV with the wire connections.

## 2 HOW TO DESIGN TWICE AS FAST CON'T

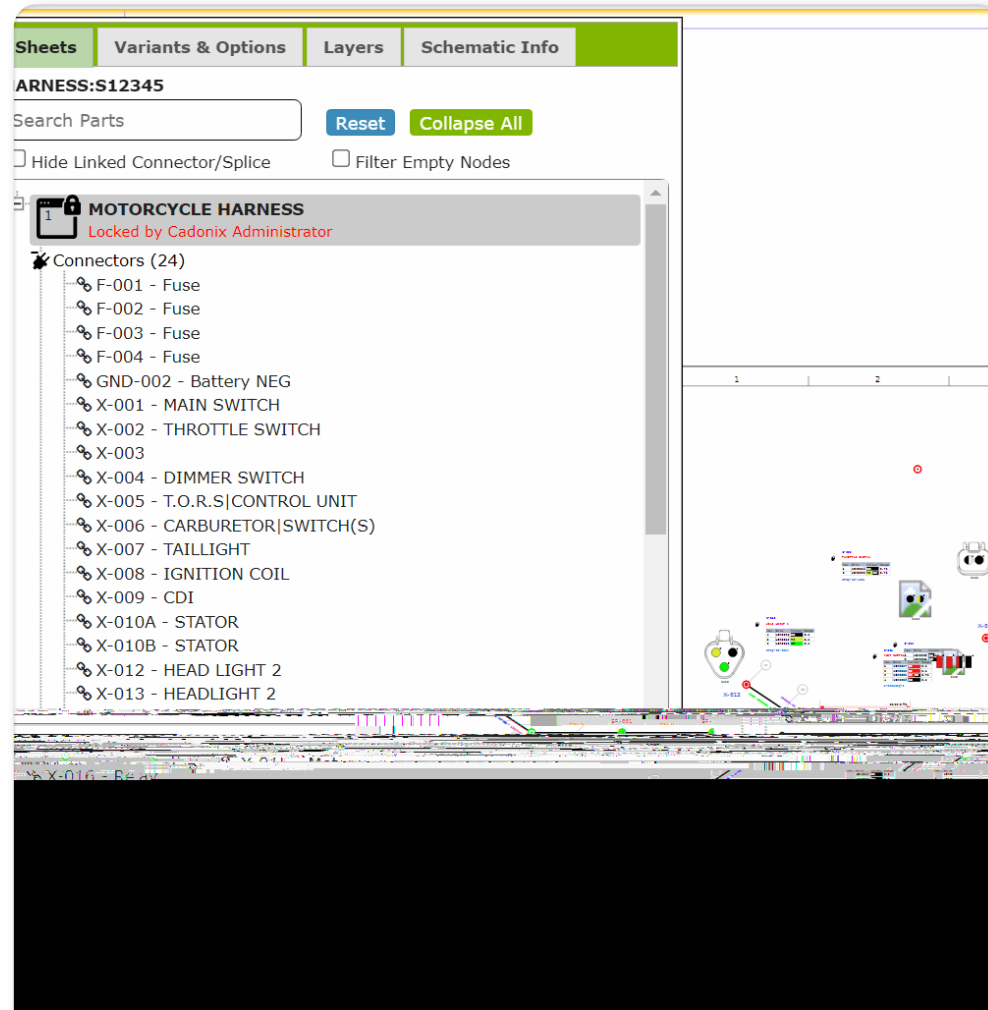
### 3. DESIGNATE CONNECTOR/SPLICE POSITIONS



Task time: 00:03:26

After importing wire connections from the CSV file, connectors, splices, and wires will be automatically generated in your drawing. This simplifies the process of setting up your design. Next:

- **Use the left navigation pane:** You can access the left side panel from the toolbar, which displays a list of all the connectors and splices you created during the CSV import.
- **Select and Position Connectors:** To designate the positions of connectors, choose a connector from the left panel and then click on the desired node or location in your design. This will establish where the connector should be placed within the harness.
- **Position Splices:** Similarly, for splices, you can insert a node on the bundle where you want the splice to be located. Then, choose the splice from the left panel and associate it with the node you inserted on the bundle. This action determines the position of the splice within the harness.





