OEE Studio Tool Tip
Analyzing Performance Metric

This Tool Tip Assumes that the reader knows how to navigate and use OEE Studio.
(https://oeestudio.com/navigation.html)

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Calculating Performance Metric

- Using the **Job Data – Job Comparison** menu in OEE Studio, you can get a better insight as to how your products (parts) are running.
- Performance is the Actual Count (good + reject) during Run Time, verses the expected count for that Run Time, based in Ideal Cycle Time.
- The Vorne XLv1 boards use the following calculation for Performance:

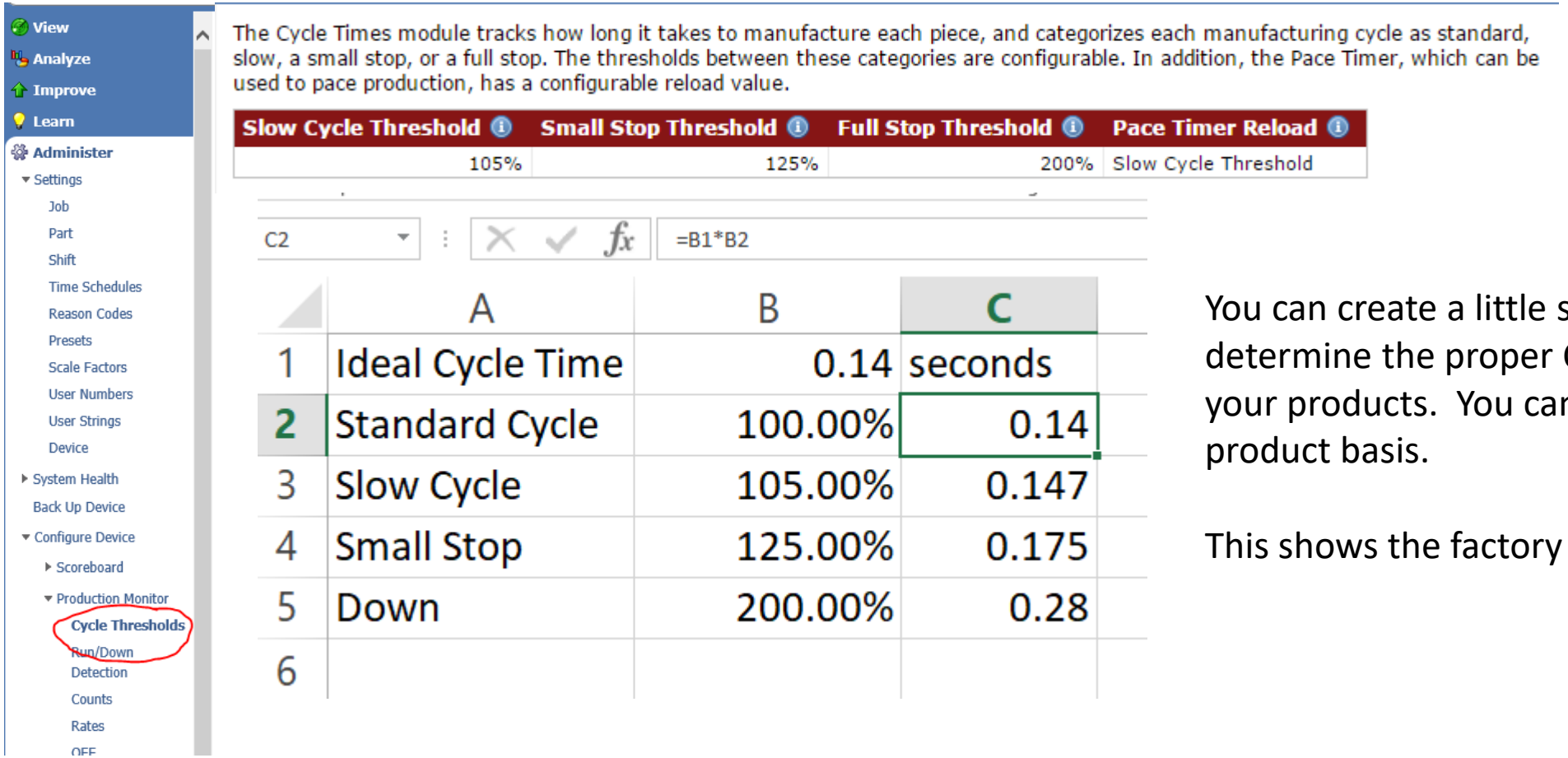
  ICT * (Standard Cycle Count + Slow Cycle Count + Small Stop Cycle Count)/Run Time
- OR if you have a Scale Factor >1, then it would be:

