OmniFab

Machine Insight

User Guide

Maintenance Manager Application

The Maintenance application records operational times and maintenance events for various systems of the cutting machines.

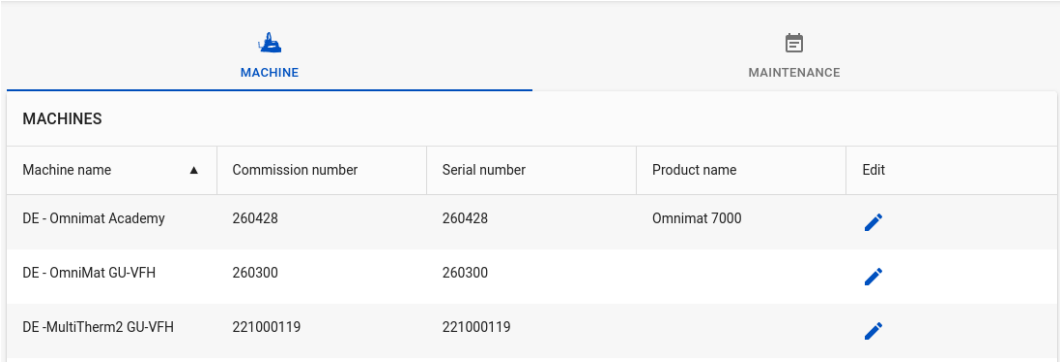
It allows the registering of parts per machine and the sending of notifications for parts that get close to their expected lifetime.

The application uses a combination of recorded usage time and computed estimated time in order to make predictions about when a part is most likely to reach its lifetime.

An user with the role of Administrator / Service Technician is required in order to access the application, through the Maintenance card on the landing page:

1 Defining the models and parts for a machine

The first tab of the application is the machines tab, where all connected machines are displayed.



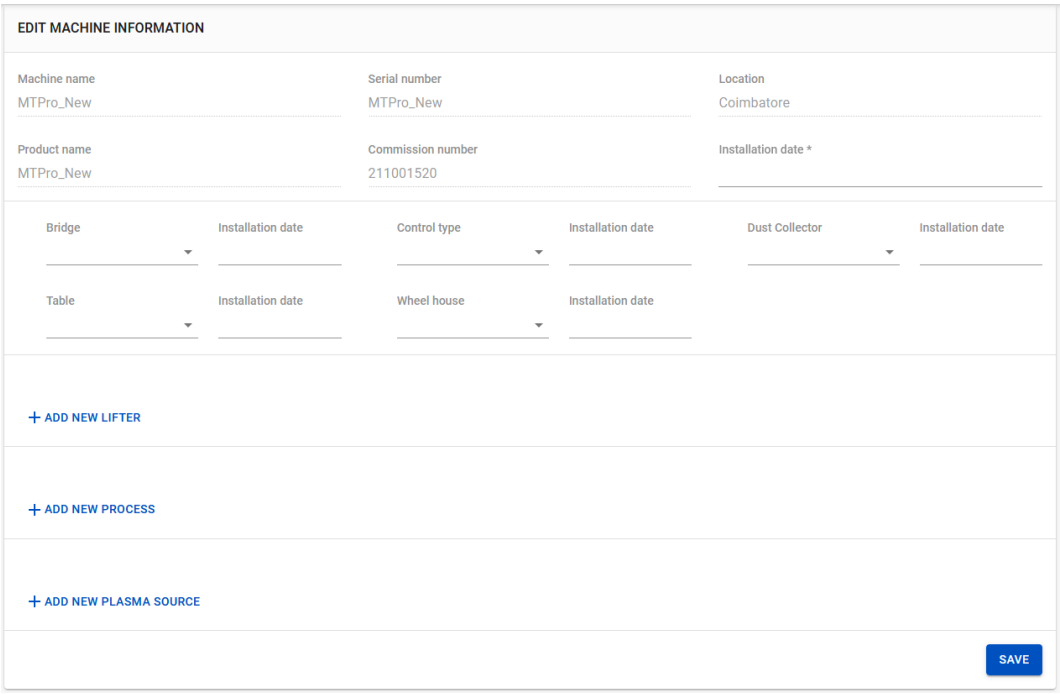
Clicking on the edit icon next to each machine will allow the configuration of models for each of the systems on the machine.