# 2 HOW TO DESIGN TWICE AS FAST CON'T

## 4. UPDATE WIRE, CONNECTOR, SPLICE CHARACTERISTICS



Task time: 00:02:00

Arcadia Harness Design has its own native editors for updating the connectors/splice/wire properties in one go.

- **Connector/SpliceEditor:** This lets you to add the part number and functional descriptions in one go, versus updating the connectors/splices individually.
- **Wire Editor:** Wire characteristics, such as material, gauge, and color, can be updated with the help of the editor, which works like an excel worksheet.

## 5. UPDATE BUNDLE LENGTH

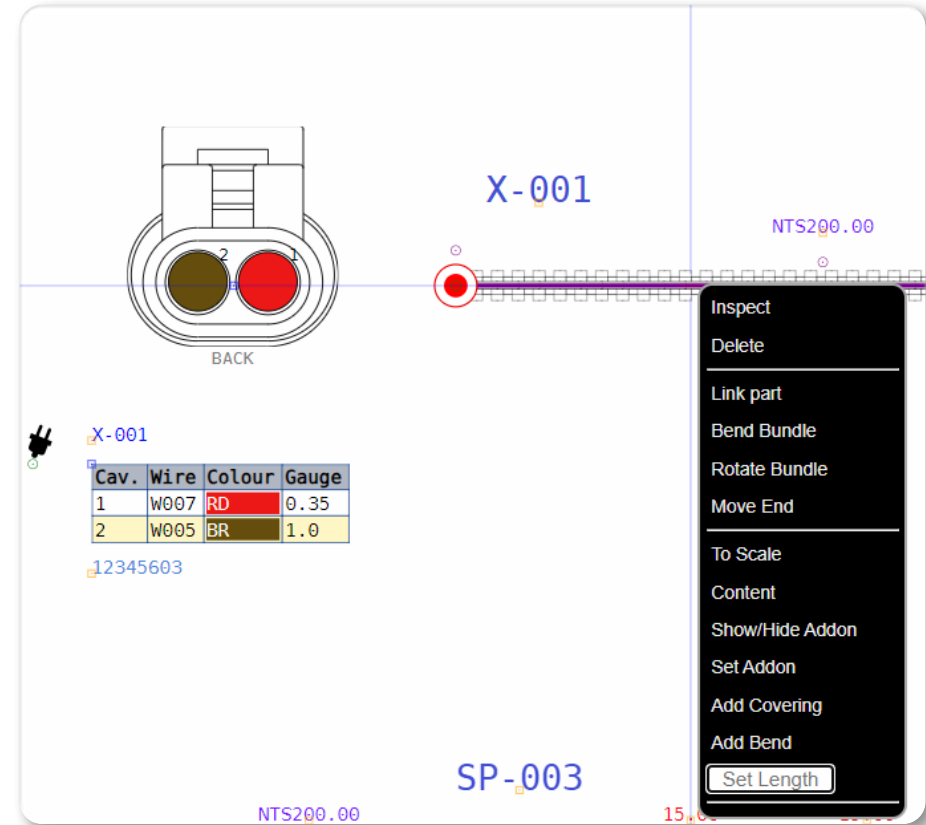


Task time: 00:02:00

To adjust the length of a bundle, follow these simple steps.

- **Update bundle length:** Right click on the bundle within your design.
- **Enter length in the context menu:** After right clicking, a context menu will appear. In this menu, there should be an option or text input box where you can specify the desired length for the bundle. Enter the new length in this box.

This will set the not-to-scale length for the bundle, which you can later make 1:1 in the formboard.



