



Deliverable Report

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lineDissemination level: Restricted
Title: Feasibility demonstration for developing gluing machine

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Executive Summary and Conclusion

In Deliverable 3.1.1. we've determined the specs for the gluing equipment for 60 cells. This deliverable does the same for 120 cells and also considers the manufacturing line for the laminates.

A lot has happened since this deliverable was defined. The most important issue is that Eurotron and their demo line have departed from the consortium. Eurotron's solution is not the standard in the market, in fact Eurotron's backcontact production technology has not been implemented by PV module manufacturer in Europe until now. This means that from now on we have to work with "normal" production lines and laminates utilizing H-pattern cells. Furthermore, a smart design change led to the possibility to combine 2 laminates of 60 cells to one large panel of 120 cells. In our opinion an ideal (must have) solution, because first, the large thermally tempered glass units for 120 cells modules were very difficult to obtain (and quite expensive) compared to utilizing 2 x 60 cells laminates. Second, without Eurotron we can't find suppliers that just change their entire production site for a relatively limited number of panels given the current market introduction- and demonstration stage. As a result, Rimas came up with a very flexible gluing- and assembly equipment configuration and layout to be installed directly after an existing production line or at a separate location without having to change anything to the existing PV module production line. One technical aspect we still have to take care of for the assembly step is that we now also use glass-glass laminates from different suppliers and Task 3.4 and Task 4.3 experience has shown the glass-glass laminates are often somewhat warped/curved. In order to make these long-life glass-glass panels we will have to do feasibility tests on how to flatten these panels and see if there is a way to do scale this.

Next to that, the module rear side design and mounting principle has also been greatly improved. This means that the back side construction for the 60 cells (BIPV) and 120 cells (flat roof) panel are very similar. This has a huge advantage for the gluing machine since the setup can be the same for both solutions. For the lay-up part this is however a different story. More research here is needed. Pressing the 120 cells module size is possible but not yet ideal because the equipment size needed to be very compact in view of available space in the TULiPPS factory. In the future, as a next step, this can easily be further improved.

Since there are hardly any specification differences between the 60 and 120 cells module version we refer to our finished Deliverable D3.1.1 being applicable for 120 cell modules as well. This summary provides a good overview what is required in general terms on top of Deliverable D3.1.1. and in addition we refer to Deliverable D3.2.2 for detailed design updates for the final and complete WP3 gluing- and assembly equipment.

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