The systems include the Bridge, the Control Type, the Dust Collector, the Table, the Wheel House, any number of Lifters, any number of Processes and any number of Plasma Sources.

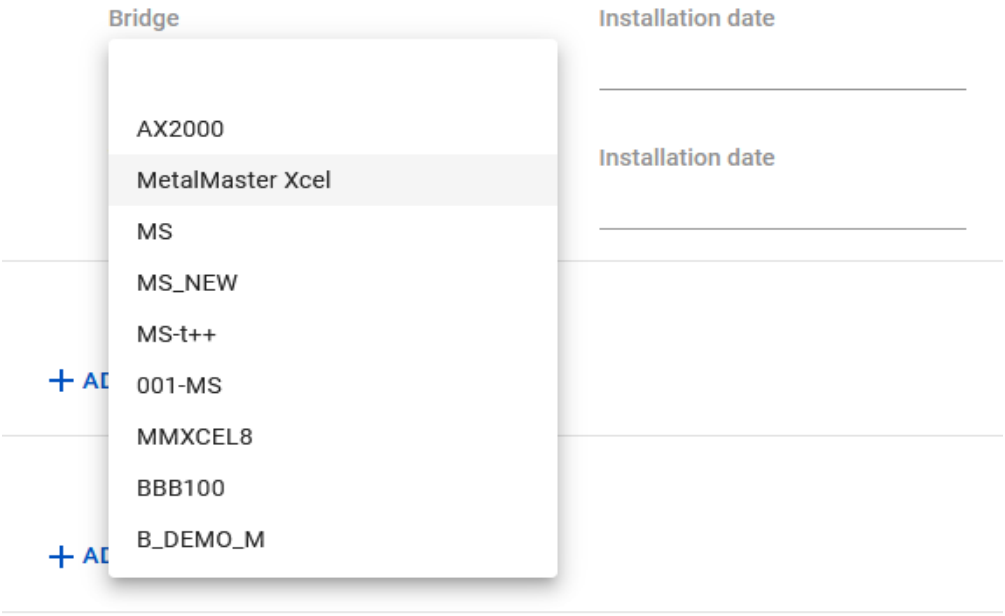
For example, one possible selection for the *Bridge* system is the *MetalMaster Xcel* model.

For each selected model there is an optional installation date field, which should be inserted if known. Otherwise, the installation date for a system / model will be set as the machine installation date.

The installation date will be automatically assigned to the parts belonging to the selected model and will be used in the computation of the part's remaining lifetime (view in next chapter)