  (ICT/SF1) * (Standard Cycle Count + Slow Cycle Count + Small Stop Cycle Count)/Run Time

  Ideal Cycle Time (ICT) = time between pulses

  SF1 = Scale Factor 1 if you are counting more than one part per cycle.

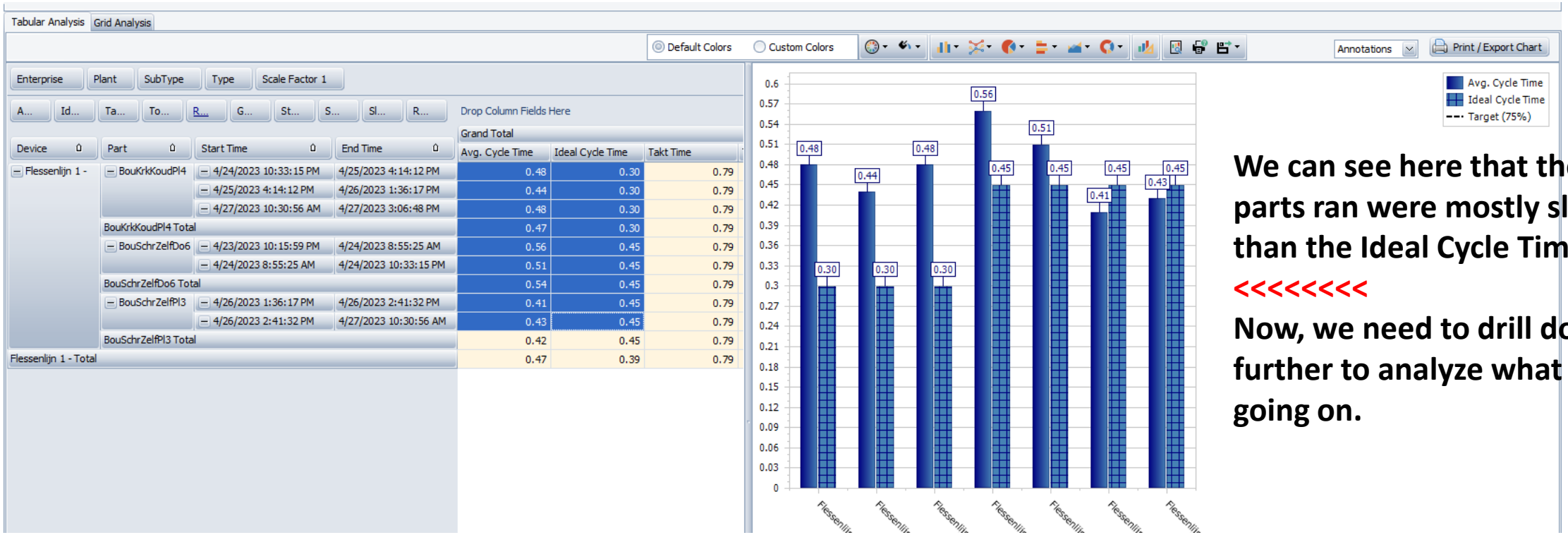
Cycle Times Module in Vorne XLv1



You can create a little spreadsheet to determine the proper Cycle Thresholds for your products. You cannot do this on a per product basis.

This shows the factory defaults in the device.

Analyze Performance



We can see here that the parts ran were mostly slower than the Ideal Cycle Time.

