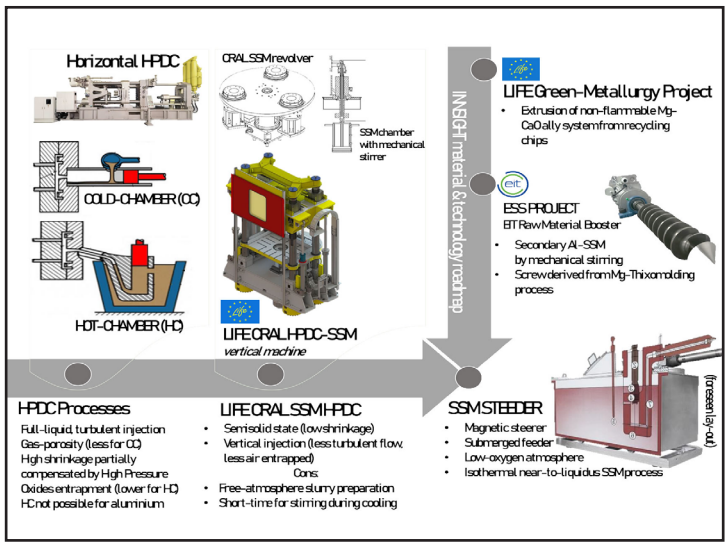
SSM-STEEDER

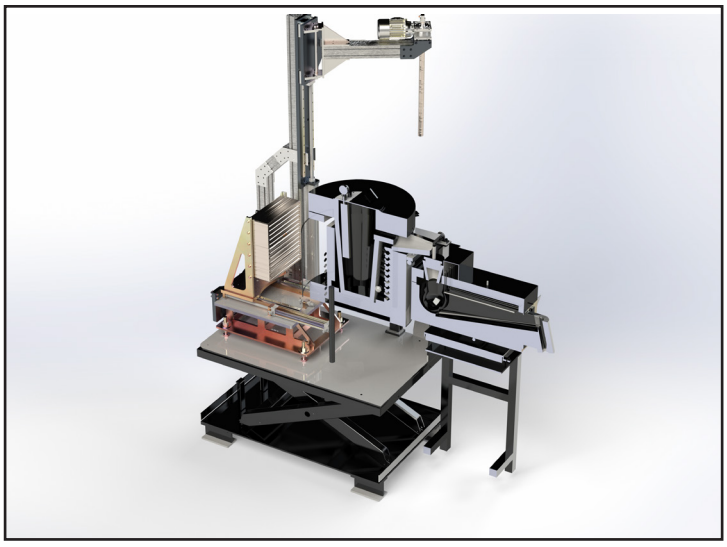
The project

SSM-STEEDER is the innovative apparatus and semisolid process that finally **allows the market adoption of Al and Mg up to 100% from recycle to manufacture high quality light components** for a sustainable EU transport sector. The project involves:



key solutions:

- A novel semi-solid casting process route (namely Iso-Thermal Magnetic SemiSolid Material - SSM) with industrially demonstrated and approved parameters to guarantee metallurgical and mechanical properties by aluminium and non-flammable magnesium up to 100% from recycle.
- The innovative SSM-STEEDER auxiliary apparatus to equip potentially all pressure die-casting machineries to produce high quality, even critical and structural components primarily for automotive (e.g. brakes calipers, disks, pumps, suspensions, engine components, powertrain cases,transmissions, heat transfers, also interiors, etc) and similarly for aviation, railways and electronics.



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EIT RawMaterials is supported by the EIT a body of the European Union

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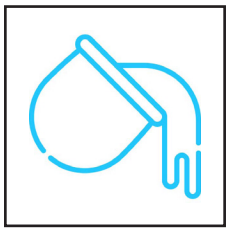
The innovation and Benefits

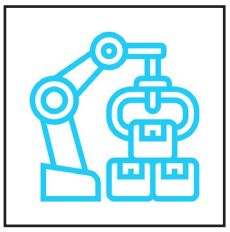
Two of the **most considered raw materials for light-weighting** are **aluminium** and **magnesium** with highly increasing adoption together with the die-casting market and out-pacing traditional materials such as steel. However, **neither Al nor non-flammable Mg are exempt from relevant drawbacks**, both as primary and as secondary sources, in terms of **environmental sustainability, achievable mechanical properties and metallurgical quality** especially when **recycling routes** are considered. Also the current technologies have significant drawbacks in terms of cost and the opportunity to introduce recycled Al or Mg. All these gaps have a clear impact on **aerospace and automotive market** as they prevent the wide adoption of non-flammable Mg and Al from secondary sources.

From the strategic standpoint, SSM-STEEDER responds to very specific, clear market needs:

Improve metallurgy quality of both aluminium and magnesium cast parts by gravity and HPDC cast process with high recycling ratio

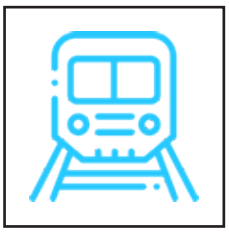


Innovate and simplify the Thixomolding manufacturing process for magnesium molded part by feeding thixo-machines by special non-flammable precursor semisolid magnesium stream

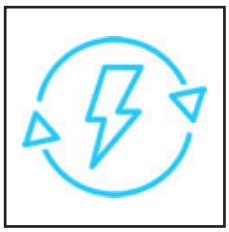


current die-casting machineries, the affordable SSM-STEEDER innovation without any impact on current industrial plants, technology and as-is product standars

Release for the OEM industry and their



Enhance metallurgy quality of cast alloys with high recycle ratio (up to 100% for aluminium material)



Innovate sustainable metallurgy processes throughout enhanced industrial energy efficiency and reduce indirect CO2 emissions in magnesium cast process

for more info please contact: projects@innsight.eu

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