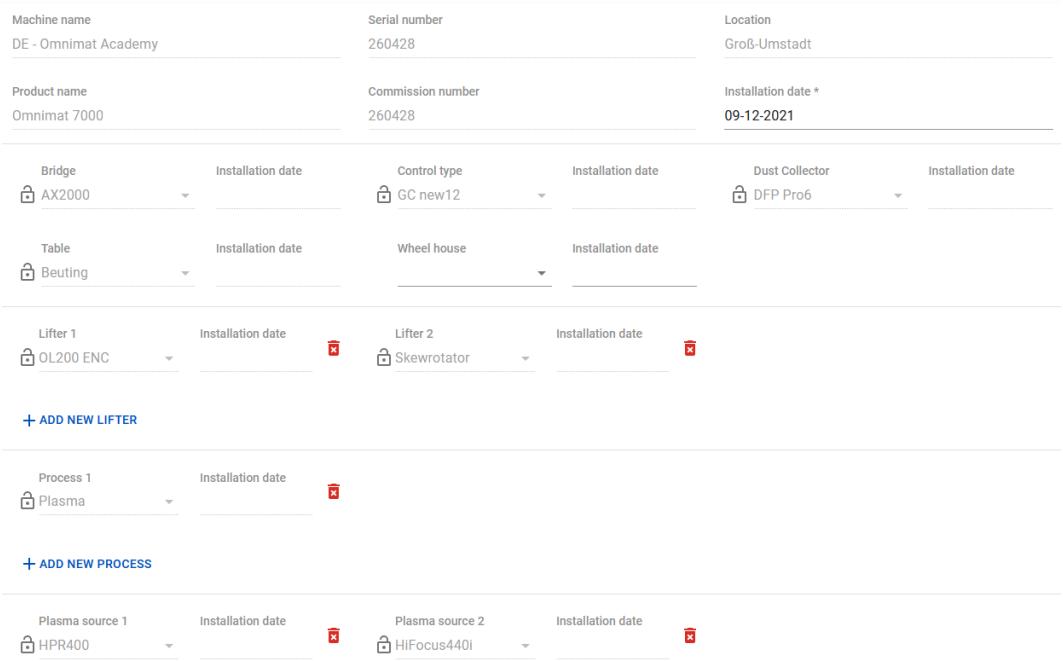


Every system has a list a predefined models from which to choose. These models have been predefined by Messer on a per region basis. Each model in turn has a list of parts.



After the configuration has been saved, the models or their installation date cannot be changed without explicit confirmation, since there may have already been time recorded for the selected models. In order to change them, click on the lock icon next to each selected model, which will prompt the confirmation.

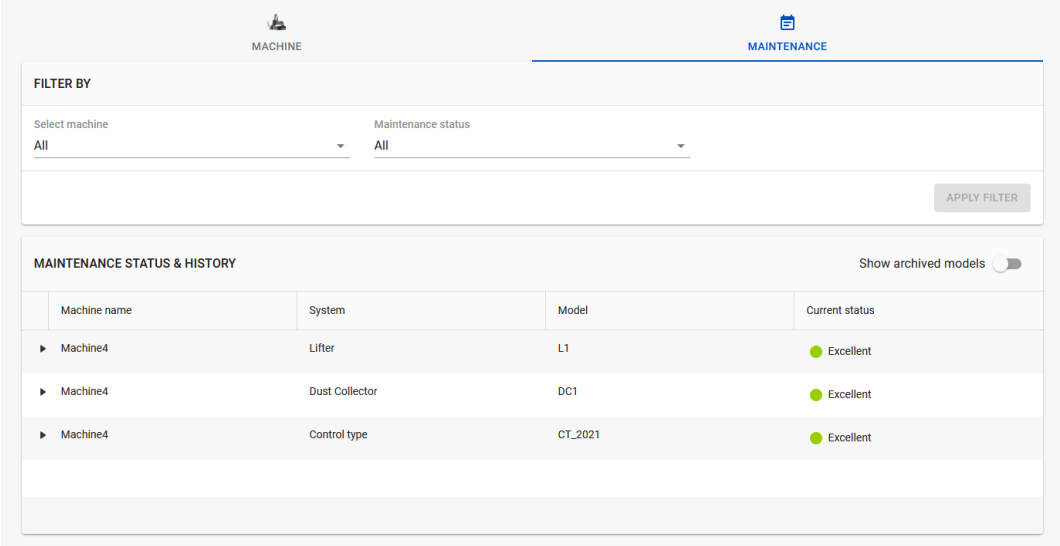
If a model is changed, then all operational times recorded for the parts belonging to the previous model will be archived. They will still be accessible in the maintenance tab under *Show archived models* (view in next chapter)



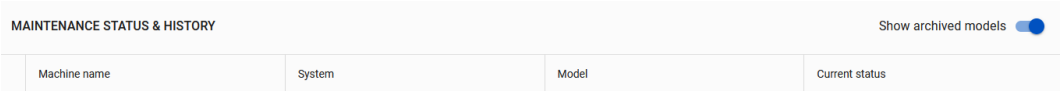
After saving the configuration for a machine, all the parts corresponding to the selected models will be automatically assigned to the machine. They will be visible in the second tab of the application.

