



Hypertherm Cartridge for Powermax SYNC™

Reader and Dashboard User Guide



811460 – REVISION 0

ENGLISH

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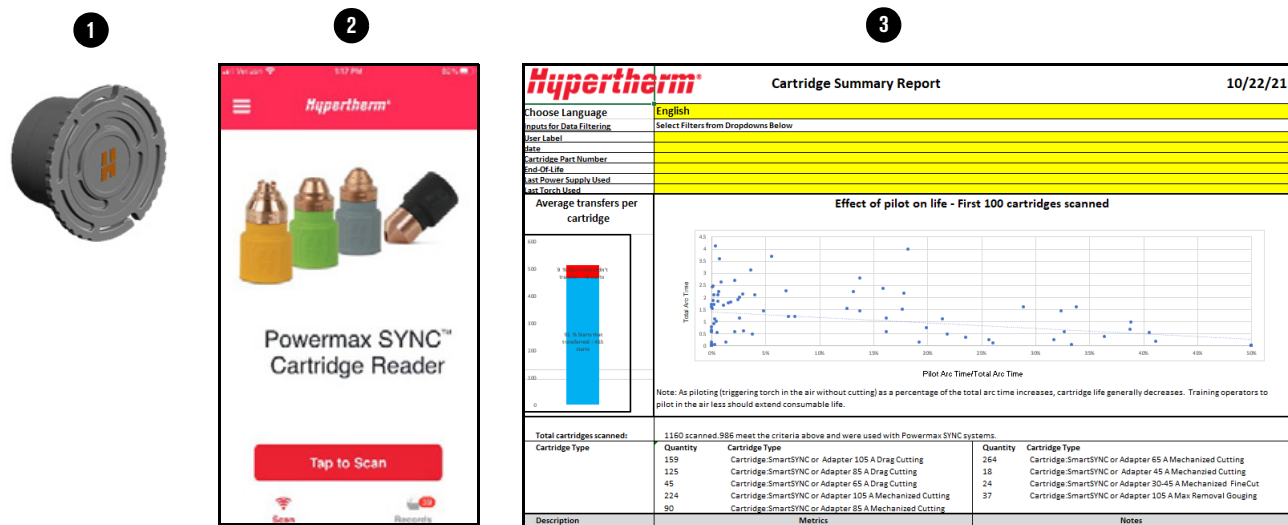
For training and education resources, go to the Hypertherm Cutting Institute (HCI) online at www.hypertherm.com/hci.

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Introduction

This guide gives you instructions for how to use the Hypertherm Cartridge Reader, Cartridge Reader app, and Cartridge Dashboard.



1 Cartridge Reader

The Cartridge Reader gives you access to the data stored on a cartridge.

2 Cartridge Reader app

The Cartridge Reader app lets you copy and save data from a cartridge into the app. In the app, you can view, graph, and export the data.

3 Cartridge Dashboard

The Cartridge Dashboard is an Excel spreadsheet that lets you filter and graph cartridge data from the app.

Before you begin

Make sure that you have the Cartridge Reader, Cartridge Reader app, and Cartridge Dashboard.

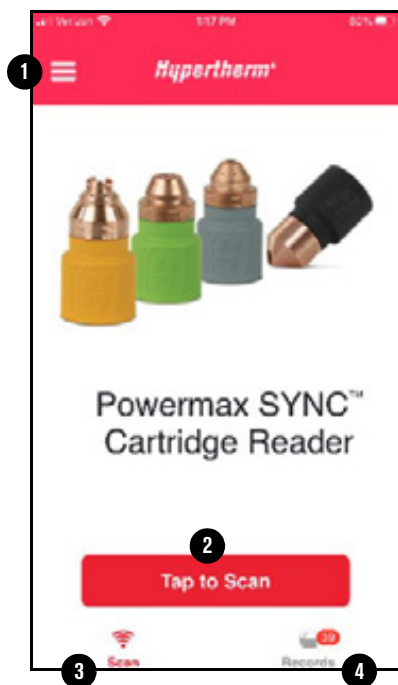
- Order the Cartridge Reader kit (528083) from Hypertherm and read the instructions that come with the kit.
- Download and install the Hypertherm Cartridge Reader app from your app store.
- Download the Cartridge Dashboard. Go to <https://www.hypertherm.com/hypertherm/accessories/cartridge-reader>. Under **Accessory information**, expand **Resources**. Download the **Excel Data Analysis Tool for Hypertherm Cartridge**.

Make sure that you know the location of the near-field communication (NFC) antenna on your smartphone. Also make sure that the NFC antenna is enabled in your smartphone settings. Refer to the operator manual for your smartphone.

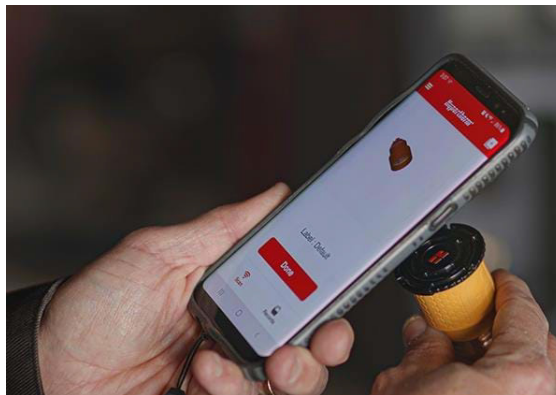


Cartridge Reader app basics

Home screen



- 1 Tap to view the main menu.
- 2 Tap to begin scanning a cartridge.
- 3 Tap to go to the home screen.
- 4 Tap to view scanned cartridge data saved in the app.



Get data from cartridges



Cartridges used with Powermax65/85/105 SYNC plasma power supplies and SmartSYNC torches save data. Cartridges used on older systems and torches with a cartridge adapter do not save data.

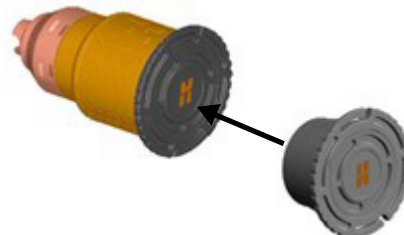
Scan a cartridge

When you scan a cartridge, the app saves the cartridge data as a *record*.



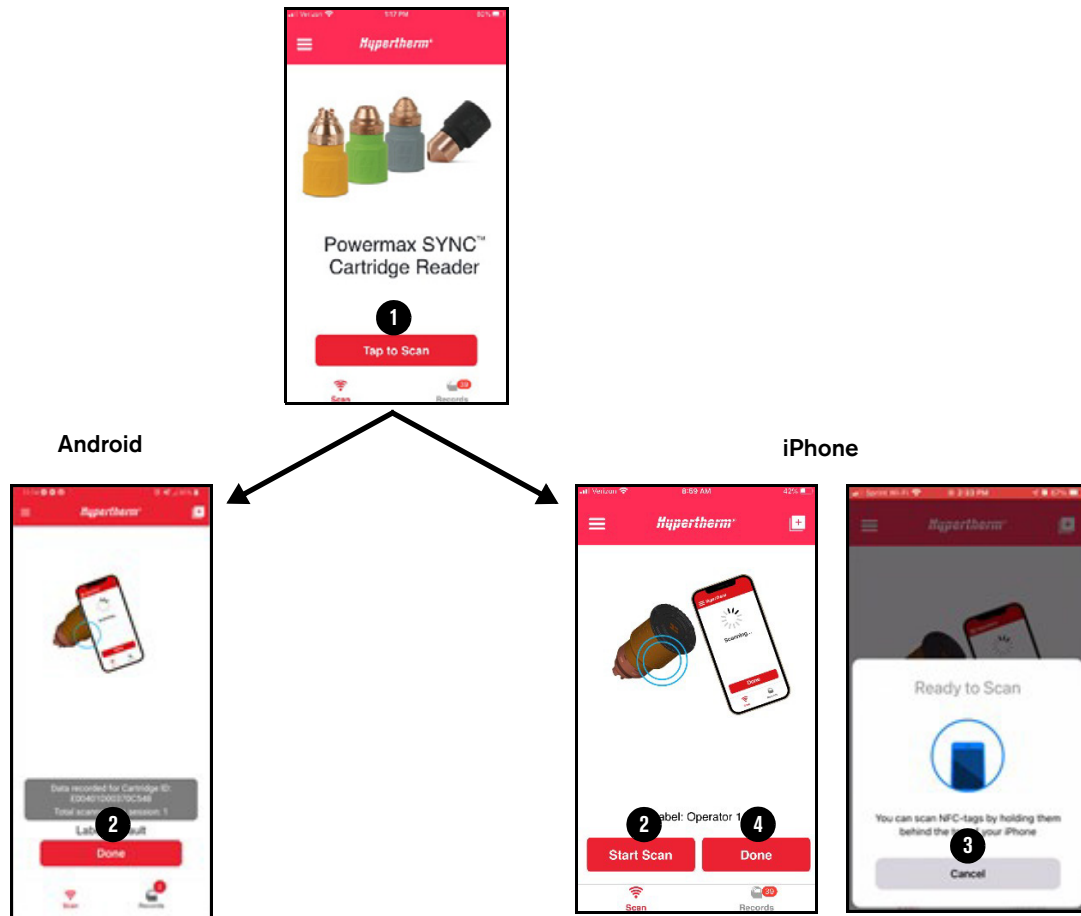
If you scan the same cartridge more than one time, the app only saves the most recent record.

