

Flux Feeding Systems

YOUR BENEFIT

- safe working practices
- higher process security
- improved strand quality
- higher productivity

Imerys Metalcasting Solutions:

Transform to Perform

Imerys Metalcasting Solutions was the first to provide a feeding solution for granular mold flux for the continuous casting process. With over 150 installations worldwide, the systems have proven themselves over and over again. From the simple and reliable design of the first generation units over 15 years ago, to today's second generation Feeding Technology Hub automation and data acquisition systems, the innovation continues for the benefit of our customers. We are committed to supporting your operational excellence and safe working practices anywhere in the world.

Improved strand quality and higher process security

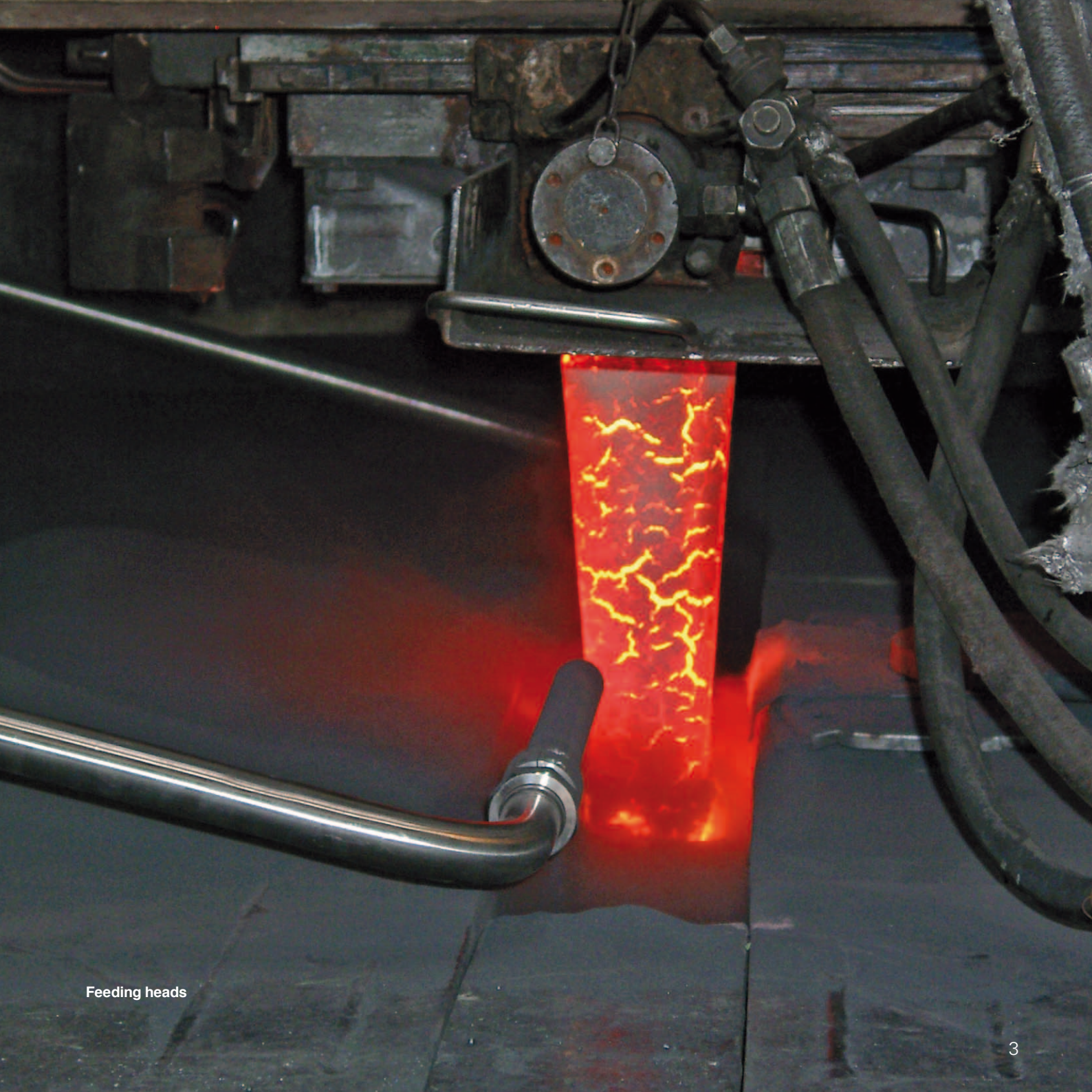
The customary practice of applying mold flux required manual additions by an operator to the mold as it was being consumed during the casting of steel. This has a number of drawbacks.