2 Viewing the current status of parts and their maintenance history

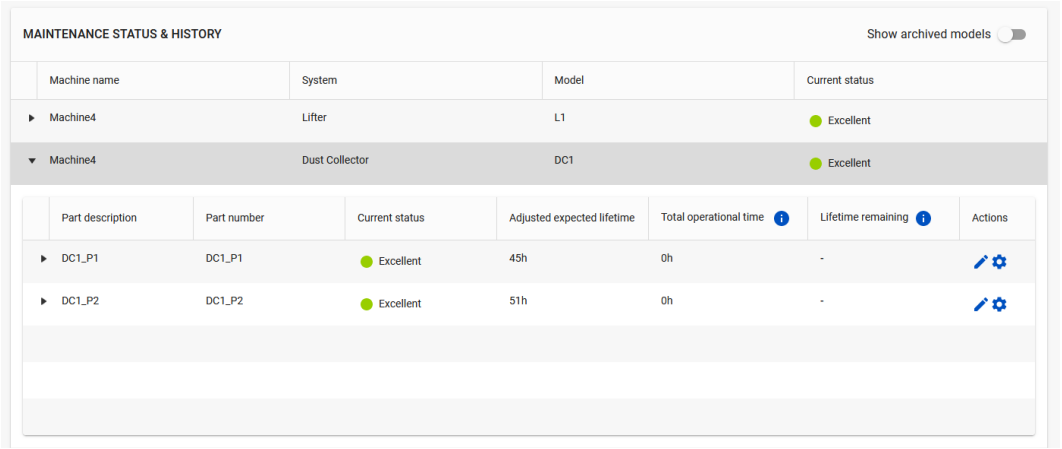
The second tab of the application opens up the maintenance status & history for all models on all machines. The results can be filtered by machine and / or by status.



The Maintenance status & history tab also has the option of displaying archived models (together with their corresponding parts and their maintenances) - models that were at some point assigned to a machine and that were later changed or removed from the machine; the feature is accessible by pressing the *Show archived models* switch:



Each individual line in the table (in both non-archived and archived mode) can be expanded to show the parts belonging to the selected model.



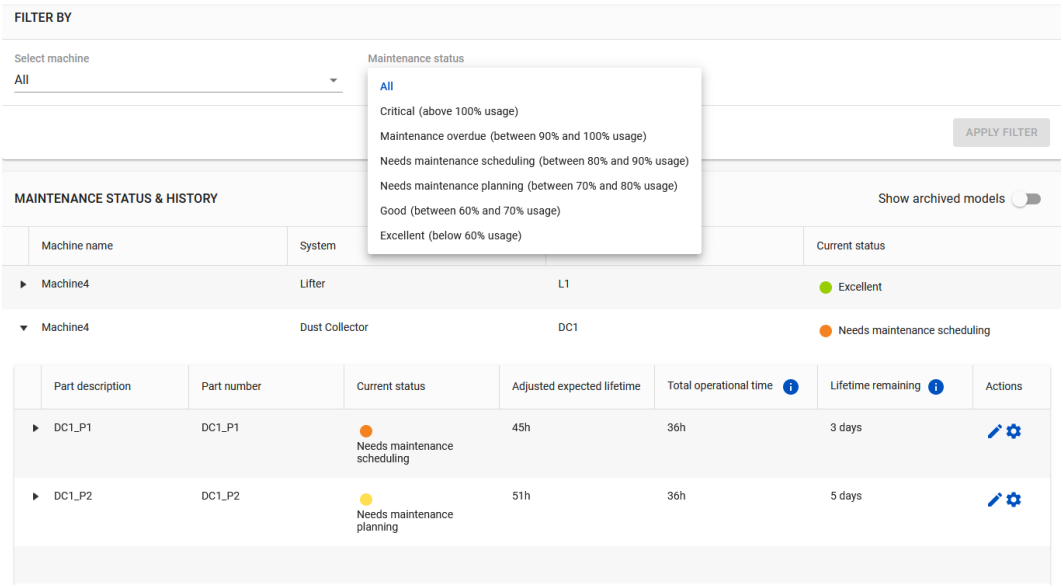
Once the operational time starts to get recorded per part and reaches certain thresholds, the status of the part will change, and in turn the status of the whole model will change.