1. Put the Cartridge Reader fully into the Hypertherm cartridge.
2. Hold the Cartridge Reader and cartridge together in one hand.
3. On the home screen, tap **Tap to Scan** ❶.
4. Put the NFC antenna of your smartphone directly on the Hypertherm **H** on the Cartridge Reader.



5. Do one of the following:

- a. (Android phone) The app scans the cartridge and shows a notification. Tap **Done** ❷.
- b. (iPhone) Tap **Start Scan** ❷. The app scans the cartridge and shows a notification. On the Ready to Scan screen, tap **Cancel** ❸. Then tap **Done** ❹.



Scan multiple cartridges

1. Put the silicon band **1** that came with the Cartridge Reader into the slots **2** on the edges of the Cartridge Reader.
2. Put the band around your smartphone so that the Hypertherm **H** on the Cartridge Reader is on the NFC antenna **3** of your smartphone.



Android



iPhone



3. Put the cartridges that you want to scan in a row on a flat surface.
4. On the home screen, tap **Tap to Scan**.
5. Do one of the following:
 - a. (Android phone) One at a time, put the cartridges into the Cartridge Reader. The app scans each cartridge and shows a notification.
 - b. (iPhone) Tap **Start Scan**. One at a time, put the cartridges into the Cartridge Reader. The app scans each cartridge and shows a notification. When you are done scanning cartridges, tap **Cancel** on the Ready to Scan screen.
6. Tap **Done**.
7. The app saves the data for each cartridge as a *record*.



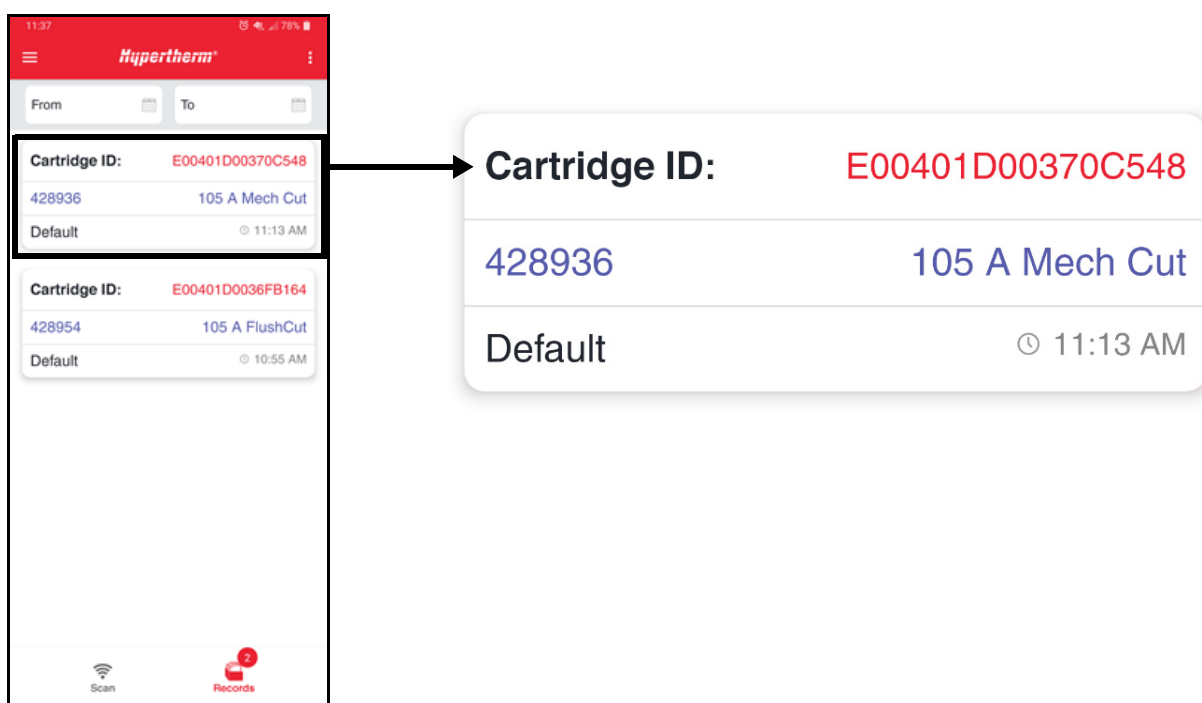
Cartridges used with Powermax65/85/105 SYNC plasma power supplies and torches save data. Cartridges used on older systems and torches with a cartridge adapter do not save data.

Use labels to put records in categories

Labels let you put records into categories that are meaningful to you, such as operators, shifts, cutting stations, and systems. You can then filter and sort the records by these categories. For example, you may want to compare the records of a new operator with the records of an experienced operator. Or you may want to compare the performance of cartridges used for different jobs.

By default, records are identified by the following:

- Unique identification (ID) number of the cartridge
- Cartridge part number and description
- The label *Default* and the time of the scan



You can change the *Default* label for existing records. You can also select a label before you begin a scan and the app will automatically save the label with every record that you scan. Once you select a label, that label stays the default label until you change it.



Labels are only saved in the app. They are not written to the cartridge.

Change a label for an existing record

1. On the home screen, tap **Records**.
2. Tap the label that you want to change.
3. On the **Label List** screen, do one of the following:
 - To use an existing label, tap the label.
 - To create a new label, type the new label in the box and then tap Add. Then tap Close.



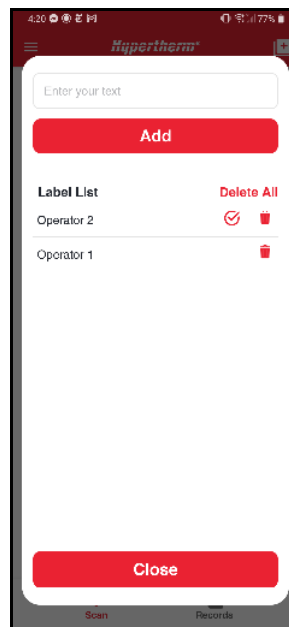
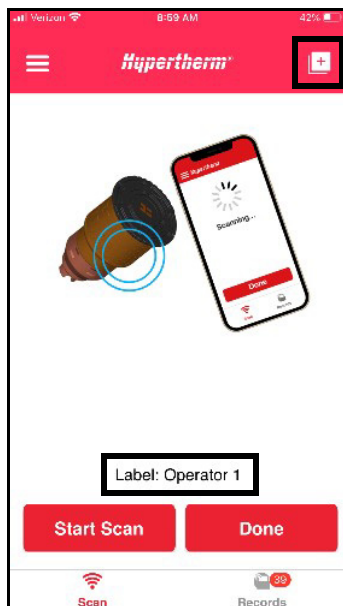
The label that you select stays the default label until you change it.

Select a label before you begin a scan

1. On the home screen, tap **Tap to Scan**.
2. Tap **Label** or tap the add-labels icon ().
3. On the **Label List** screen, do one of the following:
 - To use an existing label, tap the label.
 - To create a new label, type the new label in the box and then tap **Add**. Then tap **Close**.