# 2 HOW TO DESIGN TWICE AS FAST CON'T

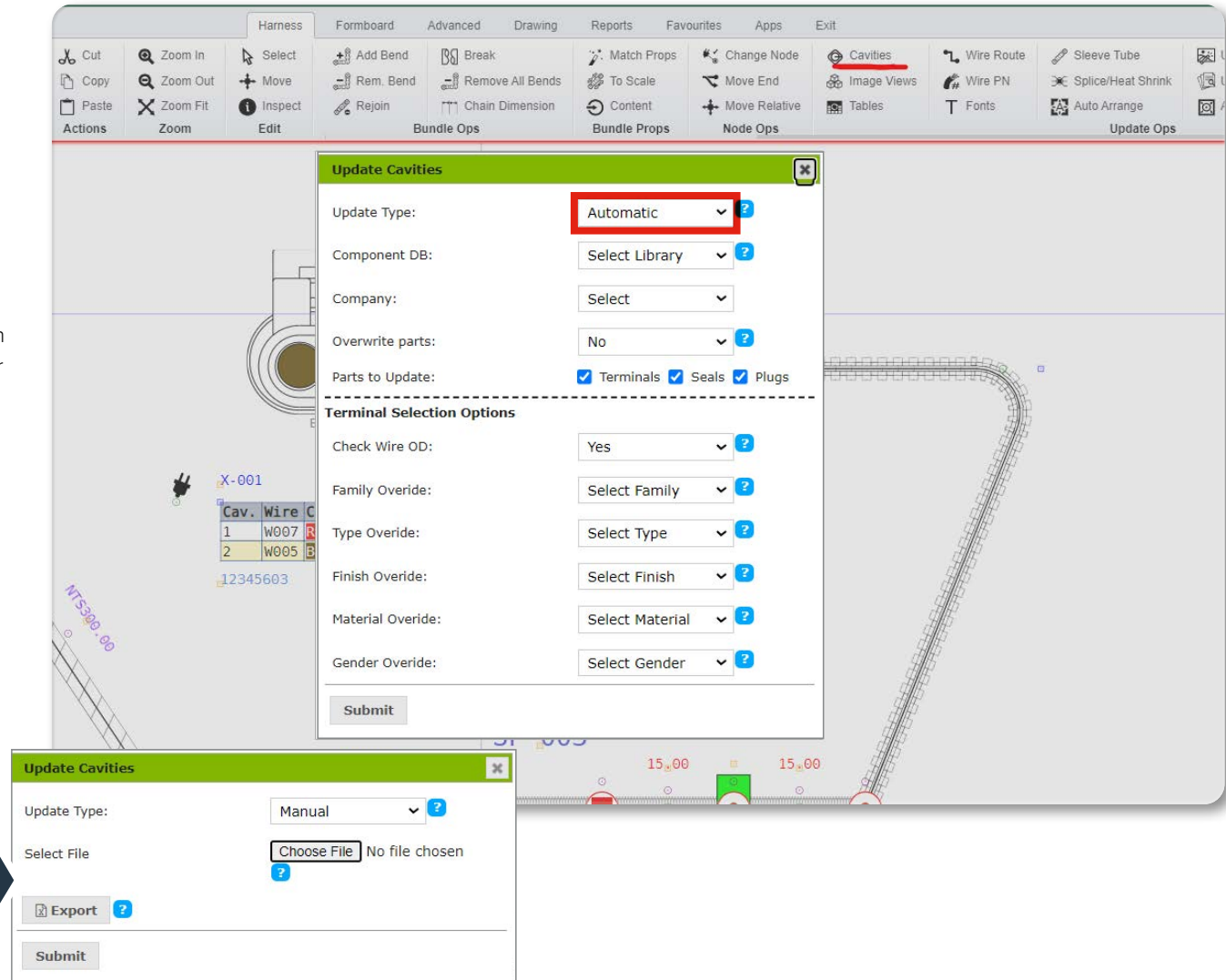
## 6. UPDATE CAVITY PARTS FOR CONNECTORS

**Task time: 00:00:20**

The system intelligently selects the appropriate cavity parts based on the specifications of the wire or connection. You can set predefined criteria such as finish and material to ensure specific terminals are selected for the connector.

You can also save time by importing details related to cavity parts from your CSV file. This method can save significant time during the design process, especially when dealing with a large number of connectors.

- To use this feature, click on the Update Cavities function in the toolbar.



If you have the details of the cavity parts and want to update the details to the connectors, you can do this via the CSV import.

