



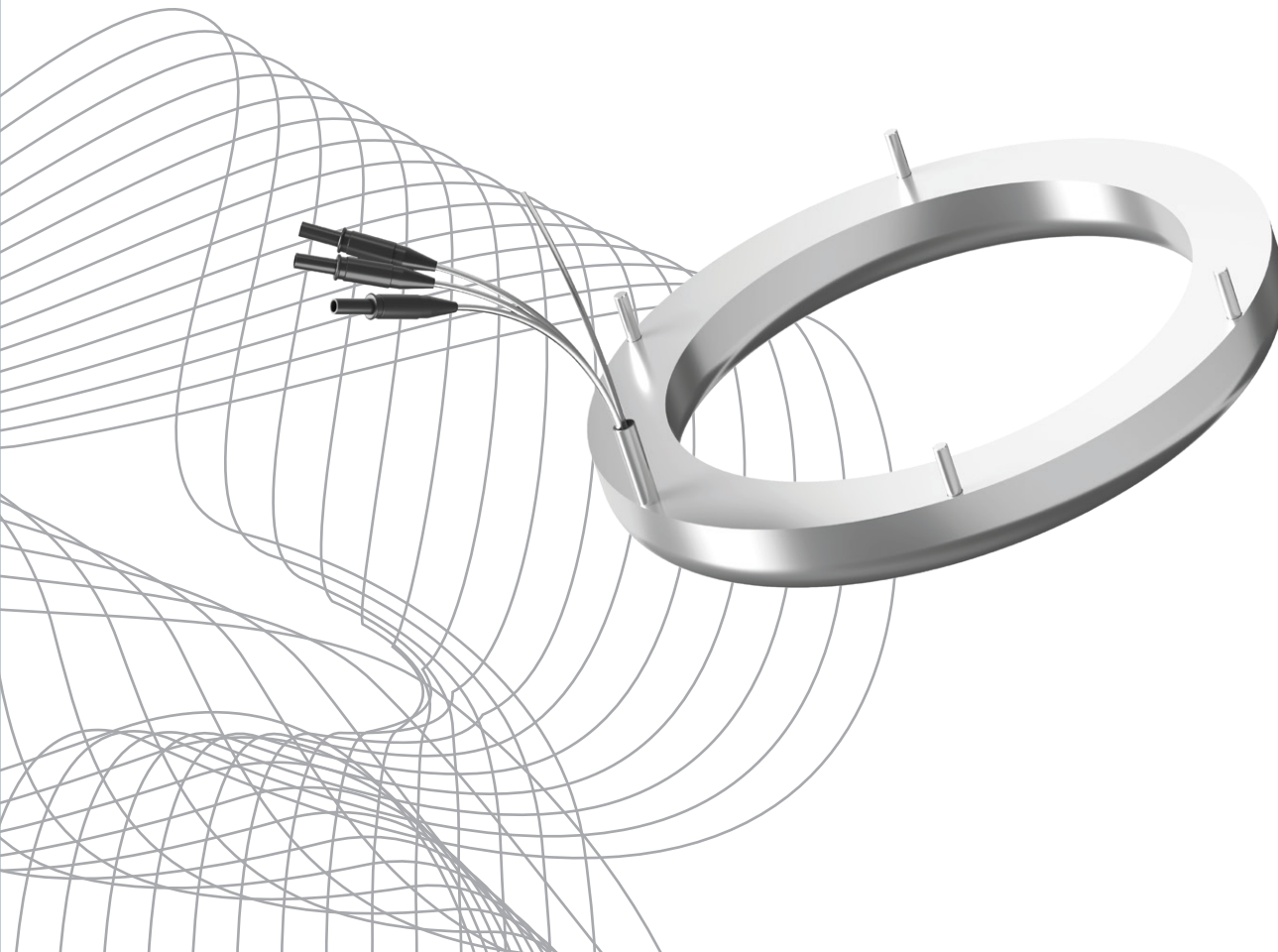
**ergolines**  
INNOVATION PARTNER

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## **HT-EMS – ELECTROMAGNETIC STIRRER FOR DIRECT CHILL ALUMINUM CASTING**

Direct chill (DC) casting is the most commonly used technology in the production of semi-finished products of aluminum alloys for plastic deformation process. After casting, a homogenization process is needed to enhance the material plasticity before the billet extrusion.

DC casting with HT-EMS technology application aims at the production of semi-finished products with fine globular structure to be extruded without intermediate thermal treatments.