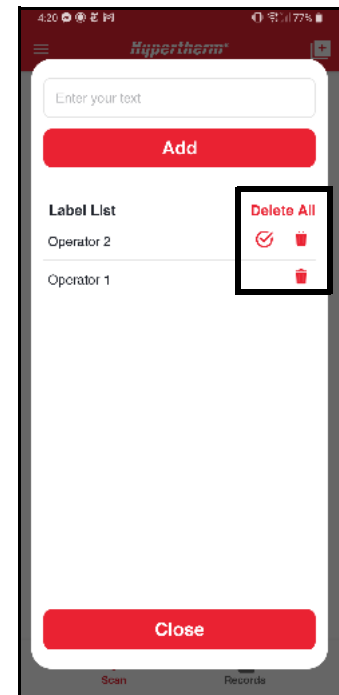
You can add all the new labels that you need at once on the Label List screen.



Delete a label

When you delete a label, the app removes the label from the Label List screen. The app does not remove the label from existing records that use that label.

1. On the home screen, tap **Tap to Scan**.
2. Tap **Label**.
3. On the **Label List** screen, do one of the following:
 - To delete 1 label, tap the delete icon (🗑️).
 - To delete all of the labels at once, tap **Delete All**.
4. Tap **Close**.



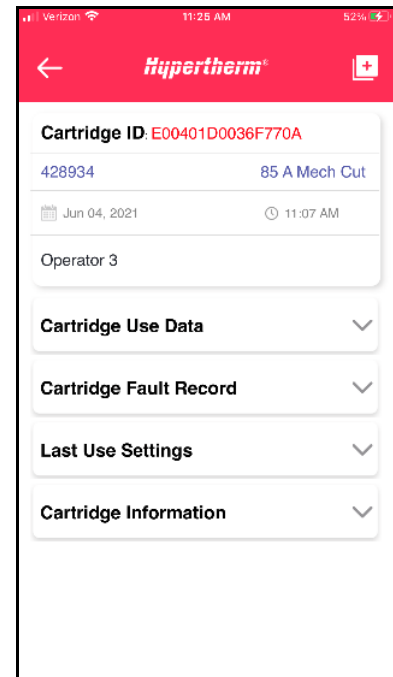
View cartridge data saved in the app

When you scan a cartridge, the app saves the cartridge data as a record for the date and time of the scan.



If you scan the same cartridge more than one time, the app only saves the most recent record.

1. On the home screen, tap **Records**.
2. Tap the record you want to view. The record details screen appears.

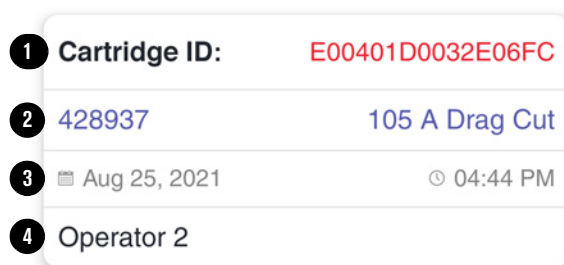


About the cartridge data

Cartridge data gives you insight into cartridge usage and performance trends. Cartridge data also helps you identify system, setup, operator, and cutting environment issues.

The record details screen shows the cartridge information that is measured and tracked.

Cartridge ID



- 1 Unique ID number of the cartridge
- 2 Cartridge part number and description
- 3 Date and time of the scan
- 4 Label selected for this scan

Cartridge Use Data

Cartridge Use Data ^

1

Pilot Arc Starts
3

2

Arc Transfers
3

3

Transfer Success Rate ⓘ
100%

4

Pilot Arc Time
00:00:00

5

Transfer Time
00:00:08

6

Total Arc Time ⓘ
00:00:08

7

End of Life Fault
No

- 1 Total number of pilot arc starts (number of times the torch was fired)
- 2 Total number of arc transfers (number of times the arc transferred to the workpiece)
- 3 Percentage of pilot arc starts that transferred to the workpiece
- 4 Cumulative time in hours, minutes, and seconds that there was a pilot arc
- 5 Cumulative time in hours, minutes, and seconds that the arc was in contact with the workpiece
- 6 Combined total of pilot arc time and arc transfer time
- 7 Whether the cartridge has had an 0-32-0 or 0-32-1 fault, both of which identify end of life

Cartridge Fault Record

Cartridge Fault Record ^

Fault Log 1
0-00-0

Fault Log 2
0-00-0

Fault Log 3
0-00-0

Fault Log 4
0-00-0

Shows the 4 most recent faults that occurred while the cartridge was installed.

Fault Log 1 is the newest. If a fault did not occur, the log shows 0-00-0.

For more information about fault codes, refer to [Troubleshoot a fault code](#) on page 30.

Last Use Settings

Last Use Settings	
1	Last Power Supply Used SYNC 105A CSA
2	Last Torch Used Machine Torch 23m (75ft)
3	Last Current(A) Setting 105
4	Last Pressure(PSI) Setting 80
5	Last Operating Mode Normal

Shows information about the most recent system and settings used while the cartridge was installed.

- 1 Plasma power supply type
- 2 Torch type and lead length
- 3 Output current (A) setting
- 4 Gas pressure (PSI) setting
- 5 Operating mode (cut, expanded metal, or gouge)

Cartridge Information

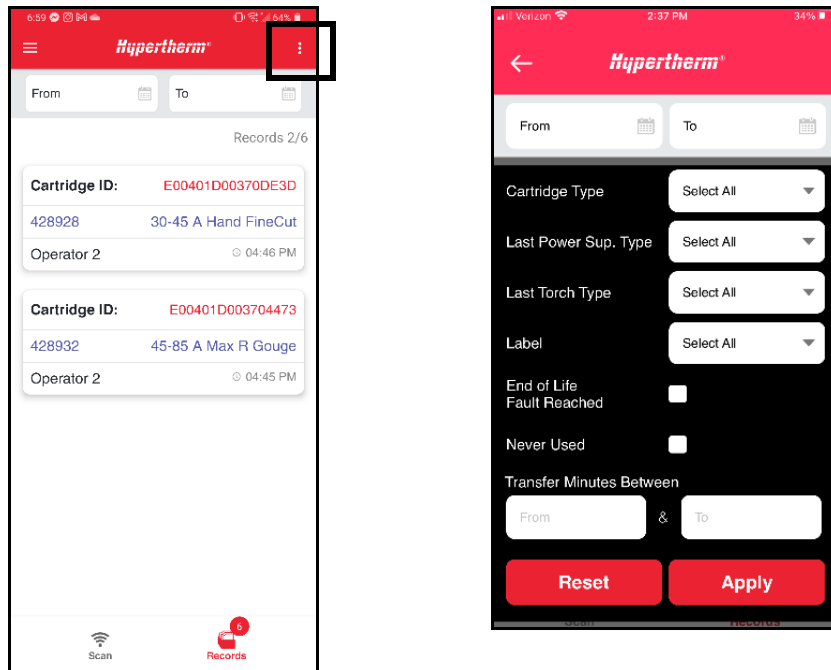
Cartridge Information	
Cartridge Part Number 428936	
Cartridge Part Number Rev A	
Manufacture Date Jun 29, 2020	
Manufacture Test Status Pass	
RFID Tag Part Number 420435	
RFID Tag Rev A	
RFID Tag Manufacture ID 1	

Shows basic cartridge information from the factory.

- Part number and revision
- Manufacture date and test
- RFID tag part number, revision, and ID

Filter records

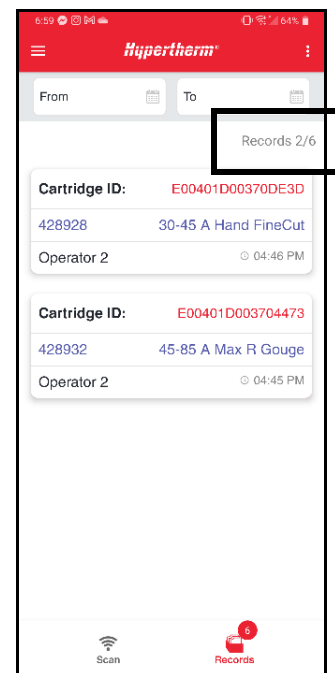
1. On the records screen, tap the actions menu (⋮) and then tap **Filter**.
2. Select the values for which you want to view records, and then tap **Apply**.



Clear the filters

When records are filtered, the records screen shows the number of filtered records.