The possible statuses are:

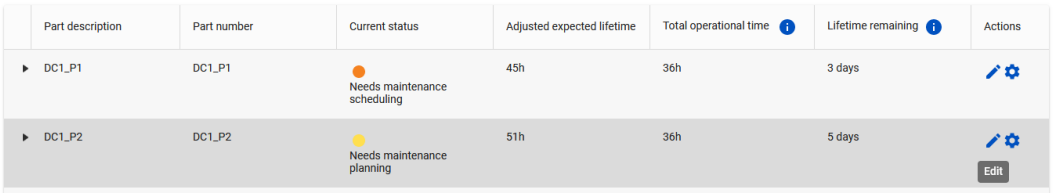
- **Excellent** (part is estimated to still be bellow 60% of its lifetime)
- **Good** (part is estimated to have reached about 60%-70% of its lifetime)
- **Needs maintenance planning** (estimated to have reached about 70%-80%)
- **Needs maintenance scheduling** (estimated to have reached about 80%-90%)
- **Maintenance overdue** (estimated to have reached about 90%-100%)
- **Critical** (part is estimated to have reached its lifetime)

All the statuses are estimated, since they are computed not only based on the actual recorded time, but also on the estimated operational time since the part installation date.

The status of the model is given by the most critical status of any of its parts. In the picture below, the status of the *DC1* model for the *Dust Collector* system is *Needs maintenance scheduling* because that is the most critical status out of its two parts.



Each part has an edit action:

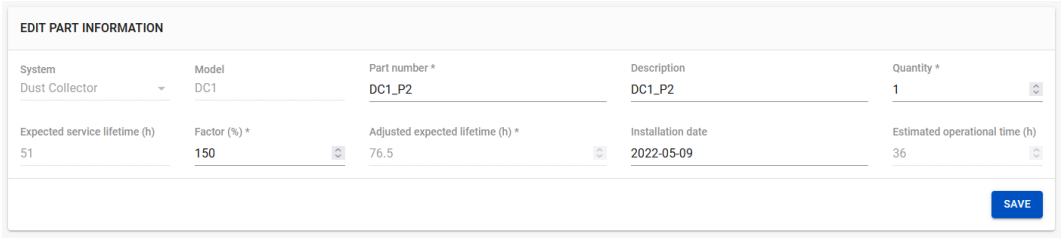


On the part edit page you can:

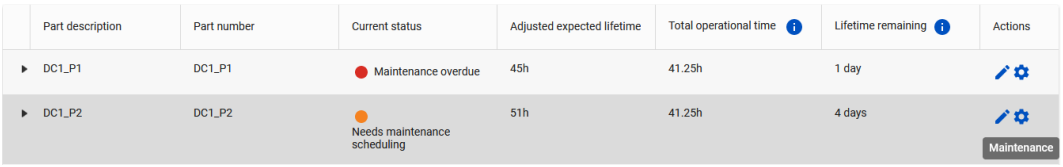
> Adjust the part's expected lifetime (against which the status and the remaining lifetime are computed) by modifying the *Factor* field. Any value greater than 100% entered in this field will result in the *Adjusted expected lifetime* being larger than the designated *Expected service lifetime*

> Change the part's installation date that was automatically inherited as either the model's installation date or the machine's installation date (view in previous chapter). Changing this date will also recompute the *Estimated operational time*

