



INAVENTA SOLAR

SHAPING THE FUTURE OF SOLAR HEATING



Research for a better future

Inaventa Solar | Background

Inaventa Solar was established in 2019, as subsidiary of the company “3 Norske”, a group of several flagship Norwegian industrial enterprises. 3 Norske is owned by a Norwegian leading investor within both traditional and *green revolution* industry.

What we offer

A cost effective and aesthetically appealing solar collector made of a high performance polymer material. A complete solution for using solar collectors to gather heat from the sun.

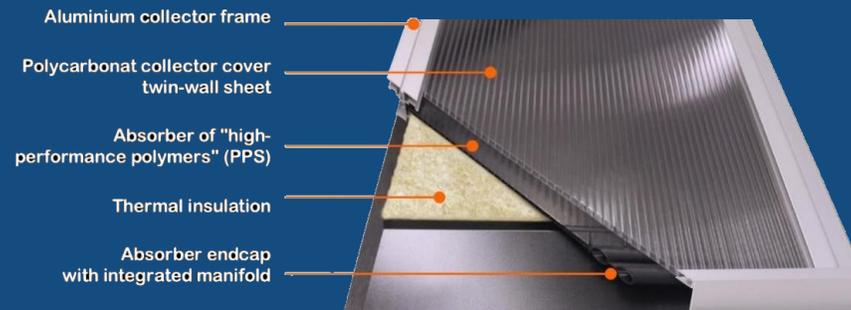
The solar systems can be used in a range of applications, from small-scale domestic hot water production, to large-scale solutions covering hundreds of square metres of





Our innovation – replace metals with polymers

Inaventa Solar is the first company worldwide to produce solar collectors of high-performing polymers. Reduction in weight, and better chemical sustainability are key benefits of such a shift; as is the fact that large-scale industrial processing techniques have already been developed for polymeric products. Solar collectors in metals are produced piece by piece with fixed spatial dimensions. Solar collectors of polymer materials can be produced in continuous processes and easily be adapted to a variety of dimensions and to customers' requests.



- Lower total cost of ownership (TCO)
- Light weight-easy to handle
- Aesthetic building integration
- Cost-efficient retrofitting of existing buildings

Possibilities/Usage areas

Heating

Residential housing, hotels, indoor sports arenas, institutions, refugee camps.

Airport infrastructure, outdoor sports arenas.

Combination with district heating for de-carbonisation of urban areas.

Production and processing

Agriculture and food production, drying of food crops, green houses.

Increase growth rate and productivity in fish farming.

Drying of materials such as concrete and wood.

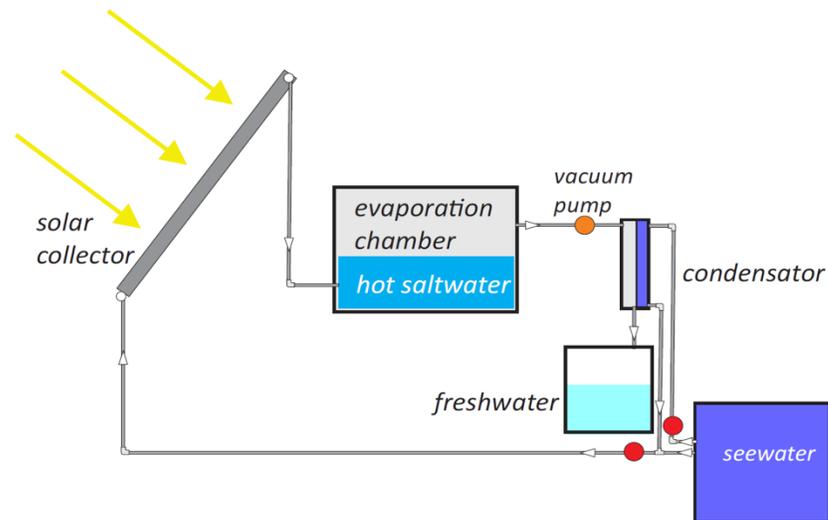


Desalination

Inaventa Solar collectors with absorbers of high performance polymer materials (PPS) can operate at temperatures up to 160 °C.