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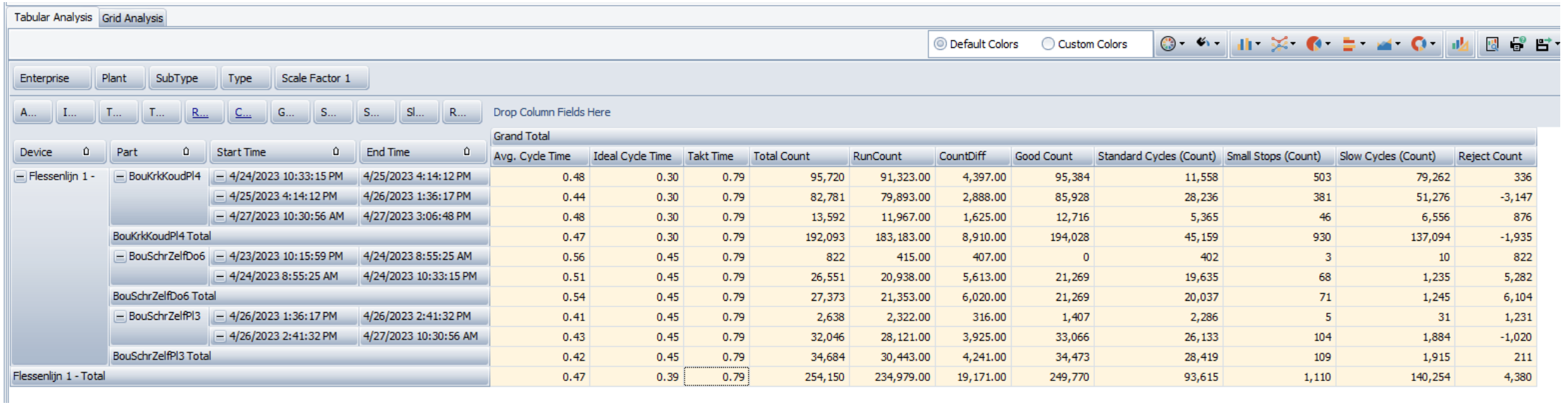
Now, we need to drill down further to analyze what is going on.

- **Menu – Job Data – Job Comparison**
- Choose your date range
- **Show & Hide Fields** – remove the default OEE metrics and add
  - Average Cycle Time, Ideal Cycle Time and Takt Time
- Highlight the Avg Cycle Time and Ideal Cycle Time columns to graphically display the results.

Additional Fields are added



Tabular Analysis | Grid Analysis

Default Colors | Custom Colors

Enterprise | Plant | SubType | Type | Scale Factor 1

Drop Column Fields Here

Device	Part	Start Time	End Time	Grand Total: Avg. Cycle Time	Ideal Cycle Time	Takt Time	Total Count	RunCount	CountDiff	Good Count	Standard Cycles (Count)	Small Stops (Count)	Slow Cycles (Count)	Reject Count
Flessenlijn 1 -	BouKrkKoudPl4	4/24/2023 10:33:15 PM	4/25/2023 4:14:12 PM	0.48	0.30	0.79	95,720	91,323.00	4,397.00	95,384	11,558	503	79,262	336
		4/25/2023 4:14:12 PM	4/26/2023 1:36:17 PM	0.44	0.30	0.79	82,781	79,893.00	2,888.00	85,928	28,236	381	51,276	-3,147
		4/27/2023 10:30:56 AM	4/27/2023 3:06:48 PM	0.48	0.30	0.79	13,592	11,967.00	1,625.00	12,716	5,365	46	6,556	876
	BouKrkKoudPl4 Total			0.47	0.30	0.79	192,093	183,183.00	8,910.00	194,028	45,159	930	137,094	-1,935
	BouSchrZelfDo6	4/23/2023 10:15:59 PM	4/24/2023 8:55:25 AM	0.56	0.45	0.79	822	415.00	407.00	0	402	3	10	822
		4/24/2023 8:55:25 AM	4/24/2023 10:33:15 PM	0.51	0.45	0.79	26,551	20,938.00	5,613.00	21,269	19,635	68	1,235	5,282
	BouSchrZelfDo6 Total			0.54	0.45	0.79	27,373	21,353.00	6,020.00	21,269	20,037	71	1,245	6,104
	BouSchrZelfPl3	4/26/2023 1:36:17 PM	4/26/2023 2:41:32 PM	0.41	0.45	0.79	2,638	2,322.00	316.00	1,407	2,286	5	31	1,231
		4/26/2023 2:41:32 PM	4/27/2023 10:30:56 AM	0.43	0.45	0.79	32,046	28,121.00	3,925.00	33,066	26,133	104	1,884	-1,020
	BouSchrZelfPl3 Total			0.42	0.45	0.79	34,684	30,443.00	4,241.00	34,473	28,419	109	1,915	211
Flessenlijn 1 - Total				0.47	0.39	0.79	254,150	234,979.00	19,171.00	249,770	93,615	1,110	140,254	4,380