1. On the records screen, tap the actions menu (⋮) and then tap **Filter**.
2. Tap **Reset**.



View graphs of cartridge data

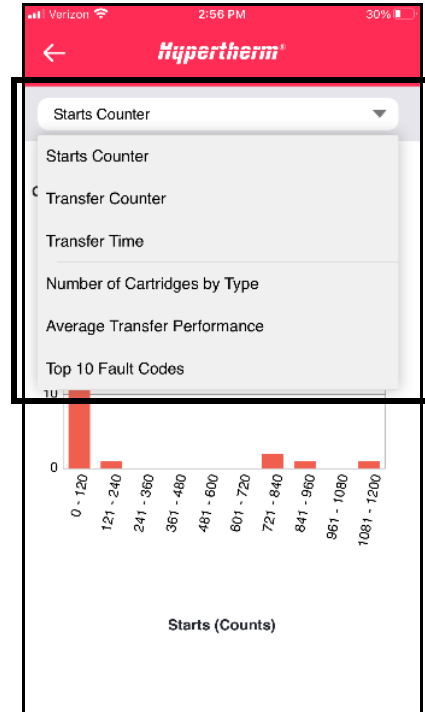
Graphs let you view the combined data for all of the records shown on the records screen.



If you filter the records on the records screen, only the data for the filtered records is included in the graphs.

1. On the records screen, tap the actions menu (:) and then tap **Graph**.
2. The following graphs are available. Select the graph you want to view.
 - Starts Counter
 - Transfer Counter
 - Transfer Time
 - Number of Cartridges by Type
 - Average Transfer Performance
 - Top 10 Fault Codes

3. To go back to the records screen, tap the back arrow.



Export data

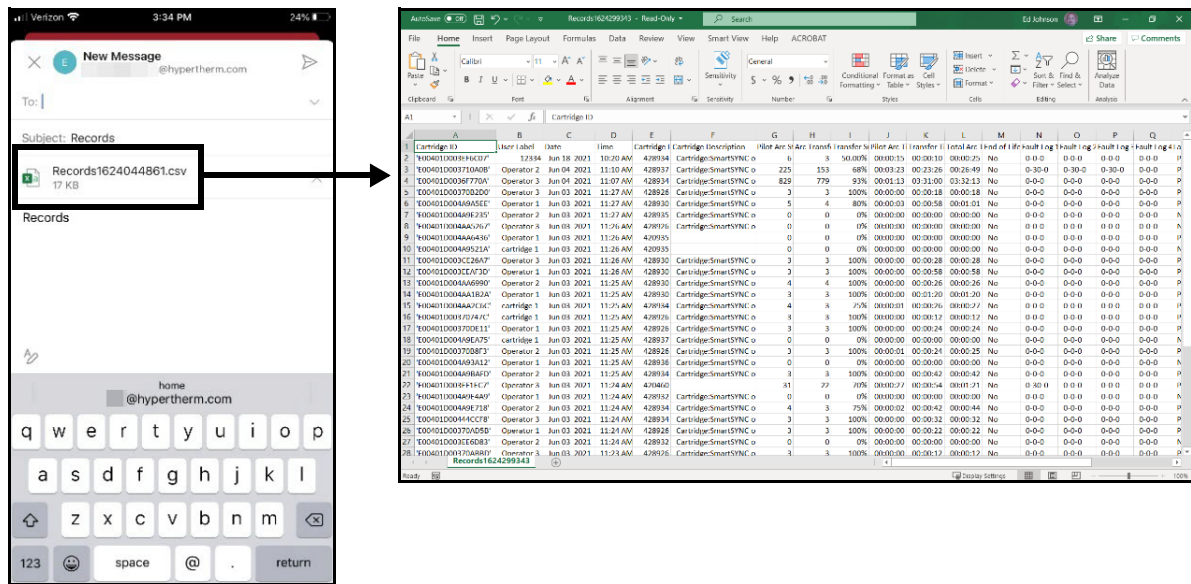
You can export the cartridge data for all of the records shown on the records screen. The app exports the data as a comma-separated values (*.csv) file that can be opened in any spreadsheet tool for data analysis, including the Hypertherm Cartridge Dashboard.



If you filter the records on the records screen, only the data for the filtered records is included in the export.

1. On the records screen, tap the actions menu (:) and then tap **Export**.

2. Select an app on your phone to use to share the *.csv file. In the example, an email app was used.



Delete all records



This option deletes all of the records currently saved in the app. You cannot delete individual records or a set of filtered records. To exclude unwanted records from the records screen, graphs, and exports, use labels and filters.

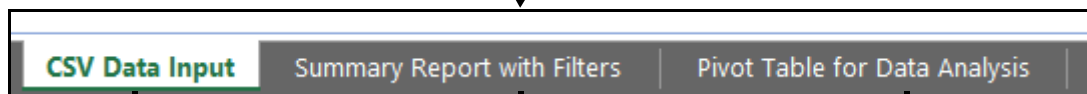
1. On the records screen, tap the actions menu (:).
2. Tap **Delete All**.

Analyze cartridge data with the Cartridge Dashboard

The Hypertherm Cartridge Dashboard is a spreadsheet tool you use to import, view and filter, and analyze cartridge data.

The Cartridge Dashboard tool has 3 spreadsheets. Do not modify the spreadsheets except as instructed.

1	A	B	C	D	E	F	G	H	I	J
	Cartridge ID	User Label	Date	Time	Cartridge Part Number	Cartridge Description	Pilot Arc Starts	Arc Transfers	Transfer Success Rate	Pilot Arc Time
2	E00401D0033BE	Default	Feb 26 2	01:22 PM	428934	Cartridge SmartSYNC oi	747	745	100%	00:00:22
3	E00401D00370E	Default	Feb 26 2	12:33 PM	428926	Cartridge SmartSYNC oi	34	34	100%	00:00:00
4	E00401D0036FE	Default	Feb 26 2	12:29 PM	428926	Cartridge SmartSYNC oi	130	130	100%	00:00:02
5	E00401D00370E	Default	Feb 26 2	12:29 PM	428938	Cartridge SmartSYNC oi	3	3	100%	00:00:11
6	E00401D00370E	Default	Feb 26 2	12:29 PM	428938	Cartridge SmartSYNC oi	426	335	79%	00:06:56
7	E00401D00370E	Default	Feb 26 2	12:29 PM	428938	Cartridge SmartSYNC oi	408	379	93%	00:04:03
8	E00401D00370E	Default	Feb 26 2	12:29 PM	428938	Cartridge SmartSYNC oi	258	158	61%	00:05:23
9	E00401D00370E	Default	Feb 26 2	12:29 PM	428938	Cartridge SmartSYNC oi	1282	1106	86%	00:14:34
10	E00401D00370E	Default	Feb 26 2	12:29 PM	428938	Cartridge SmartSYNC oi	918	756	82%	00:15:25
11	E00401D0036F8	Default	Feb 26 2	12:29 PM	428938	Cartridge SmartSYNC oi	3	3	100%	00:00:10
12	E00401D00370E	Default	Feb 26 2	12:29 PM	428937	Cartridge SmartSYNC oi	101	89	88%	00:00:58
13	E00401D0036F2	Default	Feb 26 2	12:29 PM	428935	Cartridge SmartSYNC oi	6	3	50%	00:00:27
14	E00401D00370E	Default	Feb 26 2	12:29 PM	428935	Cartridge SmartSYNC oi	6	3	50%	00:00:25
15	E00401D00370E	Default	Feb 26 2	12:29 PM	428935	Cartridge SmartSYNC oi	6	3	50%	00:00:25
16	E00401D00370E	Default	Feb 26 2	12:29 PM	428935	Cartridge SmartSYNC oi	2246	1487	66%	00:30:38
17	E00401D00370E	Default	Feb 26 2	12:29 PM	428935	Cartridge SmartSYNC oi	1828	1236	68%	00:26:15
18	E00401D00370E	Default	Feb 26 2	12:29 PM	428934	Cartridge SmartSYNC oi	883	722	82%	00:03:44
19	E00401D0035F7	Default	Feb 26 2	12:29 PM	428934	Cartridge SmartSYNC oi	666	629	94%	00:00:48
20	E00401D003704	Default	Feb 26 2	12:29 PM	428930	Cartridge SmartSYNC oi	66	66	100%	00:00:38