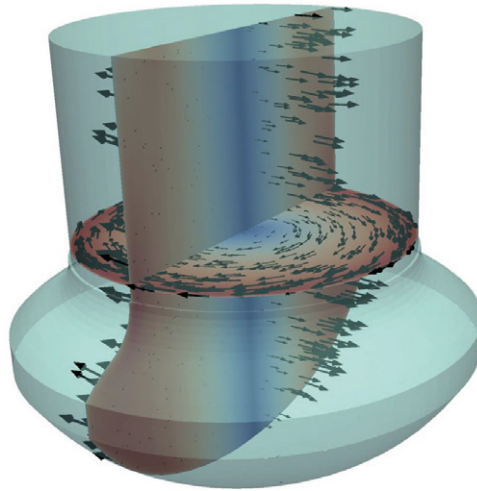
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## STIRRING BENEFITS

- › ENHANCED SURFACE QUALITY AND LOWER SUB-SURFACE SEGREGATIONS
  - › BILLET GLOBULAR STRUCTURE
  - › GRAIN REFINEMENT
  - › CHEMICAL HOMOGENIZATION
  - › ENHANCED HOT WORKABILITY
  - › NO HOMOGENIZATION NEEDED BEFORE THE EXTRUSION PROCESS
  - › REDUCED STRAIN HARDENING DURING EXTRUSION AND FORGING
  - › SAME MECHANICAL PROPERTIES OF EXTRUDED AND FORGED COMPONENTS EVEN WITHOUT HOMOGENIZATION
  - › POSSIBLE CASTING SPEED INCREASE THEREFORE PRODUCTIVITY
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## STIRRER DESIGN AND FEATURES



Ergolines electromagnetic stirrers are designed and optimized for each caster by means of electromagnetic and fluid-dynamic simulations. Thanks to these sophisticated techniques also customized design are available. HT-EMSs are rotative type stirrers. In the figure below the flow motion induced in the molten aluminum is reported.