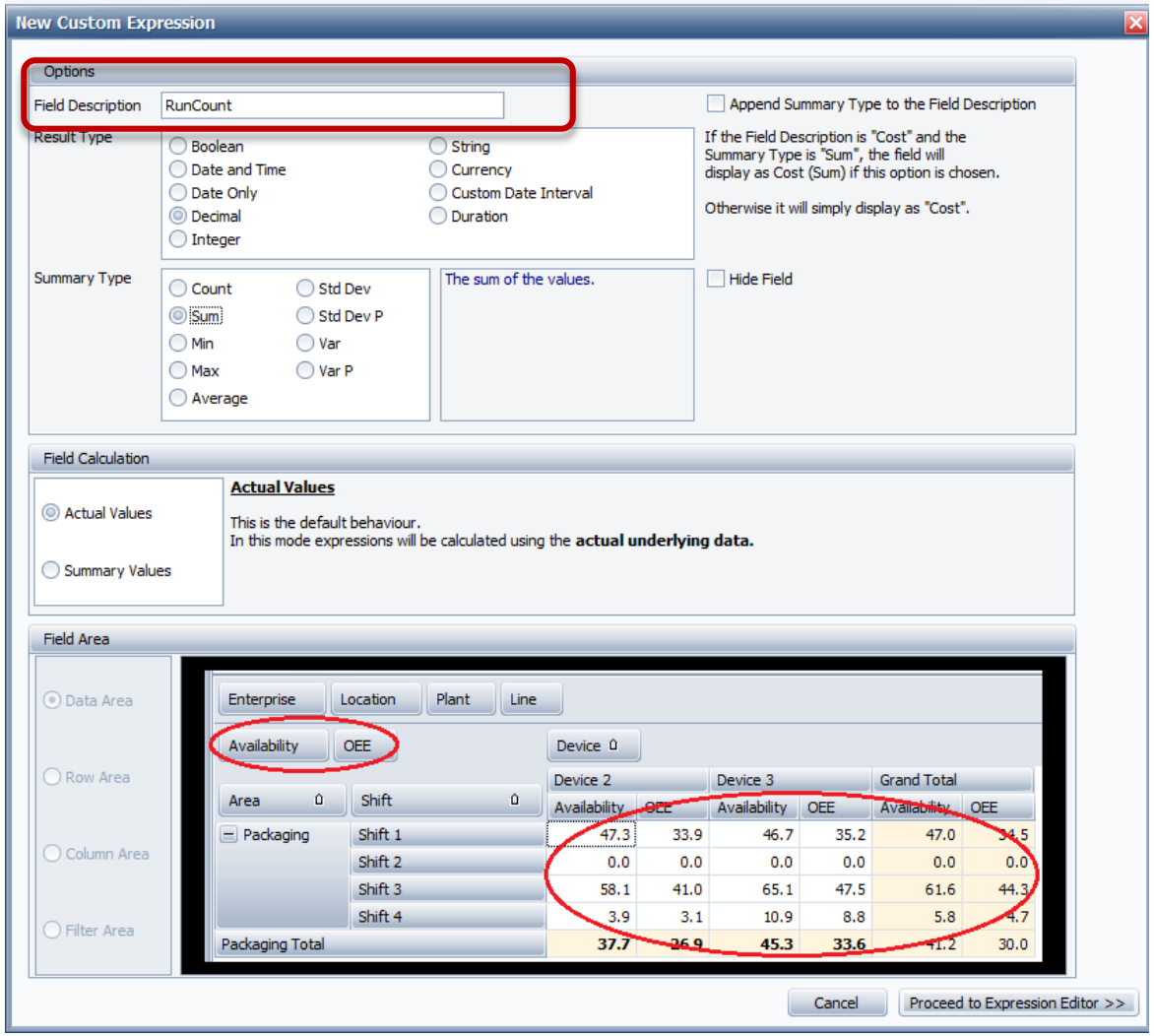
Next, we add the following fields to the display:

