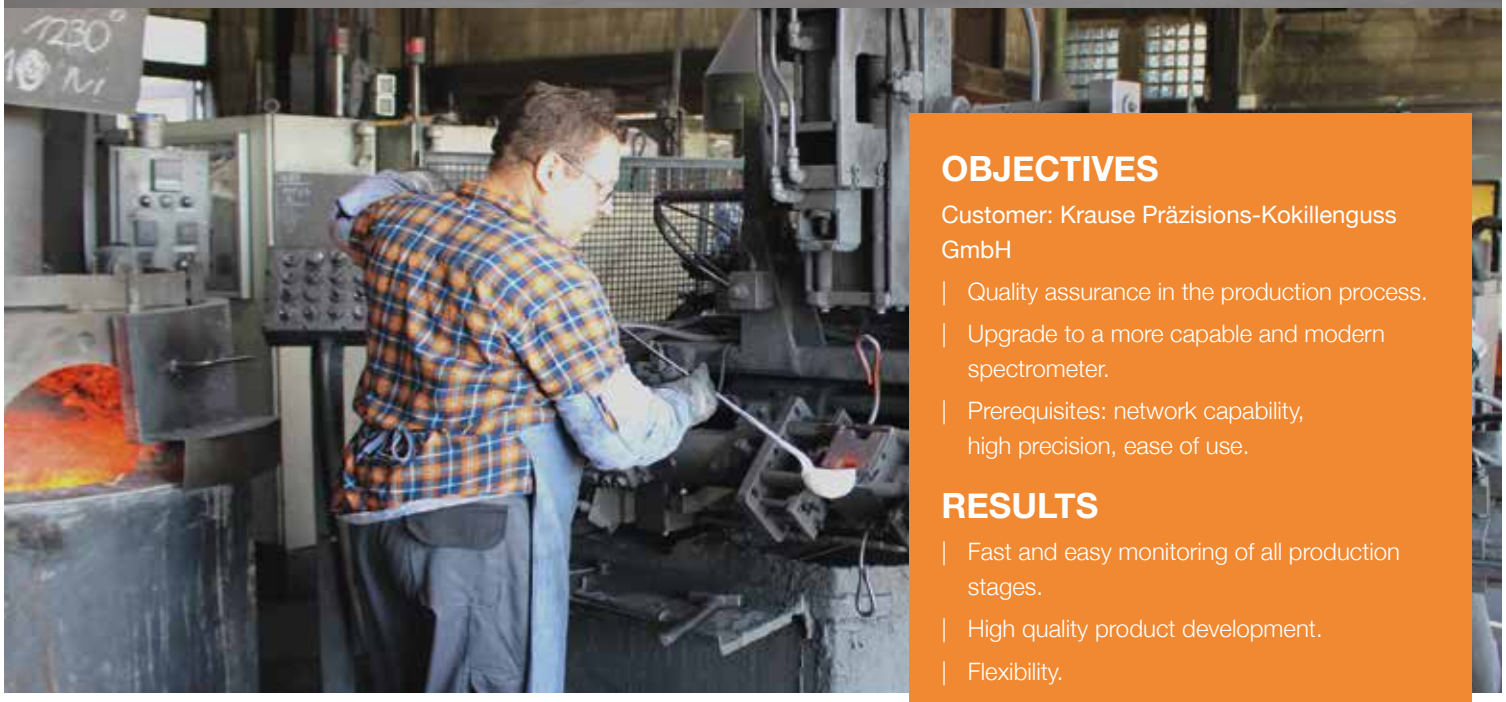
CASE STUDY

HITACHI
Inspire the Next

FOUNDRY-MASTER Smart



OBJECTIVES

Customer: Krause Präzisions-Kokillenguss GmbH

- Quality assurance in the production process.
- Upgrade to a more capable and modern spectrometer.
- Prerequisites: network capability, high precision, ease of use.

RESULTS

- Fast and easy monitoring of all production stages.
- High quality product development.
- Flexibility.