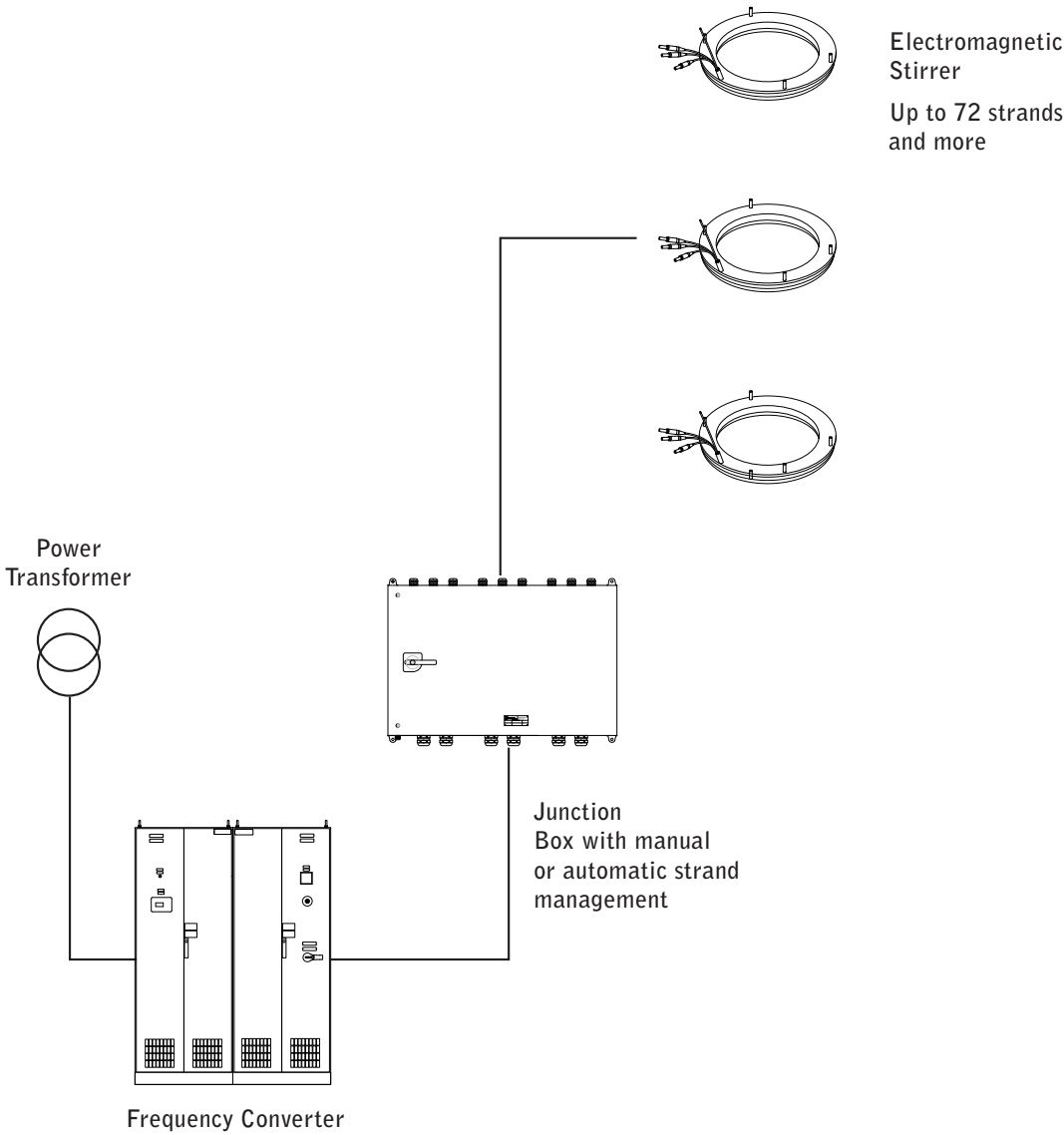
### STIRRER MAIN FEATURES

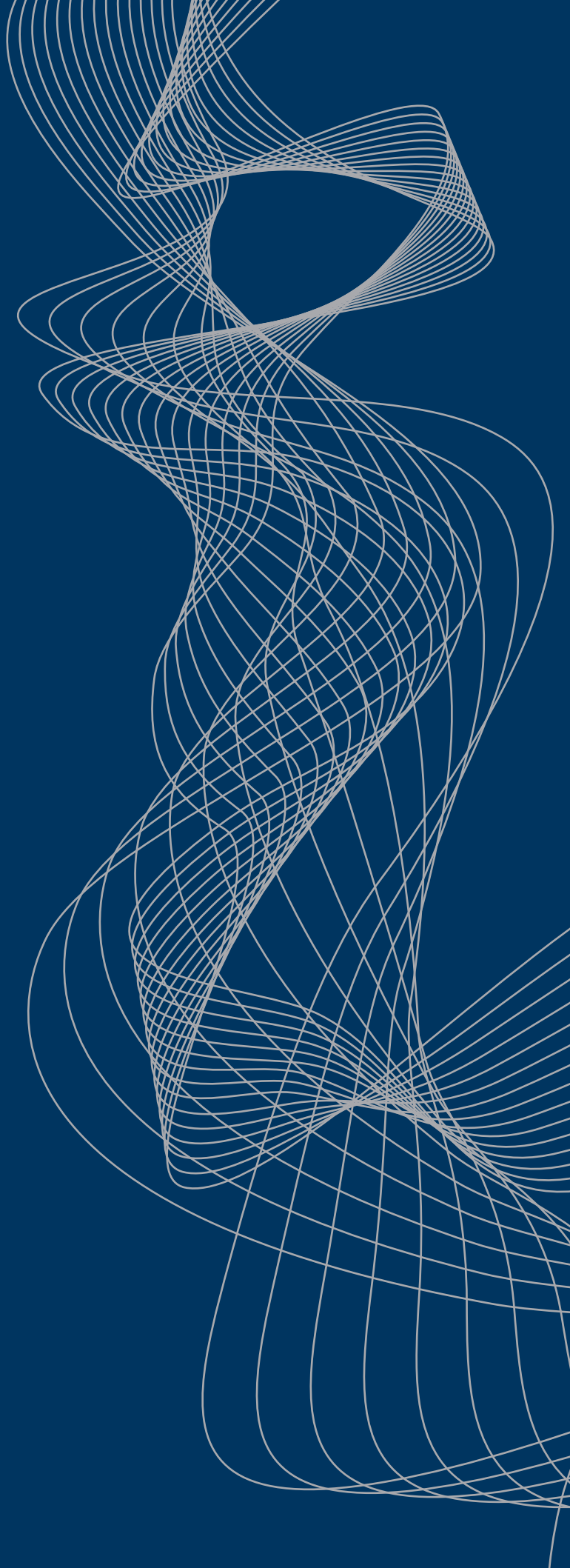
- › Available for every casting size and up to 72 strands or more;
  - › Easy installation, minor modification needed in existing casting machines;
  - › No cooling needs;
  - › Windings temperature monitoring system;
  - › No maintenance needed.
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# STIRRER INSTALLATION

Stirrers are usually installed in the refractory in order to be effective both on the first solidification zone and the center of the casted billet. Minor modification are needed for the installation in existing casters.

## TYPICAL ERGOLINES STIRRER SYSTEM LAYOUT





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