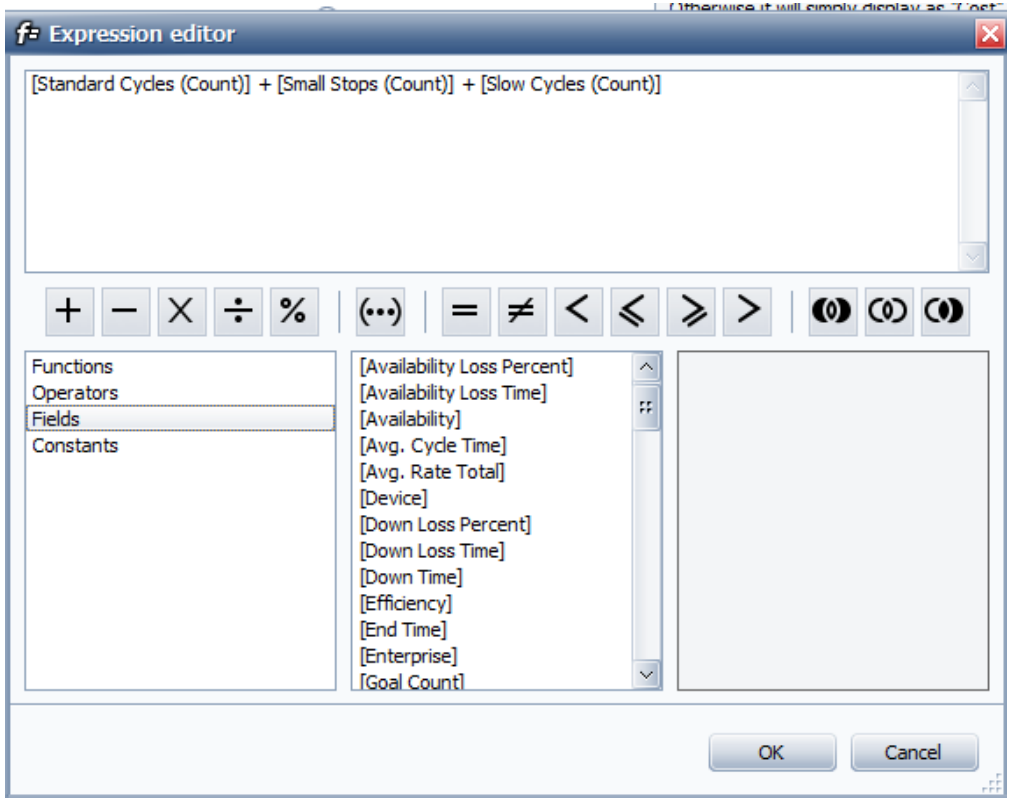
Total Count, Good Count, Standard Cycles (Count), Small Stops (Count), Slow Cycles (Count) and Reject Count (https://oeestudio.com/images/tooltips/PivotGrid-ShowHideFields.png)

Then we create 2 Custom Fields called **RunCount** that sums the three cycle counts above and another that calculates the difference (**CountDiff**) between Total Count and RunCount. (https://www.youtube.com/watch?v=SK6LxaVkj7M)