Manual feeding has a consequence of varying flux layer thickness resulting in non-uniform temperature distribution on the surface of the steel bath causing inconsistent and poor melting behavior. This has been proven to have a direct impact on the quality of the cast steel, and process disturbance generation. Most importantly, the manual practice requires an operator to remain in the mold area at all times in an unsafe environment.

Exact, uniform and safe

Imerys' solution is a Flux Feeding System that conveys the granulated material to the mold with a continuous and even distribution on the steel bath surface. The Imerys Flux Feeder reduces the occurrence of surface and internal defects of the solidified steel strand that gives a quick return on investment and higher productivity.

At the same time, they can reduce flux consumption by 5 to 10 percent versus manual feeding. Little to no intervention by an operator is needed, and time needed around the mold is greatly reduced allowing an additional factor of safety.



Feeding heads

THE TECHNOLOGY

- Precise dosing
- Uniform distribution
- Reduced flux consumption
- Compact design
- Easy installation

Flexible and easy integration

The Imerys Flux Feeder has been designed for ease of installation and is flexible enough to be used in all casting environments, on all section sizes and shapes. A vacuum conveyor transports the granulated flux as needed from a storage container up to 50 meters away to a centralized Flux Feeder. The unit then delivers a steady amount of flux to match the consumption in the process. The patented pneumatic feeding principle eliminates the need for gravity, and enables horizontal and vertical transport over a distance of several meters. One feeding unit can support up to six independently operated feeding lines.

Precise and gentle

Pneumatic conveying has another major advantage: The kinetic energy of the granules is exploited to achieve uniform distribution of the flux over the complete width of the casting mold. Unlike flux material manually added in batches, the gently fed granulates cascade on top of the bath surface preventing the fluxes from mixing with the liquid steel. Consequently, the steel remains free from inclusions due to poor feeding practices.

Safe, eco-friendly, mobile and reliable

The Imerys Flux Feeder has been developed to both optimize safety and reduce environmental impact. The operator is removed from the repetitive, fatiguing task of applying the flux to the mold and freed up for other duties. Removal from the immediate area of the caster and proximity to the liquid steel has an added benefit of keeping the operator in a safe work area. Reduced flux consumption has been reported over a manual addition practice. Less handling and waste generation occurs with the use of bulk packaging. The engineers paid special attention to the compactness of the design, and are experienced with the complexity of the continuous casting environment to keep the work area accessible and obstruction free. The Flux Feeders have no mechanically actuated parts. This makes them extremely reliable and their availability is virtually 100 percent. Maintenance of the Flux Feeders is limited to periodic filter changes and visual checks. Replacement of wear parts such as hoses and pipes takes just a few minutes.

Ranging from a simple decentralized feeding unit with virtually no electronics, to fully integrated silo systems our engineers and technicians can find the right solution to fit your needs. Full service is provided throughout the entire process of design, installation and afterward.





Silo solution

On the way to no-man-casting: GENERATION 2

Imerys has continued to lead the innovation to the Flux Feeders. The system is now more than a simple feeding machine, but a Technology Hub for the casting process. Fully integrated solutions of equipment and automation have been developed by our team of engineers to bring you closer to no man casting. Important casting information that was previously unavailable can now be analyzed bringing additional value.

Continuous Consumption (Patent Pending)

Another Imerys innovation is the realtime measurement of the feed rate. Flux consumption is measured accurately at all times, which enables the operator to know lubrication of the flux. Information of flux consumption performance for different steel grades no longer needs to be a manual monitoring process that takes hours.

Automatic Feed Control

The flux feeding rate can be controlled automatically and maintains a constant flux layer thickness at all times. Melting behavior is optimized, which results in even better quality and performance, even over the Generation 1 systems. Operator variability and interference in the feeding process is fully eliminated.

Automated silo selection

Flux selection can be made from the feeder operator panel or the control room. Product changeover is simple and automatic.

Full data collection integration

State of the art communication technology allows the integration of all the flux feeder signals into the caster system. Caster information can be handed to the feeder also for online calculations to control the feeder. System settings can be monitored, and information can be databased and analyzed as the process is in operation and afterwards.

Customizable Platform

The system is able to be upgraded as new software is developed to improve the functionality further. New technologies can be bolted on to the existing Technology Hub platform easily, and the software can be customized for your operation.





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