Scheduling Time Constraints

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During a certain production process, it may be necessary to impose maximum and/or minimum time limits between Steps, consecutive or not. An easy example of this is the mold operation during the semiconductor backend production process:

- There is a minimum time limit during which the mold compound is being warmed up to the ambient temperature before it can be used.
- There is a maximum time limit for its consumption, after which, the Material expires and must be scrapped.

This sort of logic can be implemented in scheduling through the use of Time Constraints. In order to implement Time Constraints, three conditions are required:

- The Steps that mark the beginning and the end of the Time Constraint must belong to the schedule universe.
- The Steps that mark the beginning and the end of the Time Constraint must have the Enable Time Constraints property activated.
- The Time Constraint Context must give either/both a maximum or a minimum type time constraint between these two Steps.

Filling in the Time Constraint Context

Since the Time Constraint Context table can be used not only for scheduling purposes, but to apply minimum and maximum time limit validations during execution, only some of its fields are taken into consideration by scheduling. These are:

- From Step - the starting Step of the Time Constraint.
- From Operation - the operation of the starting Step where the clock starts running for the Time Limit.
- To Step - the ending Step of the Time Constraint.
- Type - whether this is a maximum or minimum time limit.
- Time Limit - the value for the time limit, in hours.

Info

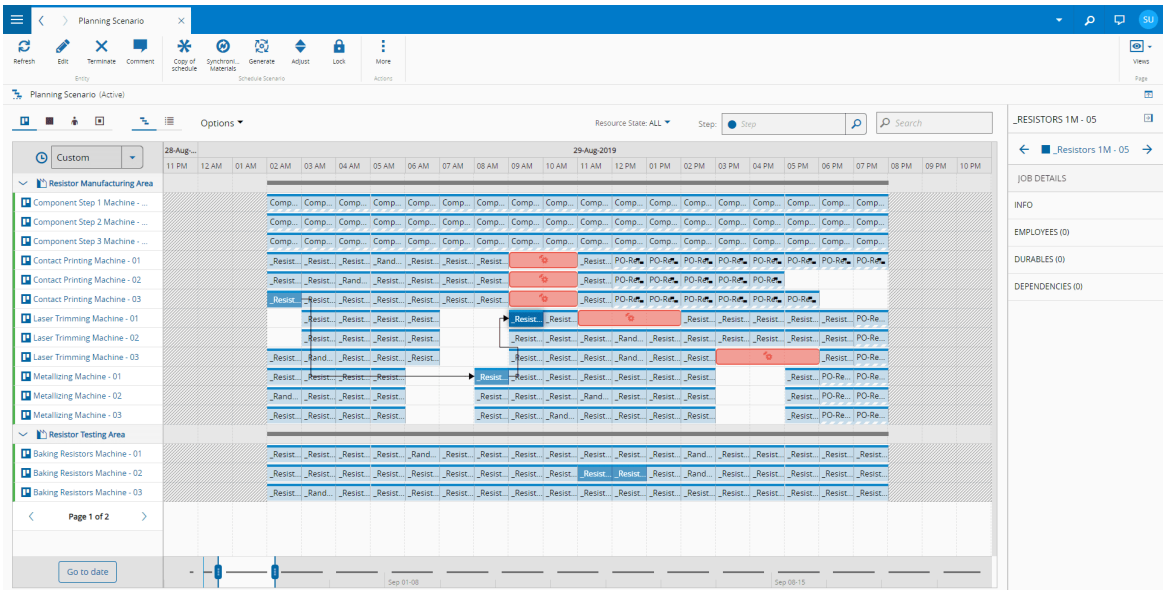
Although there is a to Operation field in the Time Constraints Context table, this is used for execution only; for scheduling, it is assumed that the clock stops running at the Planned Start Date (*Track-in*) of the To Step.

Warning

Although it is possible to give both a maximum and a minimum Time Constraint between the same pair of Steps, the From Operation Field must be the same for both Time Constraints (either both start the clock at the *Track-in* or both start the clock at the *Track-Out*). Otherwise, an exception will be thrown.

The following picture shows a minimum type Time Constraint given between the Contact Printing Step and the Metallizing Step, with a Time Limit of 5 hours, being measured from the Planned End (*Track-Out*) time of the Material in the Contact Printing Step. The delay between the execution of the two Steps within the

same Flow, when there is no Resource availability constraint (no other Schedule Scenario Job blocking the Metallizing Resources immediately after the first Job) is attributed to this Time Constraint.



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