In metallurgical processing, the technique employed for stirring and mixing the melt is one of the prerequisites for higher quality and productivity. ABB’s electromagnetic stirrers and brakes were designed with these in mind. The resulting benefits in terms of reproducible, profitable production have demonstrated over and over again that pay back times for the investments are less than one year for many of our customers.

As a diversified, multinational company operating in all the parts of the world, ABB is not only able to provide advanced Industrial IT solutions for stirrers and brakes but also to assist our customer world wide to service and maintain it, and to fine tune and upgrade the equipment. Combined with our metallurgical know-how, this makes ABB an ideal, dependable partner for your company when it comes to selecting and installing electromagnetic products.

Being a company with a history going back over 120 years and with a vast process knowledge in melt/cast operations based on more than 50 years experience, ABB will have the competence and network to provide high quality products and local services for years to come.

You will find our representatives in most countries and on all continents.
We are confident that you will find it worth while to further investigate what ABB can offer.

ABB offers information technology solutions that address all the processes in the metal value chain. Compatible Industrial IT building blocks of products, systems and services that bring value to the day-to-day operations of your business and the expertise to improve the management of your assets. Optimize IT is just one in a range of Industrial IT building blocks suited to meet your operational needs.
OptimizeIT - Electromagnetic Stirrers for Billet and Bloom casters
• **Long term commitment in the Steel Industry**
  - Stirrers for molten steel since the 1940’s
  - Vast metallurgical know-how
  - Joint development projects with leading steel companies

• **Market leader with complete program**
  - Stirrers for all types of applications
  - More than 2000 stirrers and brakes supplied

• **Unique know-how in stirrer design**
  - Advanced 3-D computer simulations of EMS applications to customer processes
  - Optimized design for maximum performance and minimum power requirement
  - Innovative and unique solutions such as ModMEMS and DualMEMS

• **Long life and minimum maintenance**
  - Rigid windings and forced cooling
  - No re-impregnation of coils

• **Highly efficient power supplies with latest technology**
  - Use of standard motor drive produced in high volumes
  - Low energy losses
  - Minimum floor space requirements using Single- or Multidrive solutions
  - Symmetrical currents increase the available stirring power for non symmetrical loads
  - Advanced digital control technology
  - Field bus communication interface of various types

• **Local presence world wide**
  - Global network
  - Local service
ABB is the only supplier with a complete range of electromagnetic stirrers, offering an optimum solution for all kinds of applications.

**Mold stirrer (MEMS)** is either of round or square design and acts as the stator forcing the liquid steel to rotate. Depending on installation and customer requirement, 2- and 3-phase are used respectively and the stirrer can either be internally or externally mounted. Normally our well proven **MidMEMS** and **MaxMEMS** are used but in some applications our unique solutions **ModMEMS** and **DualMEMS** are the better choice.

The **ModMEMS** consists of four or six poles and a yoke. The windings are indirectly cooled by mold water and no separate water system is required. This concept gives very low energy consumption and can be used for smaller billet strands and rounds.

The **DualMEMS** provides high flexibility for open stream and submerged casting with two independent inductors. The upper stirrer can either enhance the stirring at the meniscus in the assist mode or reduce it to virtually zero velocity when operating in the brake mode.

**Strand stirrers (SEMS)** can either be of linear or rotary type. Most common is the linear stirrer, which is easy to install and protect from heat radiation and possible breakouts.

**Final stirrer (FEMS)** is of rotary type and is placed at the final solidification zone of the strand. The stirrer case is water cooled for protection from heat radiation.

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EMS increases quality and productivity

In order to continuously cast high quality steels in a cost efficient way EMS is a must. Stirring will improve strand quality and its reproducibility, yield, production flexibility and productivity. For each application the optimum stirrer choice can be made, taking into account the steel grades cast, the strand sizes as well as main problem area.

MEMS improves surface and subsurface quality thereby reducing the rejection ratio.

There is a substantial reduction in amount of pinholes when using MEMS.

The use of EMS will reduce centre segregation, thus giving less rejects, risk of wire breakages etc. Using MEMS substantially reduces center segregation, in this case for a special steel.

To further reduce and cut peaks in center segregation a FEMS has to be added, in this case the effect can be seen on high carbon blooms.
The **stirrer system** consists of the following **parts**:

- Transformer
- Frequency converter
- Control Panel
- Water system
- Stirrer