Quality assurance for chill casting with the optical emission spectrometer FOUNDRY-MASTER Smart

Krause Präzisions-Kokillenguss GmbH is a second-generation, family-run midsize foundry established in Germany in 1977. They offer a broad range of services: product development, creating molds and dies, casting production, finishing with CNC controlled turning and milling centres and sub-assembling.

Their customers come from very diverse industries, such as engineering, pump technology, food and medical engineering, making parts ranging from table football pieces to complicated housing heads for computer tomographs.

Aside from melt monitoring on the foundry floor, spectral analysis has an important role in end-to-end production monitoring: from goods receiving – especially when raw materials are delivered without test reports – to shipping when preparing test reports for the customers. Customers‘ material samples are often submitted for testing as well.

To meet special customer requests, Krause also uses the FOUNDRY-MASTER Smart in product development. The mixture is tested with the spectrometer in the trial phases. Krause Präzisions-Kokillenguss offers 12 alloys, including aluminium alloys and non-ferrous metal alloys including brass, aluminium bronze and pure copper. The steel for the moulds is also tested with the FOUNDRY-MASTER Smart since mix-ups have occurred on delivery in the past.

> **“High precision and material standards require exact monitoring of the melt in order to meet customer specifications and deliver clean materials.”**

Tino Ernst, Quality Assurance Manager at Krause Präzisions-Kokillenguss GmbH

THE CASTING PROCESS

The smelting and casting furnaces are charged overnight, then the melt has to be prepared for casting the following morning before the caster starts their shift. A sample is collected from the melt, cooled and prepared on a lathe.

The spectral analysis for monitoring the melt is carried out in the measuring room using the FOUNDRY-MASTER Smart. Results are available quickly and the melt is analysed three times daily, with three measurements per sample. A reference material is used to check the accuracy of the analyses. The FOUNDRY-MASTER Smart is verified with a reference sample and recalibrated if necessary before it is put into operation.

WHY FOUNDRY-MASTER SMART?

Since their former spectrometer was becoming outdated, Krause was looking for a modern device with current technology. Several reasons led to the decision in favour of the FOUNDRY-MASTER Smart:

Most important: high precision and network capability

- Space-saving.
- Integrated grade database.
- Easily accessible spark stand.
- Expandable matrices.
- Ease of use.
- Excellent analytical support from Hitachi.

The outstanding analytical performance of the FOUNDRY-MASTER Smart is especially critical for customers in the medical technology field.

> **“We are very satisfied, especially with the ease of opening and cleaning the spark stand and with straightforward operation using a laptop.”**

Sebastian Ludwig, Lead Metallurgist at Krause Präzisions-Kokillenguss GmbH

FOUNDRY-MASTER Smart in operation

THE FOUNDRY-MASTER SMART IS THE IDEAL COST-EFFECTIVE AND RELIABLE ANALYSER FOR METAL PROCESSING OPERATIONS.

The FOUNDRY-MASTER Smart can be integrated into a local network. All sample data is stored on the company’s network to ensure data security. The data is consistently available for further processing and can be used to prepare certificates.

The integrated GRADE Database helps with the assignment of standards. For instance, there are more than 1500 copper alloys worldwide. International requests for components with American or Asian standards in particular can be easily met with the GRADE Database.

Krause was limited to aluminium and copper alloys with their previous device. Now iron and steel materials can also be tested with a single spectrometer. This is important in receiving for verifying the promised material properties, especially for tool making.

The iron matrix is not frequently needed in the Krause foundry, but the flexibility gained by having it pays off for straight machining orders. Different base materials are processed here so that the expandability of the matrices is important.

The easily accessible spark stand of the FOUNDRY-MASTER Smart is another advantage. Samples of many different shapes can be loaded easily and tested quickly.

Notwithstanding the high performance and great flexibility, operation using a laptop is also convenient and simple.

Good and detailed advice from the Hitachi High-Tech sales staff, the on-site product demonstration and the short delivery time were just as important for Krause as the technical specifications.

Hitachi High-Tech Analytical Science