Import data into the dashboard

Review and interpret cartridge data

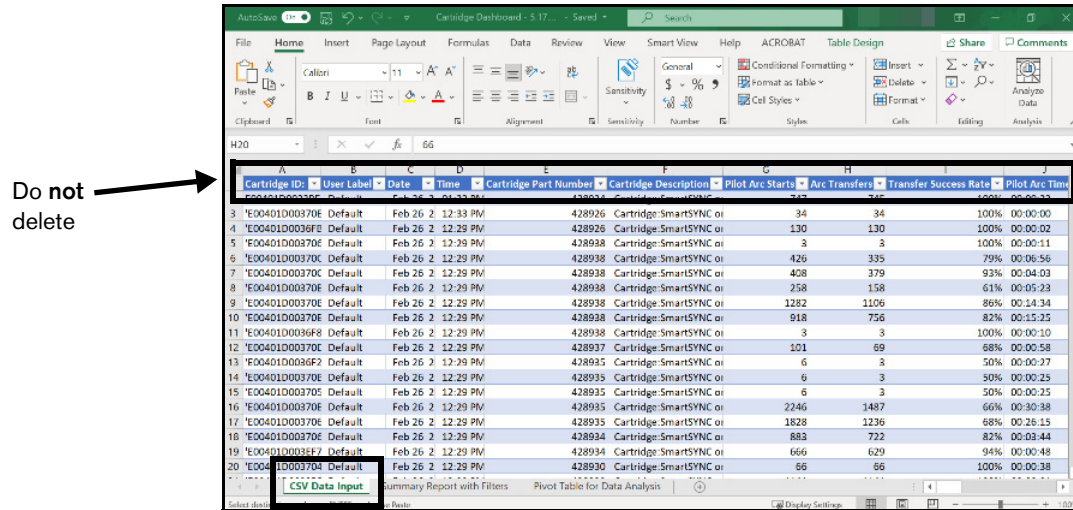
Do advanced analysis directly in the pivot table

Import data from the app into the dashboard (CSV Data Input sheet)

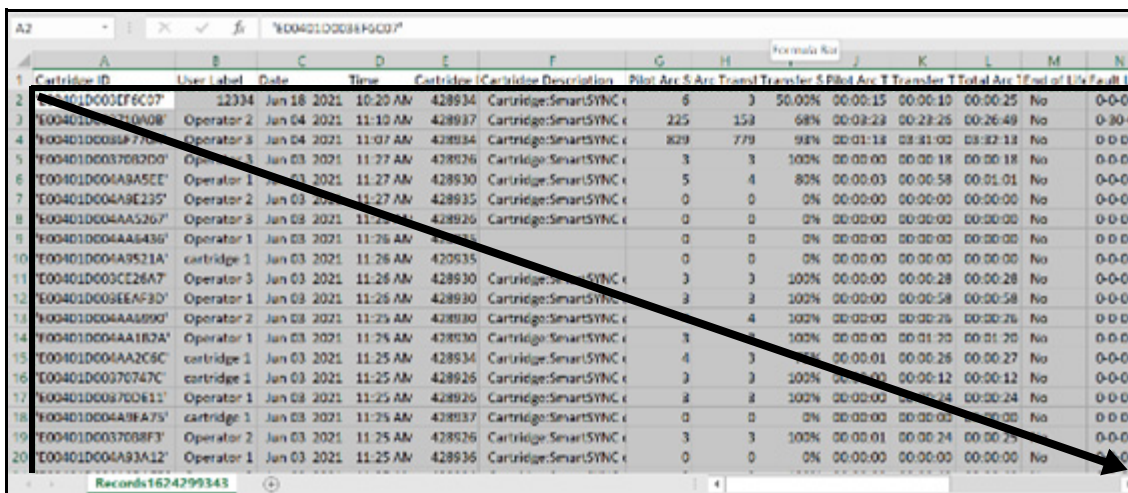
The Cartridge Dashboard uses a *.csv file you export from the app. Refer to [Export data](#) on page 18.

1. Open the Cartridge Dashboard tool.
2. Click the **CSV Data Input** sheet.

3. Delete any existing data that you do not want. Delete **only** the data. Do **not** delete the rows or the column headers.
 - a. Start in the upper-left cell in the first row of data that you want to delete.
 - b. Click and drag down and across all of the cells in the rows that you want to delete.
 - c. Scroll to the right to make sure that you delete the data for all of the columns.



4. Open the *.csv file of cartridge data that you exported from the app.
5. Copy all of the data in the *.csv file. Copy only the data. Do not copy the rows or the column headers.
 - a. Start in the upper-left cell in the first row of data.
 - b. Click and drag down and across all of the cells in all of the rows.
 - c. Scroll to the right to make sure that you copy the data for all of the columns.



- On the **CSV Data Input** sheet of the Cartridge Dashboard tool, click in cell **A2** and then paste the data you copied from the *.csv file.



Once you paste the data, the Cartridge Dashboard updates with the new data. It is normal for this to take some time. Do **not** stop the update by closing the Cartridge Dashboard tool.

Cartridge ID	User Label	Date	Time	Cartridge Part Number	Cartridge Description	Pilot Arc Starts	Arc Transfers	Transfer Success Rate	Pilot Arc Time	Transfer Time	Total Arc Time	End of Life	Fault Log 1	Fault Log 2	Fault
'004010001E76	12334	Jun 18	20:20 AM	428934	Cartridge-SmartS	6	3	50.00%	00:00:15	00:00:10	00:00:25	No	0-0-0	0-0-0	0-0
'004010001710	Operator 2	Jun 04	11:10 AM	428937	Cartridge-SmartS	225	153	68%	00:03:23	00:21:26	00:26:49	No	0-30-0	0-30-0	0-0
'0040100016F7	Operator 3	Jun 04	11:07 AM	428934	Cartridge-SmartS	829	779	93%	00:01:11	03:11:00	03:12:11	No	0-0-0	0-0-0	0-0
'004010001708	Operator 3	Jun 03	11:27 AM	428926	Cartridge-SmartS	3	3	100%	00:00:00	00:00:18	00:00:18	No	0-0-0	0-0-0	0-0
'004010004A98	Operator 1	Jun 03	11:27 AM	428930	Cartridge-SmartS	5	4	80%	00:00:03	00:00:58	00:01:01	No	0-0-0	0-0-0	0-0
'004010004A9E	Operator 2	Jun 03	11:27 AM	428935	Cartridge-SmartS	0	0	0%	00:00:00	00:00:00	00:00:00	No	0-0-0	0-0-0	0-0
'004010004AA5	Operator 3	Jun 03	11:26 AM	428926	Cartridge-SmartS	0	0	0%	00:00:00	00:00:00	00:00:00	No	0-0-0	0-0-0	0-0
'004010004AAE	Operator 1	Jun 03	11:26 AM	420935		0	0	0%	00:00:00	00:00:00	00:00:00	No	0-0-0	0-0-0	0-0
'004010004A95	cartridge 1	Jun 03	11:26 AM	420935		0	0	0%	00:00:00	00:00:00	00:00:00	No	0-0-0	0-0-0	0-0
'004010001CE2	Operator 3	Jun 03	11:26 AM	428930	Cartridge-SmartS	3	3	100%	00:00:00	00:00:28	00:00:28	No	0-0-0	0-0-0	0-0
'004010001EEA	Operator 1	Jun 03	11:26 AM	428930	Cartridge-SmartS	3	3	100%	00:00:00	00:00:58	00:00:58	No	0-0-0	0-0-0	0-0
'004010004AAE	Operator 2	Jun 03	11:25 AM	428930	Cartridge-SmartS	4	4	100%	00:00:00	00:00:26	00:00:26	No	0-0-0	0-0-0	0-0
'004010004AA3	Operator 1	Jun 03	11:25 AM	428930	Cartridge-SmartS	3	3	100%	00:00:00	00:01:20	00:01:20	No	0-0-0	0-0-0	0-0
'004010004AA2	cartridge 1	Jun 03	11:25 AM	428934	Cartridge-SmartS	4	3	75%	00:00:01	00:00:26	00:00:27	No	0-0-0	0-0-0	0-0
'004010001707	cartridge 1	Jun 03	11:25 AM	428926	Cartridge-SmartS	3	3	100%	00:00:00	00:00:12	00:00:12	No	0-0-0	0-0-0	0-0
'00401000170C	Operator 1	Jun 03	11:25 AM	428926	Cartridge-SmartS	3	3	100%	00:00:00	00:00:24	00:00:24	No	0-0-0	0-0-0	0-0
'004010004A9E	cartridge 1	Jun 03	11:25 AM	428937	Cartridge-SmartS	0	0	0%	00:00:00	00:00:00	00:00:00	No	0-0-0	0-0-0	0-0
'004010001708	Operator 2	Jun 03	11:25 AM	428926	Cartridge-SmartS	3	3	100%	00:00:01	00:00:24	00:00:25	No	0-0-0	0-0-0	0-0
'004010004A93	Operator 1	Jun 03	11:25 AM	428936	Cartridge-SmartS	0	0	0%	00:00:00	00:00:00	00:00:00	No	0-0-0	0-0-0	0-0
'004010004A98	Operator 2	Jun 03	11:25 AM	428934	Cartridge-SmartS	3	3	100%	00:00:00	00:00:42	00:00:42	No	0-0-0	0-0-0	0-0
'004010001E71	Operator 3	Jun 03	11:24 AM	420460		31	22	70%	00:00:27	00:00:54	00:01:21	No	0-30-0	0-0-0	0-0
'004010004A9E	Operator 1	Jun 03	11:24 AM	428932	Cartridge-SmartS	0	0	0%	00:00:00	00:00:00	00:00:00	No	0-0-0	0-0-0	0-0
'004010004A9E	Operator 2	Jun 03	11:24 AM	428934	Cartridge-SmartS	4	3	75%	00:00:02	00:00:42	00:00:44	No	0-0-0	0-0-0	0-0
'00401000444C	Operator 3	Jun 03	11:24 AM	428934	Cartridge-SmartS	3	3	100%	00:00:00	00:00:32	00:00:32	No	0-0-0	0-0-0	0-0
'00401000170A	Operator 1	Jun 03	11:24 AM	428926	Cartridge-SmartS	3	3	100%	00:00:00	00:00:22	00:00:22	No	0-0-0	0-0-0	0-0
'004010001E16	Operator 2	Jun 03	11:24 AM	428932	Cartridge-SmartS	0	0	0%	00:00:00	00:00:00	00:00:00	No	0-0-0	0-0-0	0-0
'00401000170A	Operator 1	Jun 03	11:23 AM	428926	Cartridge-SmartS	3	3	100%	00:00:00	00:00:12	00:00:12	No	0-0-0	0-0-0	0-0

