PRODUCTS

Smelting plant, foundries & bulk goods technology

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fiwa group

IDENTIFY - AUTOMATE - OPTIMISE

Practitioners and industry experts are aware of the many optimisation possibilities in smelting plants and metal-processing plants, along the entire chain from the raw material to the finished product. The fiwa)group's modular production control system offers an excellent process control solution which keeps errors to a minimum.

The overall system consists of four subsystems:

1. Accurate weighing of furnaces, crucibles and ladles
2. Unequivocal identification
3. Local, contactless read/write stations
4. iMES CC production management software

Seamless batch tracking is possible in real time, as all four subsystems are integrated in the production system. Contactless transmission of all information to and from the individual stages of the production process takes place using RFID transponders. This means that sources of error during data transfer (read errors or mix-ups) are already eliminated. Considerable potential for optimisation is created by linking

the most important processes, for example in relation to quality and material usage (exact recipe management/material grade), time (significant reduction in cycle times), energy costs (heating only when needed) or even batch traceability (quality assurance).

Furnace weighing - raw material production in the smelting plant

The fiwa)group weighing kit, which is patented world-wide, makes it possible to equip new furnaces or retrofit existing furnaces without any problems. Not only is the weight of the furnace and the product displayed before, during and after filling, but this information is also available during emptying, heating or cleaning.

A) Transport - Outgoing goods

Each transport crucible is clearly identifiable by means of a RFID radio chip (crucible ID). The data obtained during the filling process are transferred into a database.

B) Transport - Incoming goods

The batch data are read automatically and contactless from the RFID chip on receipt by the customer, using antennas or handheld terminals. Should any deviations be detected at this stage with regard to quantity, specification or temperature, the customer can respond accordingly before problems arise during production.

C) Tilter with scale

If the product is in perfect condition, the transport crucibles are passed over to a tilter, for example. At this station, it makes sense to weigh the goods again. Depending on production requirements, the raw product supplied is then passed on to so-called "ladles".

D) Forklift/ladle - to the casting furnace

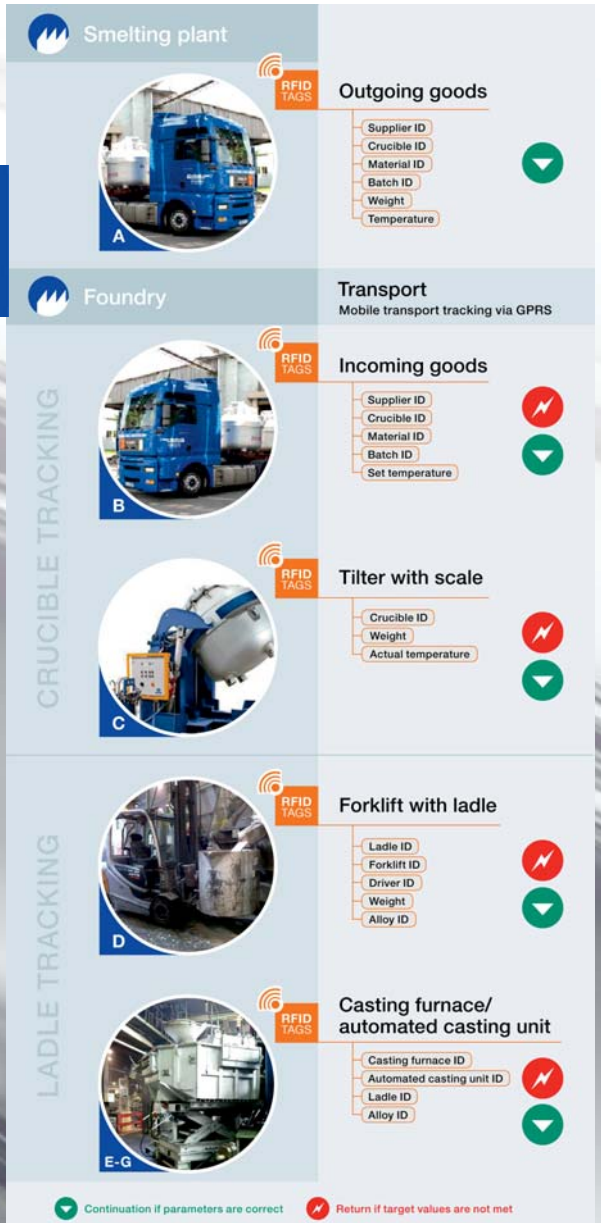
Here too, RFID technology ensures that the ladle can be identified unequivocally. A read/write station is attached to the forklift, which not only displays the product data but also the next filling location to the forklift driver.

E) Casting furnaces - keeping warm/realloying

The delivered product is kept warm in casting furnaces and realloyed if required. Here, precise weighing plays a crucial role. The technical equipment at the casting furnace is similar to that of the furnace weighing (point A).

F) Forklift/ladle - to the automatic casting unit

The optimal amount according to requirements is filled into the ladle at the casting furnace. The ladle can then feed several automatic casting units in immediate succession,



on the application. This is possible because a mobile ladle scale is installed at the forklift. The delivery of exact quantities can be guaranteed in this way.

G) Automatic casting unit

The forklift driver is provided with a continuous weight display while emptying the ladle into the automatic casting unit - making it feasible to deliver exact amounts. In addition, the automatic casting unit approached does not accept a "wrong" ladle, due to RFID networking.

Communication along all participating stations results in short distances and the delivery of absolutely precise amounts, and this virtually without any sources of error. This comprehensive production management system of the fiwa)group leads to efficiency improvements at all production stations and between them. The embedding of the iMES CC (integrated Manufacturing Execution System Control Centre) MES software developed by the fiwa)group between the ERP system and the automation level is one of the decisive factors for the continuous control of the entire production.

Total solutions are our strength - we support our customers from the feasibility study to the commissioning.

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Working worldwide of our clients

A Portrait

Finze & Wagner EMSR, founded in 1972, is an engineering company and provider of all-inclusive engineering services with a specific focus on measurement and control technology, process automation, machine & plant automation, Automation IT, building services engineering, electrical engineering, HSE, smelting plant foundries & bulk goods technology and PRE-VENT® control valves.

We have been providing services to the process and manufacturing industries for more than 40 years.

Our range of services extends from comprehensive support for pre-basic activities to detailed design and optimisation of production facilities.

fiwa)group has several locations in Germany, Austria, Romania and China. Our 200 employees assist and support our clients worldwide. These include end customers and well-known plant and system engineering firms in various industries, with whom we have maintained a strong customer–supplier relationship for many years.

We offer instrumentation, control and automation components through our fully owned subsidiary PRE-VENT GmbH, including our PRE-VENT® series of valves as well as various other products made by us or other parties, which we offer to our clients to complement our service portfolio.

Further applications of the smelting plant, foundry and bulk materials technology:

- Gas mixing and dosing systems for liquid metal gassing in production furnaces
- Bulk acquisition of castings and small parts to determine volume and completeness
- Filling, dosing and fluidisation systems for granulates and solids, including related loading stations
- Warehouse and fleet management for products and means of transport

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