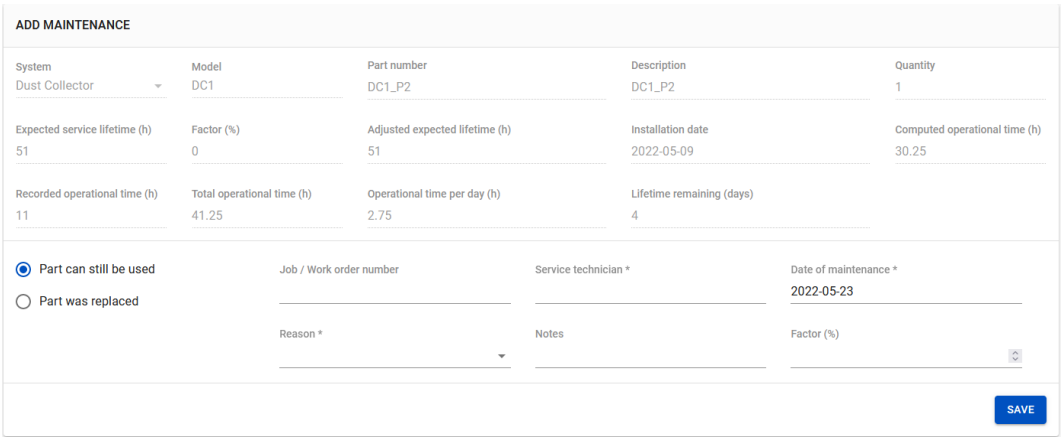
> Update the number of items of the same part type (if the model contains multiple parts of the same type), by modifying the *Quantity* field



Each part also has a maintenance action:



Clicking on it will bring up the part's maintenance screen:



The top section of the maintenance screen displays all the details about the part. Some of the fields are also present on the edit part page and were already discussed, while the meaning of the rest of them is as follows:

> *Installation date* represents the part's installation date, that was defined either on the part itself, or on the model to which it belongs, or on the machine

> *Recorded operational time* represents the real operational time recorded for the part

> *Operational time per day* represents the part's daily average number of operational hours, computed as the total number of recorded hours since the first date when the recording started, divided by the number of days that passed since that date. If nothing was yet recorded, than the next fields that are described in this section will not be computed, as they rely on this average operational time per day.

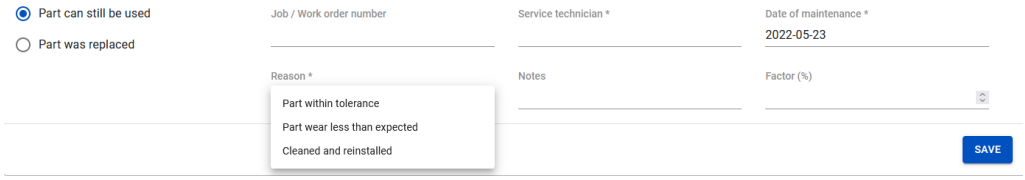
> *Computed operational time* represents the estimated operational time in hours since the part's installation date; it is computed as the operational time per day multiplied by the number of days between the part's installation date and the date of the first recording of operational time

> *Total operational time* represents the sum of recorded and computed operational times; if the computed operational time cannot be estimated (because of unavailable operational time per day), then the total operational time is the same as the recorded operational time

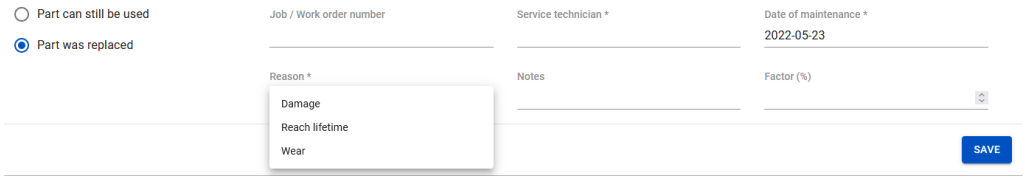
> *Lifetime remaining* represents the sum of recorded and computed operational times