## 2 HOW TO DESIGN TWICE AS FAST CON'T

### 7. UPDATE BUNDLE COVERINGS



Task time: 00:00:30

You can update the sleeves for the bundle based on bundle size.

- Click on the Sleeve Tube function in the toolbar to choose the covering type you want. Arcadia Harness Design will update the coverings for all the bundles and publish a summary report at the end.

**Update Sleeve Tube**
✕

Component DB:

Covering Type:

Material:

Colour:

Replace Existing:

Covering:

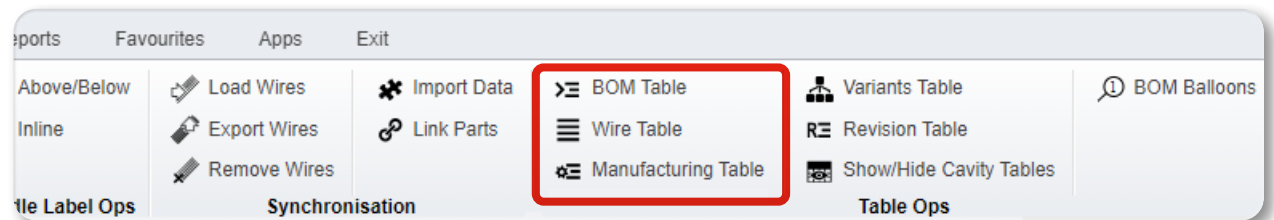
### 8. GENERATE BOM/WIRE/MANUFACTURING TABLES



Task time: 00:00:15

You can automatically create tables for various purposes within your design project. This will ensure you maintain accurate records, which in turn facilitates efficient manufacturing and assembly processes. The tables you can create:

- **BOM table:** Generates the list of BOM items for all part types used in your harness drawing.
- **Wire table:** Produces the list of wires with the node-to-node length information.
- **Manufacturing table:** Gives you the lists of all wires with length information, incorporating manufacturing add-ons. It also gives information about the terminals, seals, and plugs, along with any applicator designated by the system against the cavity parts.



# 2 HOW TO DESIGN TWICE AS FAST CON'T

## 9. DESIGN RULE CHECK



Task time: 00:00:05

The software carries out a comprehensive examination of your harness design. These checks include a range of criteria, ensuring the accuracy and compliance of the harness design with established standards and logic within the software.

Key aspects of the design rule check include verifying cavity parts, bundle coverings, splice positions and more against the predefined rules and criteria. Arcadia Harness Design uses a traffic-light system to help you identify and rectify any design errors or inconsistencies, ensuring that the final design adheres to specified requirements and industry best practice.

- In the Advanced tab, **click on DRC.**

**Wire Diameter Analysis Report**

Action	Name	Part Number	Message
ERROR	W002	WIRE_RD_GN_2.0_FLY	Terminal: 61117-1 does not fit Wire Outer Diameter 2.8mm for the connector 12345602 in cavity 1
ERROR	W001	WIRE_GN_1.0_FLY	Terminal: 350557-1 does not fit Wire Outer Diameter 2.1mm for the connector 12345602 in cavity 4
ERROR	W004	WIRE_BR_1.0_FLY	Terminal: 350557-1 does not fit Wire Outer Diameter 2.1mm for the connector 12345602 in cavity 5
ERROR	W006	WIRE_RD_GN_2.0_FLY	Terminal: 12345619 does not fit Wire CSA 2mm <sup>2</sup> for the connector 12345603 in cavity 1
ERROR	W006	WIRE_RD_GN_2.0_FLY	Terminal: 12345619 does not fit Wire Outer Diameter 2.8mm for the connector 12345603 in cavity 1

**Crimp Analysis Report**

Action	Name	Part Number	Message
WARNING	X-004	M5_RING	Double Crimp found in Cavity 1 for the connector M5_RING
WARNING	X-002	12345603	Double Crimp found in Cavity 2 for the connector 12345603
ERROR	X-004	M5_RING	No Terminal found to fit Wire CSA 2mm <sup>2</sup> in cavity 1 for connector M5_RING in quickstart component db
WARNING	X-002	12345603	No Seal found to fit Wire OD 4.2mm in cavity 2 for connector 12345603 in quickstart component db