Create Custom Field - RunCount

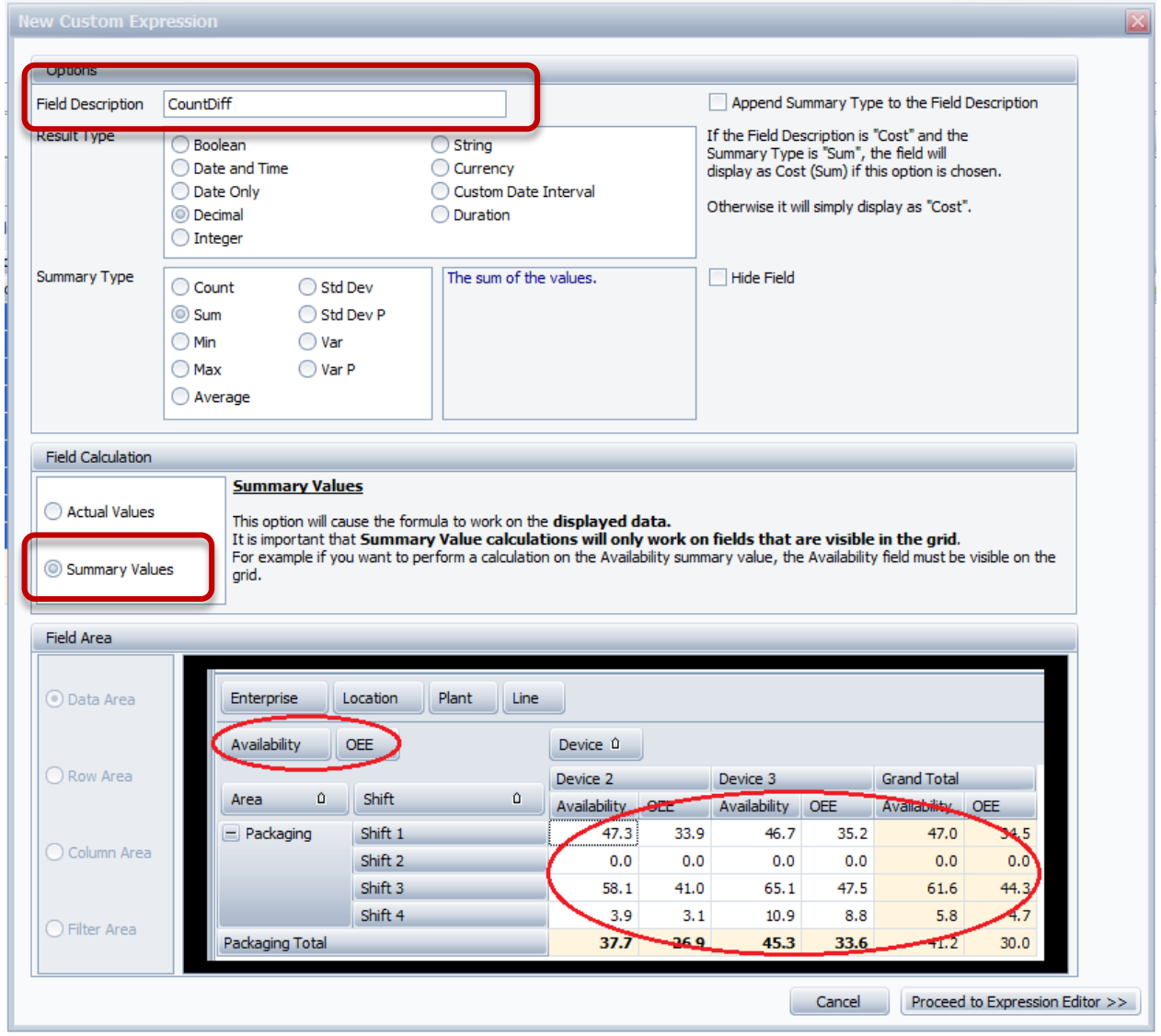
1. Create a custom field called **RunCount**
2. Result Type = **Decimal**
3. Summary Type = **Sum**
4. Click Proceed to Expression Editor
5. This field makes it easier to analyze the numbers





Create Custom Field - CountDiff

1. Create a custom field called **CountDiff**
2. Result Type = **Decimal**
3. Summary Type = **Sum**
4. Field Calculation = **Summary Values**
5. Click Proceed to Expression Editor
6. We want to see the difference between Total Count and the number of Cycles to running.



Why are the Cycle Counts different than the Total Count?

Tabular Analysis | Grid Analysis

Default Colors | Custom Colors

Enterprise | Plant | SubType | Type | Scale Factor 1

A... | I... | T... | T... | R... | C... | G... | S... | S... | Sl... | R...

Drop Column Fields Here

Device	Part	Start Time	End Time	Grand Total										
				Avg. Cycle Time	Ideal Cycle Time	Takt Time	Total Count	RunCount	CountDiff	Good Count	Standard Cycles (Count)	Small Stops (Count)	Slow Cycles (Count)	Reject Count
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While I don't have the answer to this as it is specific to the factory and the products being manufactured.

You now have information that you can take to the teams to find out what is causing the cycles to be different than what is counted, is the Ideal Cycle Time correct for those products, and if they are, then they are not being run properly. If they aren't correct, then what needs to happen to fix that issue?

We also see negative reject counts. Are the inspected products being put back on the line before the count sensor?