The bottom section of the page allows defining maintenance events. There are two types of maintenance options:

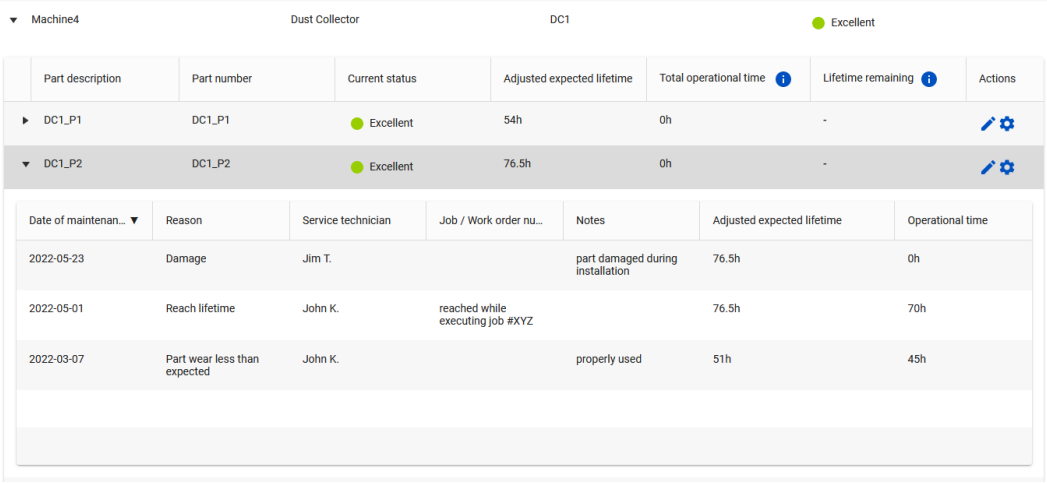
> **Part can still be used** - a service technician did a maintenance at a certain date (prefilled with the current date) and concluded that the part can still be used (for the reason selected); within this event, the factor can also be changed, resulting in an updated adjusted expected lifetime for the part



> **Part was replaced** - a service technician did a maintenance at a certain date (prefilled with the current date) and decided for the replacement of the part ; the factor can also be changed, resulting in an updated adjusted expected lifetime for the part; for this type of maintenance, the part's recorded and total operational times get reset to zero and its status gets reset to *Excellent*



Once there are maintenances for a part, they can be viewed by expanding the part line:



3 Notifications

The application allows for setting up maintenance notifications that will be received by email.

You can set up maintenance notifications by clicking the *Notifications* entry of the profile menu and then scrolling down to the *Notifications per maintenance* section.

Select the machines for which you want to receive notifications - they will be triggered when any of the machines' parts arrive in the *Mainteannce overdue* or *Critical* statuses.

The subject of the notification email will be *[OmniFab Machine Insight] MachineName: Maintenance Status report is available*.

The contents of the email will include all the machine's parts which are in *Mainteannce overdue* or *Critical* status, not only just the one that has triggered the sending of the notification.

MESSER SOFT

Report	Maintenance Status	Customer	messer-cutting.com
Machine name	Machine4	Location	Groß-Umstadt
Commission number	5870	Created on	2022-05-30 10:00
Serial number	5870		

Maintenance Status

System	Model	Part description	Part number	Quantity	Expected lifetime	Last maintenance	Maintenance status	Remaining operational time
Control type	CT_2021	151	CT314	2	11.0h		Critical	3.5h
Control type	CT_2021	ndc	CT_MOV	1	14.0h	2022-05-23	Critical	1.0h
Control type	CT_2021	CTR	CTR	14	15.0h	2022-01-16	Critical	12.0h
Lifter	L1	L1_P1	L1_P1	1	13.0h		Critical	6.33h
Lifter	L1	L1_P2	L1_P2	1	12.0h	2022-03-12	Critical	5.33h
Lifter	L1	lifter Yin model L1	PS LIFT	1	10.0h	2022-05-23	Critical	3.33h