**Bundle Inner Diameter and Wire Size Analysis Report**

Action	Name	Part Number	Message
✓	No Errors found		

**Sealed Connector Validation for no Seal and no Plug**

Action	Name	Part Number	Message
WARNING	X-006	7000-18112-6170300	SEALED Connector 7000-18112-6170300 cavity GND has no Cavity Plug
WARNING	X-006	7000-18112-6170300	SEALED Connector 7000-18112-6170300 cavity 1 has no Cavity Plug
WARNING	X-006	7000-18112-6170300	SEALED Connector 7000-18112-6170300 cavity 2 has no Cavity Plug

Buttons: Close, HTML Export, Go to DRC Settings

# 2 HOW TO DESIGN TWICE AS FAST CON'T

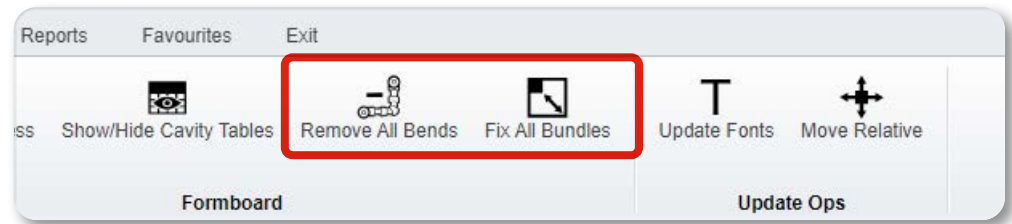
## 10. FORMBOARD GENERATION



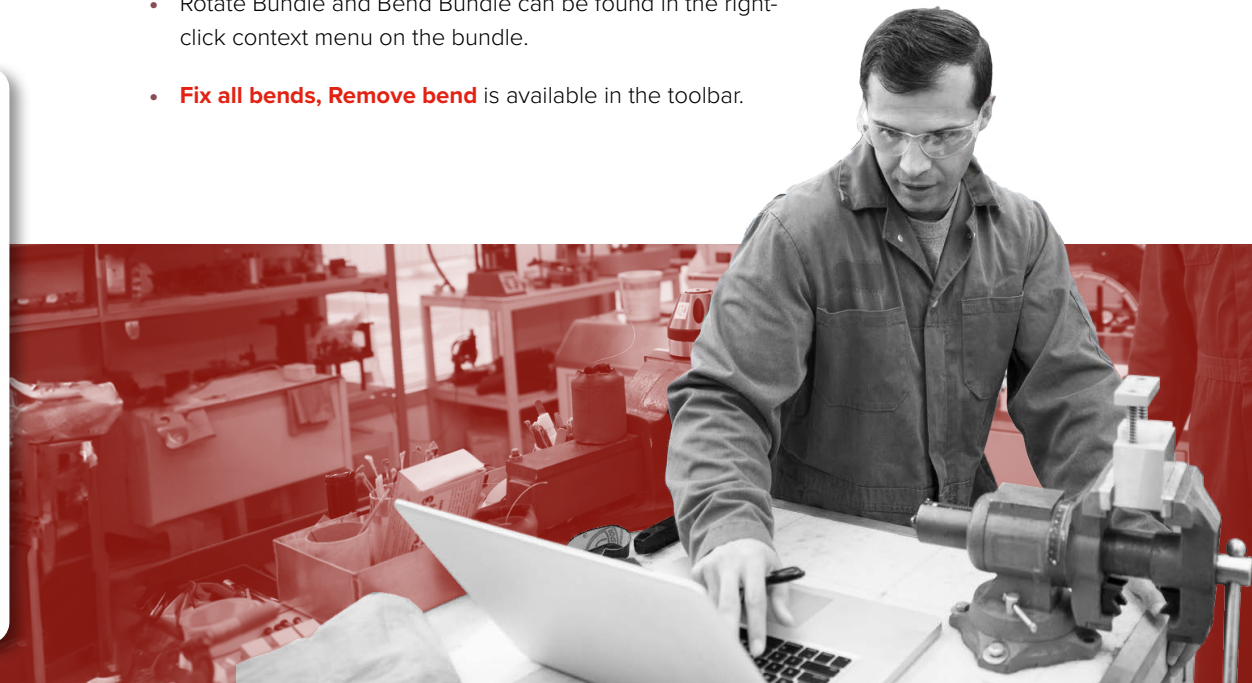
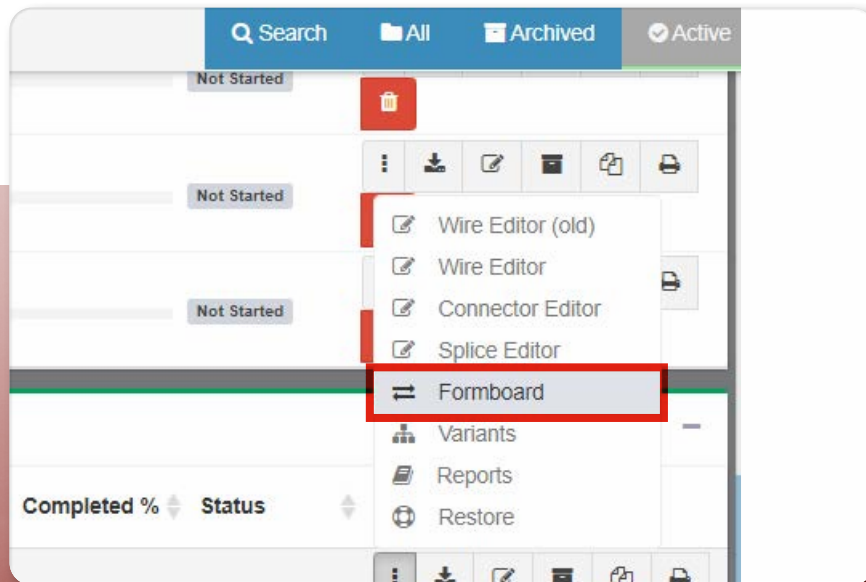
**Task time:** Fix all bundles: **00:00:20** Align bundles: **00:03:00**