View and filter imported cartridge data (Summary Report with Filters sheet)

After the Cartridge Dashboard updates with the data you pasted in from the *.csv file, the Cartridge Summary Report spreadsheet is ready to use.

You can view the Cartridge Summary Report as is or you can filter the data. You can also change the language used in the report.

1. In the Cartridge Dashboard tool, click the **Summary Report with Filters** sheet.
2. To change the language used in the Cartridge Summary Report, do the following:
 - a. In **Choose Language**, click the down arrow.
 - b. Click the language that you want.

The screenshot shows a spreadsheet titled "Hypertherm Cartridge Summary Report" with a date of "08/27/21". The "Choose Language" dropdown menu is open, showing "English" as the selected option. Below the language dropdown, there is a section for "Inputs for Data Filtering" with a prompt "Select Filters from Dropdowns Below". The filters listed are: User Label, date, Cartridge Part Number, End-Of-Life, Last Power Supply Used, and Last Torch Used. The data area to the right of the filters is highlighted in yellow.

3. To filter the data in the Cartridge Summary Report, do the following:
 - a. Click the cell to the right of the filter that you want to use.
 - b. Click the down arrow and then click the value that you want.

The report automatically updates as you make your selections.

The screenshot shows the same spreadsheet as before, but now the "User Label" filter dropdown menu is open. The dropdown menu shows a list of values: "User Label", "date", "Cartridge Part Number", "Cartridge Description", "End-Of-Life", "Last Power Supply Used", and "Last Torch Used". The data area to the right of the filters is highlighted in yellow.

Use the Cartridge Summary Report

The Cartridge Summary Report can help you identify trends in the life of your cartridges and opportunities to improve cartridge life.

How often it is necessary to change the cartridge relates to multiple variables. For example, you should expect a difference in cartridge life between hand-cutting and mechanized cutting. This is because operator technique is an important variable for hand-cutting. For mechanized cutting, more variables can be kept consistent. No two cartridges will have the same number of pilot arc starts, arc transfers, or overall arc time.

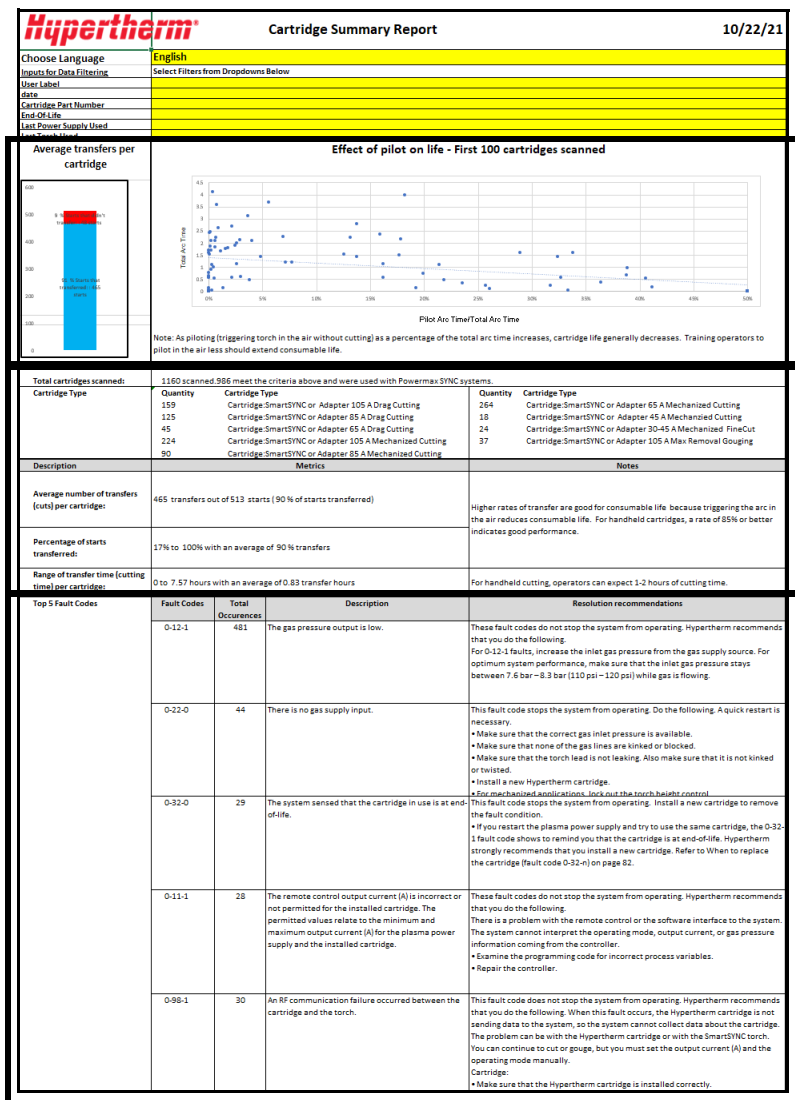
For more information about how to improve cartridge life, refer to [Get the most out of your cartridges](#) on page 29.

The Cartridge Summary Report has 3 sections.