It has proven to withstand salted water with a salt concentration of 20% at boiling temperature.

We expect therefore that the collector is ideal for application in desalination plants.

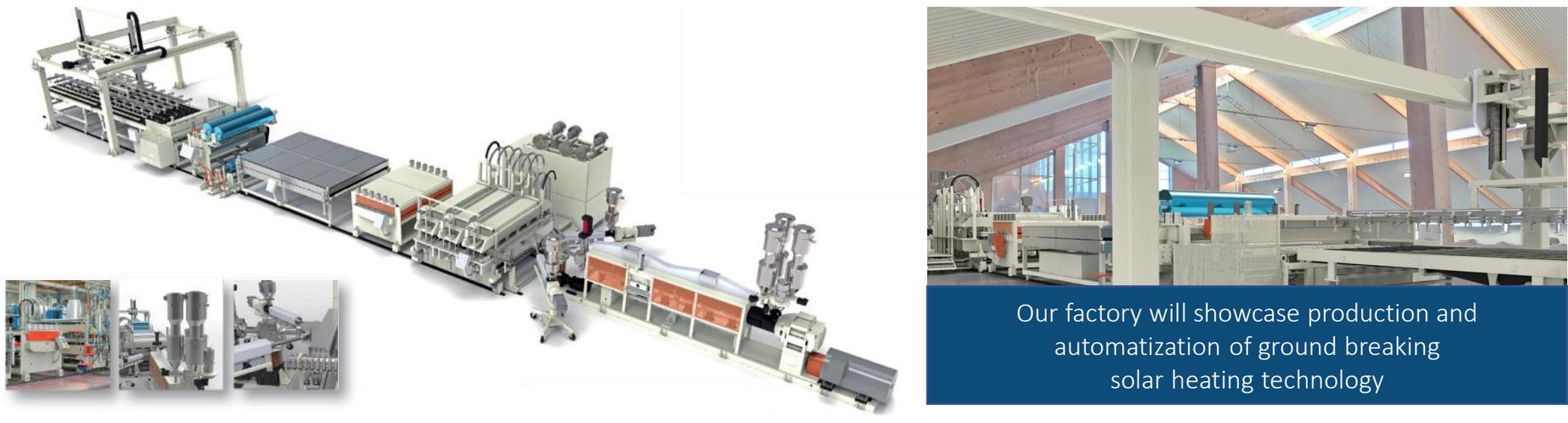


Production process – extrusion

World first production line for extrusion of high performance polymers (200°C).