If your subscription includes Formboard, you can create a visual representation of the harness design that matches the physical layout of the harness in its final assembly.

- Generate formboard with a click of a button. To get there, click on the three dots shown here and then click on **Formboard**.
- Once the Formboard is generated, you can work on the drawing to extend the bundle to 1:1 with the help of Fix all Bundles. You can rotate bundles, remove all bends, or bend bundles, fitting the drawing in the frame.



- Rotate Bundle and Bend Bundle can be found in the right-click context menu on the bundle.
- **Fix all bends, Remove bend** is available in the toolbar.



# 2 HOW TO DESIGN TWICE AS FAST CON'T

## 11. REPORT GENERATION



**Task time:** (per report): **00:01:00**

Take advantage of the software’s reporting capabilities. Click on the three dots against the harness and then click on the Reports button. This will direct you to the page with a list of reports. Simply choose the report and then click on the Generate button to see the data. You can create:

**WIRE CUTTING LIST:**

Details of wires in the design, including their specifications and lengths.

**APPLICATOR WIRE CUTTING LIST:**

Specifically focuses on wires that require applicators for the cavity parts, along with the necessary cutting details.

**SLEEVE & TUBE CUTTING LIST:**

Outlines the requirements for sleeves and tubes, including their sizes and quantities.

**MULTICORE REPORT:**

Provides information about multicore cables’ configuration and specifications.

**BOM REPORT:**

Itemizes all the components and parts used in the harness design, making it useful for procurement and assembly.

**SUMMARY REPORT:**

Offers an overview of the entire harness design, summarizing key details and providing a high-level view of the project.



# WE’RE HERE TO HELP

**IF YOU STILL HAVE QUESTIONS OR NEED HELP, WE WANT TO HEAR FROM YOU.**

It’s not enough to access Arcadia Harness Design. No tool will get you the results you’re after if you’re not using it the way it’s intended. So please, get in touch for expert advice and help.



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24 x 7 online support