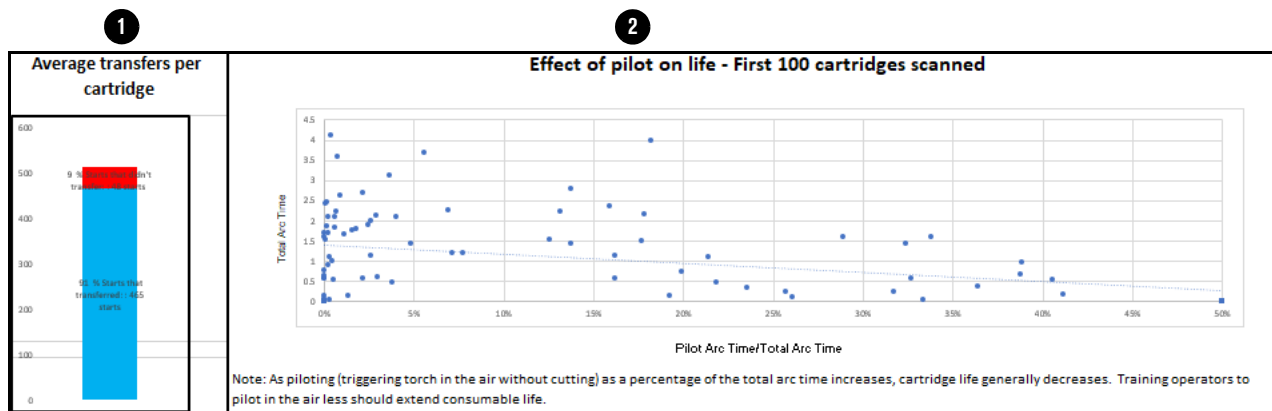
Percentage of pilot arc starts that transferred to the workpiece

Cartridge usage data

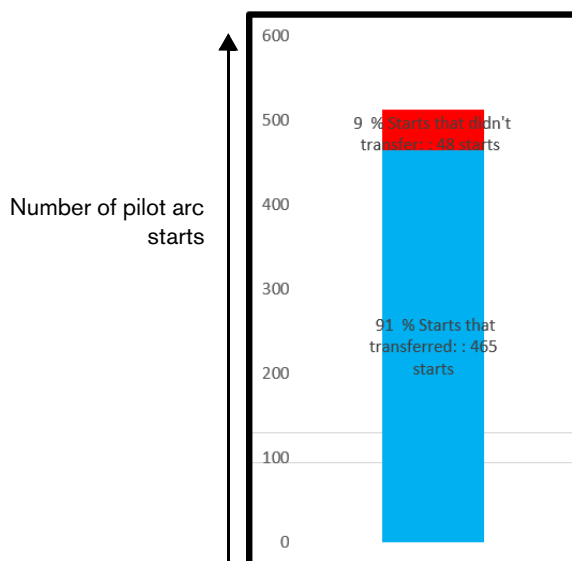
Top 5 fault codes



Percentage of pilot arc starts that transferred



- 1 Average transfers per cartridge** – This chart shows the percentage of pilot arc starts that transferred to the workpiece (blue) and the percentage of pilot arc starts that did not transfer (red).

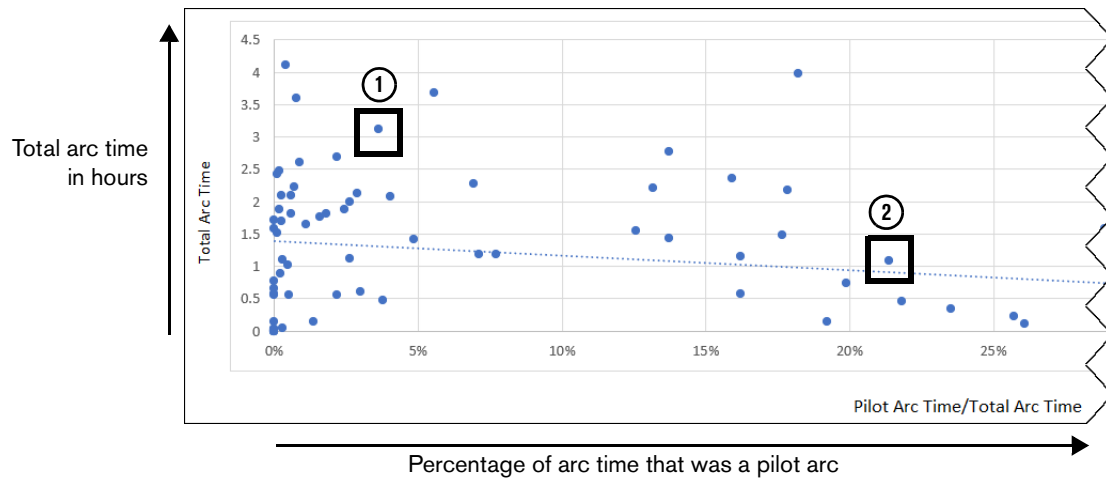


In this chart, you want to see much more blue than red. Blue shows that when operators pull the trigger on the torch, they transfer the arc to the workpiece and cut. Red shows that operators are needlessly firing the torch into the air, which shortens cartridge life.

For well-trained and experienced operators using hand-cutting cartridges, you should expect an average rate of transfers of more than 85%. An average rate of transfers that is less than 85% indicates an opportunity to improve cartridge life through operator training.

For mechanized cartridges, you should expect an average rate of transfers of more than 90%. Averages less than 90% indicate a problem with the mechanized system.

② Effect on pilot life – This chart shows the effect that pilot arc time has on cartridge life.



Each dot on the chart represents a cartridge. The position of the dot shows the relationship between a cartridge's total arc time (vertical axis) and the percentage of that arc time that there was a pilot arc (horizontal axis).

The lower the percentage of arc time spent as a pilot arc, the higher the total arc time you will get from a cartridge. In this example, cartridge ① had a life of more than 3 arc hours because there was a pilot arc for less than 5% of its arc time. In contrast, cartridge ② only had a life of 1 hour because there was a pilot arc for more than 20% of its arc time.

For well-trained and experienced operators using hand-cutting cartridges, you should expect 1 to 2 hours of total arc time with pilot arc percentages of less than 15%. Lower total arc times with pilot arc percentages of more than 15% indicate an opportunity to improve cartridge life through operator training.

Cartridge usage data

This section shows combined totals for the selected cartridges.

1	Total cartridges scanned:	1160 scanned.986 meet the criteria above and were used with Powermax SYNC systems.			
2	Cartridge Type	Quantity	Cartridge Type	Quantity	Cartridge Type
		159	Cartridge:SmartSYNC or Adapter 105 A Drag Cutting	264	Cartridge:SmartSYNC or Adapter 65 A Mechanized Cutting
		125	Cartridge:SmartSYNC or Adapter 85 A Drag Cutting	18	Cartridge:SmartSYNC or Adapter 45 A Mechanized Cutting
		45	Cartridge:SmartSYNC or Adapter 65 A Drag Cutting	24	Cartridge:SmartSYNC or Adapter 30-45 A Mechanized FineCut
		224	Cartridge:SmartSYNC or Adapter 105 A Mechanized Cutting	37	Cartridge:SmartSYNC or Adapter 105 A Max Removal Gouging
		90	Cartridge:SmartSYNC or Adapter 85 A Mechanized Cutting		
	Description	Metrics		Notes	
3	Average number of transfers (cuts) per cartridge:	465 transfers out of 513 starts (90 % of starts transferred)		Higher rates of transfer are good for consumable life, because triggering the arc in the air reduces consumable life. For handheld cartridges, a rate of 85% or better indicates good performance.	
4	Percentage of starts transferred:	17% to 100% with an average of 90 % transfers			
5	Range of transfer time (cutting time) per cartridge:	0 to 7.57 hours with an average of 0.83 transfer hours		For handheld cutting, operators can expect 1-2 hours of cutting time.	

- 1 **Total cartridges scanned** This shows the total number of cartridges for which data was imported into the Cartridge Dashboard tool, and the number of cartridges for which data is currently shown in the Cartridge Summary Report.
- 2 **Cartridge Type** This shows the combined total number of each type of cartridge for which data is currently shown in the Cartridge Summary Report.
- 3 **Average number of transfers (cuts) per cartridge** This shows the combined average number of pilot arc starts that transferred to the workpiece for the selected cartridges, and the combined percentage of arc transfers.
- 4 **Percentage of starts transferred** This shows the range of percentages of pilot arc starts that transferred to the workpiece for the selected cartridges, and the combined average percentage of arc transfers.
- 5 **Range of transfer time (cutting time) per cartridge** This shows the range of times in hours, minutes, and seconds that the arc was in contact with the workpiece for the selected cartridges, and the combined average arc transfer time.