IFE & Inaventa Solar

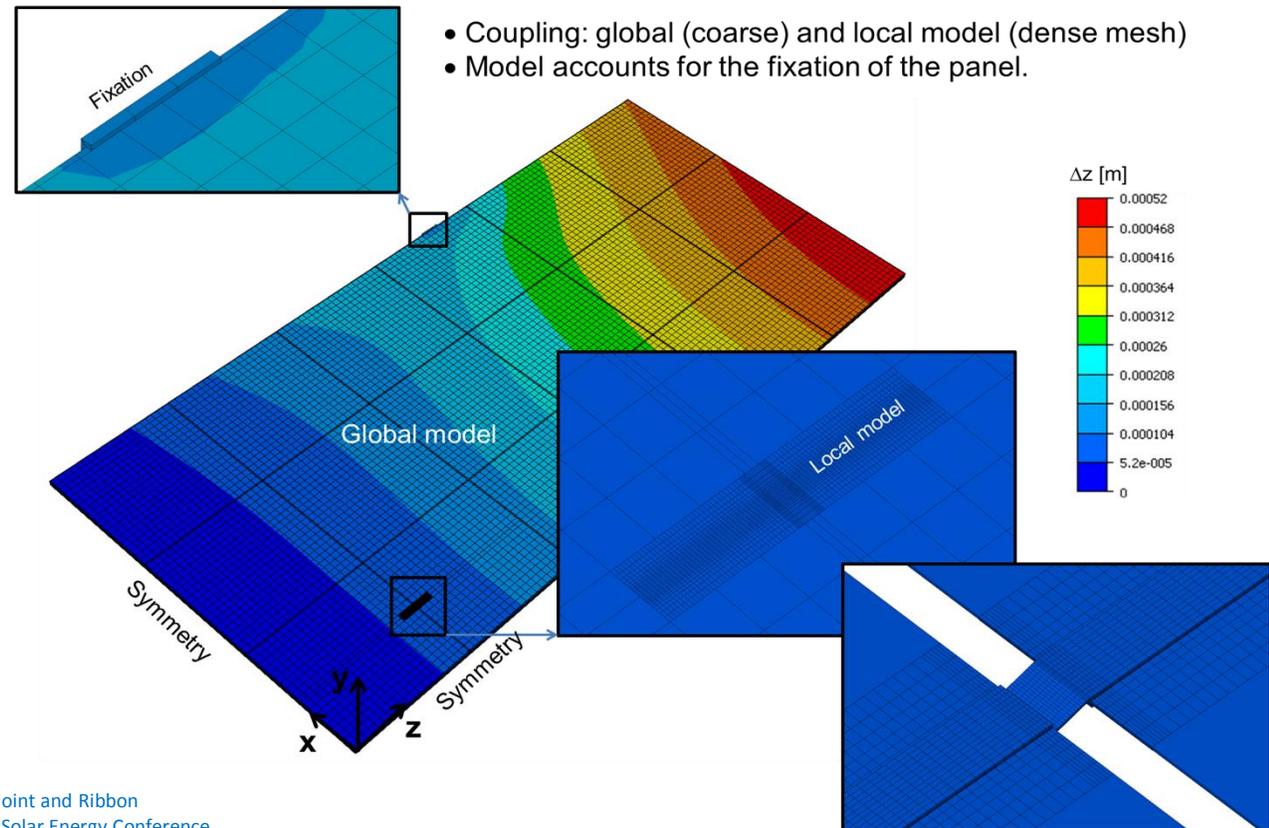
Digitize the production (digital twin): Modelling the processes, secure continuous optimization and quality



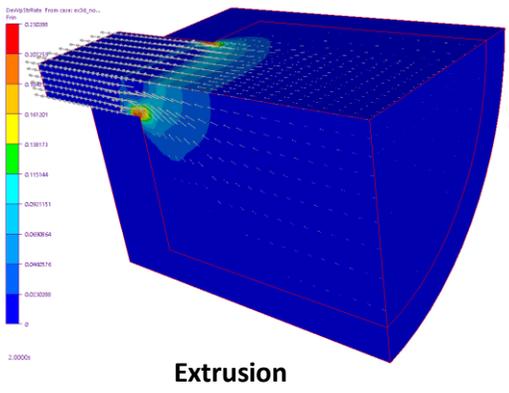
IFE works with industry partners to develop processes by using material physics and mathematical modelling

Example from Photo-Voltaic modules:

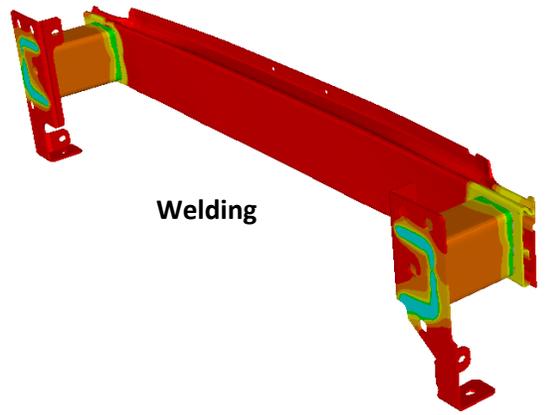
- Thermomechanical fatigue of solder joint and interconnect ribbon
- Stresses and displacements in module components.



