



IMGS

INTENSIVE MIXING AND GRANULATION SYSTEM FOR THE SINTER PLANT

Primetals Technologies has developed a special raw-mix preparation process, known as the IMGS®, in which the entire raw mix is treated in such a way that, depending on the raw materials, even up to 80 % pellet feed (grain size: <0.1 mm or <0.045 mm) can be used to produce a high-quality sinter at higher productivity levels. This can be achieved while assuring excellent product and process parameters related to productivity, the physical characteristics and chemical quality of sinter, low fuel consumption and stable sintering operations.

BENEFITS

Unlike conventional sinter raw mix preparation systems no pre-blending on blending yards is required, resulting in reduced space requirement for sinter mix preparation. IMGS is working with a bunker blending system only which leads to lower investment costs. The bunker system allows increased flexibility in the selection of raw materials specifically increased ultra fines portions and in connection with the intensive mixer this results in improved sinter raw mix homogeneity. Economic reuse of in-plant reverts can be included such as dusts, sludge, scales, and others. Because of this homogeneity the best possible solid fuel distribution is reached, leading to reduced consumption. Even using high portions of ultrafine iron ores give excellent sintering results. The electric energy consumption is lower even when the sinter machine is operated with higher bed heights. IMGS produces high and stable sinter quality, with subsequent high performance of the blast furnaces.

FIELD OF APPLICATION

Sinter Plant: New sinter plant projects and as well as a 100% add-on package within existing sinter plants of various sizes.

FUNCTION

With a conventional mixing drum, only a very limited homogeneity of the sinter raw mix can be obtained. To remedy this problem, Primetals Technologies developed IMGS, which consists of an intensive mixer and granulation aggregate. The sinter raw materials (like coarse as well as fine iron ores, ultrafine ores/pellet feed, additives, dusts, solid fuels, return fines, and recycled materials from the steel plant) are continuously fed into a high-speed intensive mixer where macro- and micro-mixing of the high and low density and fine to coarse particles of the sinter raw mix takes place. After the mixer, the material is transported to the drum or horizontal granulator where the material granulation takes place. IMGS can be individually adjusted to changing requirements.



Vertical type mixer



Horizontal type granulator

PRODUCT STRUCTURE

Proportioning bins

Material handling

Intensive mixing unit with fast rotating tools

Granulation drum / horizontal granulator

PLC communication and visualisation

Level 2 system / automation

TECHNICAL DATA

Capacity	up to 1500 t/h
Filling degree	30 -100%
Mixing shafts	No: 1-4

MAIN BENEFITS

- High mixing quality and improved homogeneity
- Mixing of higher ratio of fine iron ore and residuals possible, e.g., pellet-feed concentrates, dusts, sludge
- Maintain sinter production level
- No blending yard required
- Increased sinter plant productivity
- Reduced solid fuel consumption
- Sintering of iron ores with high amount of ultra-fine grained material without negative effects on productivity, sinter quality and energy consumption
- Lower investment costs compared to conventional systems

SERVICES

- Integration engineering
- Automation integration
- Erection advisory
- Commissioning advisory
- Spare parts
- Training

OTHER CUSTOMERS ACQUIRE ADDITIONALLY

- Moisture measurement
- Level 2 process-optimization system
- Addition of dust, burnt lime and waste materials
- Fully automated analyser for granulated sinter feed (permeability, bulk density)
- Automated sample taker

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A joint venture of Mitsubishi Heavy Industries and partners

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