Top 5 fault codes

Top 5 Fault Codes	Fault Codes	Total Occurrences	Description	Resolution recommendations
1	0-12-1	481	The gas pressure output is low.	These fault codes do not stop the system from operating. Hypertherm recommends that you do the following. For 0-12-1 faults, increase the inlet gas pressure from the gas supply source. For optimum system performance, make sure that the inlet gas pressure stays between 7.6 bar – 8.3 bar (110 psi – 120 psi) while gas is flowing.
2	0-22-0	44	There is no gas supply input.	This fault code stops the system from operating. Do the following. A quick restart is necessary. - Make sure that the correct gas inlet pressure is available. - Make sure that none of the gas lines are kinked or blocked. - Make sure that the torch lead is not leaking. Also make sure that it is not kinked or twisted. - Install a new Hypertherm cartridge. - For mechanized applications, lock out the torch height control.
3	0-32-0	29	The system sensed that the cartridge in use is at end-of-life.	This fault code stops the system from operating. Install a new cartridge to remove the fault condition. If you restart the plasma power supply and try to use the same cartridge, the 0-32-1 fault code shows to remind you that the cartridge is at end-of-life. Hypertherm strongly recommends that you install a new cartridge. Refer to When to replace the cartridge (fault code 0-32-n) on page 82.
4	0-11-1	28	The remote control output current (A) is incorrect or not permitted for the installed cartridge. The permitted values relate to the minimum and maximum output current (A) for the plasma power supply and the installed cartridge.	These fault codes do not stop the system from operating. Hypertherm recommends that you do the following. There is a problem with the remote control or the software interface to the system. The system cannot interpret the operating mode, output current, or gas pressure information coming from the controller. - Examine the programming code for incorrect process variables. - Repair the controller.
5	0-98-1	30	An RF communication failure occurred between the cartridge and the torch.	This fault code does not stop the system from operating. Hypertherm recommends that you do the following. When this fault occurs, the Hypertherm cartridge is not sending data to the system, so the system cannot collect data about the cartridge. The problem can be with the Hypertherm cartridge or with the SmartSYNC torch. You can continue to cut or gouge, but you must set the output current (A) and the operating mode manually. Cartridge: Make sure that the Hypertherm cartridge is installed correctly.

This section lists the five operational (0-*nn-n*) fault codes that occurred most frequently for the selected cartridges.

The following information shows for each fault code:

- Fault code
- Total number of occurrences of the fault code
- Fault code description
- Troubleshooting information



Fault code troubleshooting information is also available in the app. Refer to [Troubleshoot a fault code](#) on page 30.

Get the most out of your cartridges

How often it is necessary to change the cartridge on your hand torch relates to the following:

- **Gas supply quality**

- ❑ It is extremely important to keep the gas supply line clean and dry. Oil, water, vapor, and other contamination in the gas supply can degrade cut quality and cartridge life.

- **Cutting technique (hand-cutting)**

- ❑ Fire the torch only when necessary. Do not fire the torch when you are not cutting. Frequent pilot arcs cause the nozzle in the cartridge to wear more quickly.
- ❑ Start cuts from the edge of the workpiece whenever possible. This helps to extend the life of the cartridge.
- ❑ When cutting, only stretch the arc when it is necessary. Drag the torch on the workpiece whenever possible.
- ❑ When gouging, keep distance between the torch tip and the molten metal that builds up during the gouge.
- ❑ When piercing, use the correct method for the thickness of the workpiece that you are cutting. In many conditions, a rolling pierce method is an efficient way to pierce the workpiece while you decrease the cartridge wear that naturally occurs during piercing.

- **Cutting parameters (mechanized cutting)**

- ❑ Make sure that the arc current, arc voltage, cut speed, cut height, and other cut settings are correct.
- ❑ Use the correct torch height and pierce delay time for piercing.

- **Thickness of the workpiece**

- ❑ In general, the thicker the workpiece being cut, the more quickly the cartridges become worn. For best results, 80% of the workpieces that you cut should be equal to or less than the thickness specified for this system and cartridge.
- ❑ For best results, do not cut material that is thicker than what is specified for this system and cartridge.

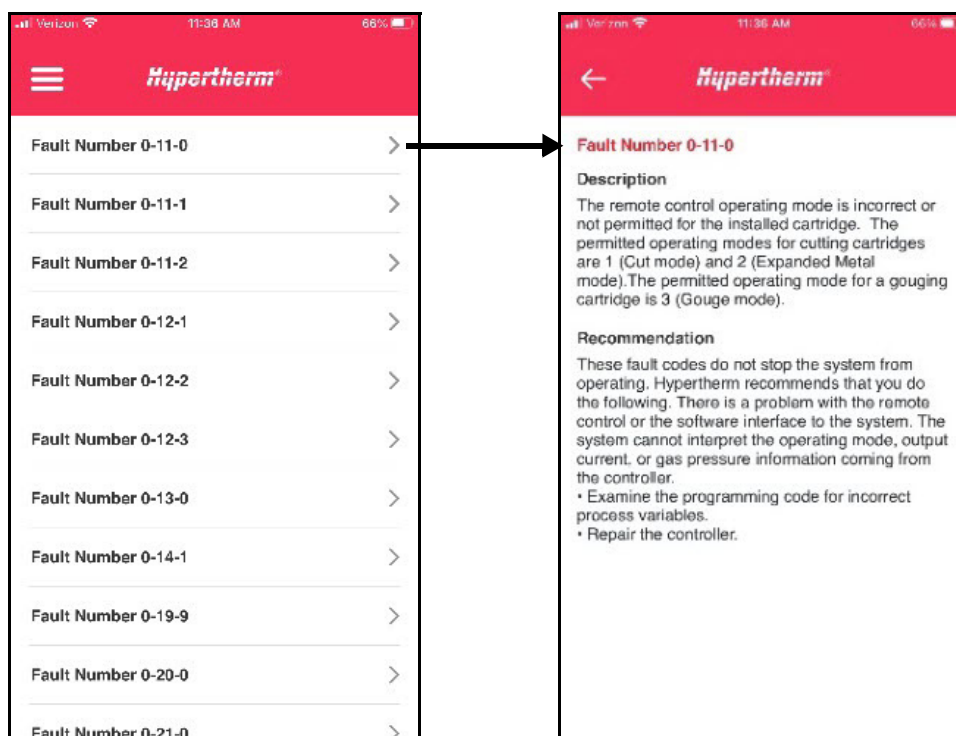
- **Expanded metal cutting and pilot arc time**

- ❑ Expanded metal has a slotted or mesh pattern. Cutting expanded metal wears out cartridges more quickly because it requires a continuous pilot arc. A pilot arc occurs when the torch is fired but the plasma arc is not in contact with the workpiece.
- ❑ Make sure that the operating mode is **not** set to Expanded Metal mode if you are not cutting expanded metal.

Troubleshoot a fault code

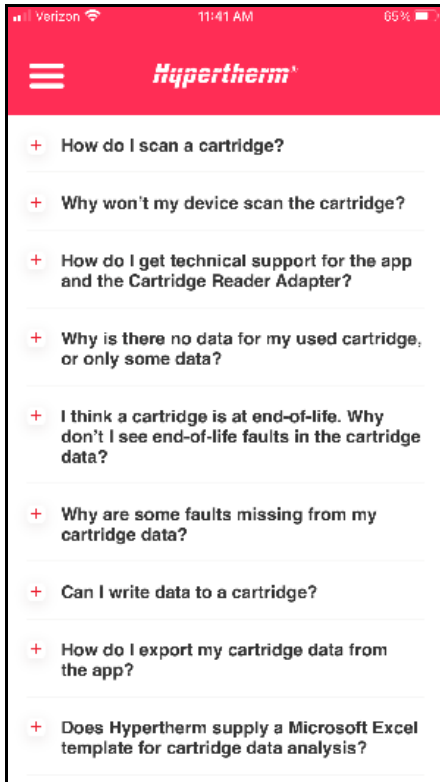
The app includes troubleshooting information for the operational (0-*nn-n*) fault codes that may appear on the status screen of the plasma power supply.

1. Tap the main menu (☰) and tap **Fault Codes**.
2. Tap the fault code for which you want to view troubleshooting information.
3. To go back to the home screen, tap the back arrow. Then tap the main menu (☰) and tap **Home**.



See answers to common questions

1. Tap the main menu (≡) and then tap **Questions and Answers**.
2. Tap the question for which you want to view the answer.
3. To go back to the home screen, tap the main menu (≡) and then tap **Home**.



Change the language used in the app

1. Tap the main menu (≡) and then tap **Language**.
2. Tap the language you want to use and then tap **Apply**.