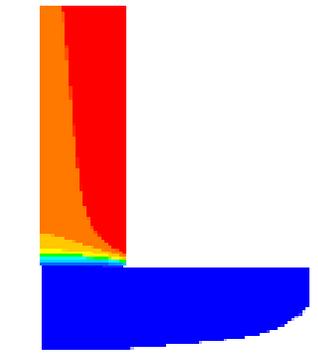
Selected examples of existing Material Processing Models developed by IFE



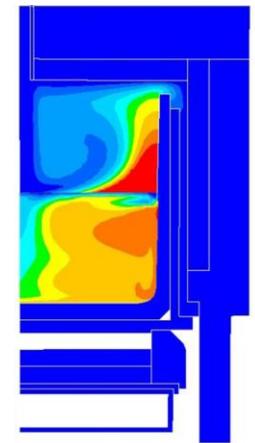
Extrusion



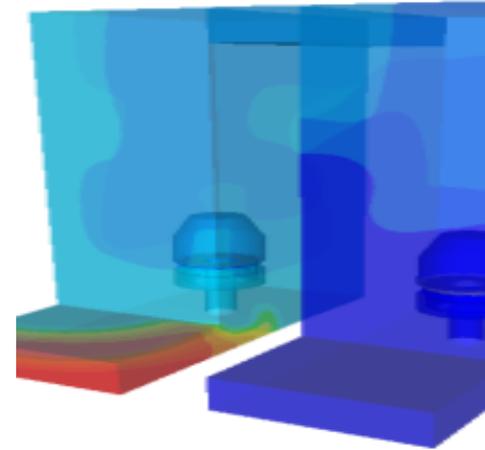
Welding



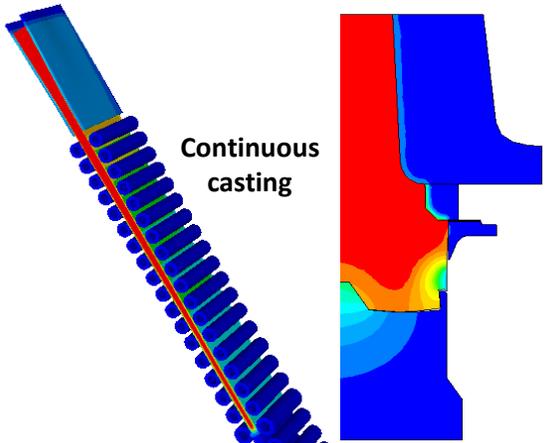
Monocrystalline materials



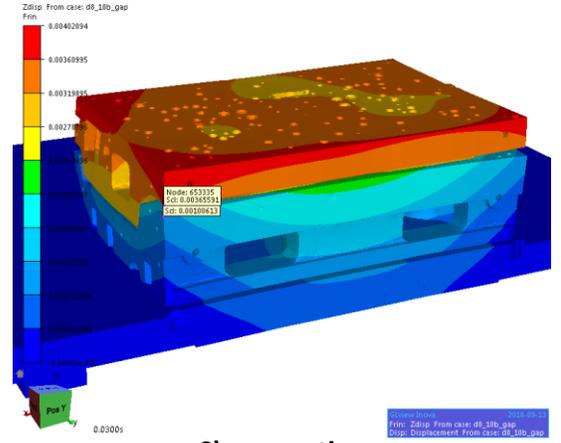
Gas liquid interaction



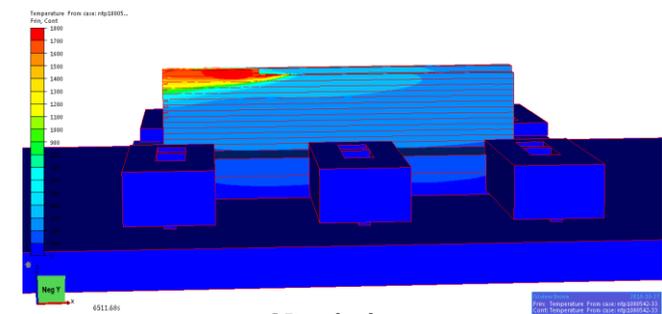
Melt cleaning



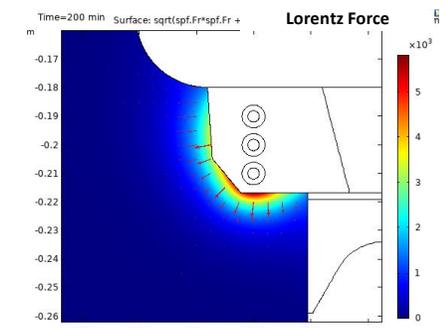
Continuous casting



Shape casting



3D printing



Induction field stirring

Desalination with solar collectors of high performance polymers



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