GIFA 2023

12th – 16th June 2023
Hall 13, Booth B34

Fairground Dusseldorf
Dusseldorf Germany

Innovations in Die Casting – Aalen Foundry Colloquium 2023

4th – 5th May 2023 Aalen, Germany

Participant: Dipl.-Ing. MBA Andreas Sindel
Company: Krapohl-Wirth Foundry Consulting GmbH

Euroguss 2022

EUROGUSS 2022

8th – 10th June 2022
Hall 9 / Booth 637

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Fair Centre Nuremberg
Nuremberg, Germany

Decarbonization – CO2 Neutrality

28th-29th September 2021, Iron Melting Conference & Exhibition 2021, Saarbrücken
Cupola furnace dismantling, heat recovery, CO2 minimization – the journey is the goal!

Lecture by Mr Andreas Nissen (plant management, company M.Busch GmbH & Co. KG Bestwig) of a Feasibility Study elaborated by company Krapohl-Wirth Foundry Consulting GmbH

Litmash 2021

8th – 10th June 2021
Hall 3 / Booth 3M29

Expocentr Krasnaya Presnya
Moscow, Russia

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Mashine Set-Up Times: Unused Capacity and Cost Reserves

Mashine Set-Up Times: Unused Capacity and Cost Reserves

(Dr. Hans-Peter Krapohl)

WIRTH

Installation works at a die casting installation for E-mobility parts with already set-up die casting mould. Set-up times can be decreased

relatively easy by approx. 60 %, according to Mr Dr. Krapohl.
PICTURE: WARREN RICHARDSON

Machine set-up times are still neglected. They hold considerable potential, some of which can be tapped with the simplest means. The industrial switch to e-mobility and the ongoing process of converting to aluminum chassis with high follow-up investments, the emergence of new materials, a shrinking market, increasing foreign competition, rising factor costs and stricter environmental requirements describe the cost screws that foundries face with falling revenues. Asian and American competitors are buying less, but are building new, efficient, costoptimized and highly productive capacities in Europe in record time. More and more foundries are noticing this pressure. “Old fashion” is out – for good. Darwin’s theory of evolution applies to companies as well as to nature: companies that do not adapt have no chance of survival, so they are sorted out over time – today, faster than ever. The capital costs in machines, buildings and facilities necessary for survival, which hae to be earned over the years in the form of depreciation and loans, place foundries in front of considerable problems. Problematic, when only small profits can be achieved, recessions or pandemics cloud economic prospects. Foundries that manage to generate competitive advantages by activating unused production resources perform significantly better in competition. Stagnating and / or capital-intensive foundries, on the other hand, experience a painful increase in their cost pressure, which they can only compensate with difficulty.
A completely underestimated potential lies in the mostly neglected set-up times. It is astonishing to find die-casting machines of the same type with set-up times of up to 24 hours, especially since times of significantly less than 60 and even less than 15 minutes can be achieved. Set-up times of one shift are not uncommon for simple core shooting machines and

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molding lines often lack model plates close to the molding machine.

Logistics instead of efficiency, time instead of products. Solution-oriented approaches are not present in many places. With a set-up process study, a SWOT analysis, a multi-moment study, a sanity check, even with Refa or other similar tools, the causes of non-optimal set-up processes can be analyzed promptly and inexpensively and measures can be taken.

The Approach

Visualization:
The basis for reducing set-up times is an open review of the current situation. Together with the responsible persons, temporal process studies and technological surveys are carried out on site at selected machines or production islands. All hand movements and time units that elapse in order to convert a machine / production island from item A to B are recorded. At the same time, the existing organizational structure and the line-up of the setup team are analyzed.
This is followed by a visualization of the results to discuss the set-up times. Experience has shown that the established set-up times are many times higher than stated before the project started. On the basis of the results obtained, focus points with clear objectives can be derived to reduce set-up times.

These can be, for example, in the following areas:

- Organizational deficits (structural organization)
- Planning activities (work preparation)
- Setup team building (responsibilities and training)
- Available work equipment (tools)
- Tool technology (constructive relief)
- Machine technology (facility management)
- Construction of production cells (facility management, accessibility)

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- Moulds / patterns etc. (ability to set up quickly)
- and lots more

Set-Up Time Reduction:
Every unit of time shown and required by the setup process study within a setup process can be optimized in two directions:

1. Work content redesigned and optimized in such a way that an employee can handle them more reliably and more quickly.
2. Work contents to be made basically superfluous.

Step one can usually be implemented on short notice. Step two takes a little longer, but is much more effective on a long term basis. This means a subdivided raising of established setup potentials in the form of two packages of measures in:

- Steps that can be implemented immediately with little or no investment
- Steps with medium investments and a preliminary planning phase

The most important instrument in the implementation of suggested set-up time-reducing measures is the formation of properly staffed set-up teams.
These must be factually and technically capable of causing decisions in the horizontal as well as vertical hierarchy of a company. This results in the requirement that workers, set-up workers, foremen, foundry managers and designing engineers should be equally integrated into set-up teams.
To ensure the same level of knowledge, it is essential – even though unpopular – to have all team members set up at regular intervals. This ensures that daily, usually constructively modifiable problems are known to everyone and can be eliminated in planning at an early stage. In addition, the installation of competing setup teams has proven to be very beneficial. In support of this, it is advisable to introduce a suitable remuneration that rewards the reduction in set-up

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time.
Together with the defined teams, the methodology is determined by means of which the set-up time-minimizing steps are implemented in practice.
It is important to define ambitious but achievable goals and to set benchmarks by which the success and sustainability of the implementation of the measures can be gauged. It is important to ensure that the optimization path initiated as part of Kaizen measures continues to exist over the actual duration of the project. An end point of a set-up time optimization is never reached. The achievement of a goal always forms the basis for something higher. The ultimate goal is to simplify set-up processes in such a way that they can be carried out error-free within a very short time.

In the past few years, Krapohl-Wirth has seen an increasing demand for the “set-up time reduction” method, which was developed on the basis of many years of practical experience. Set-up time reductions of over 60% can usually be achieved with simple means, before what has been achieved can then be further optimized with a lot of effortand know-how. The rule of thumb is that foundry machines, regardless of the type, can achieve set-up times of <15 minutes, if the prerequisites are created.

We can talk about it – contact us – about your competitive advantage!

Dr. Dipl.-Ing. Hans-Peter Krapohl (RWTH-Aachen); managing partner and CEO of the Krapohl-Wirth Consulting Group. He has been rooted in the foundry industry for over 30 years, trained in Japan for a long time, internationally active, established independently on the market for over 18 years, he has successfully completed interim and restructuring projects and newly built foundries.

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Tree donation to the Bergwaldprojekt e.V.

As a “thank you” for the 10-year trustful cooperation with Krapohl-Wirth Foundry Consulting GmbH, Commerzbank AG made a tree donation to the Bergwaldprojekt eV, which provides a square meter of forest (English oak, hornbeam, etc.) in Oberursel/Taunus to stabilize the forest ecosystem.

Würzburg, February 17, 21

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Casting of Chassis and Carriage Components

11th-12th February 2020
Bad Gögging, Deutschland
Participant: Dr. Hans-Peter Krapohl
Company: Krapohl-Wirth Foundry Consulting GmbH

EUROGUSS 2020

EUROGUSS 2020

13th International Trade Fair for Die Casting: Technology, Processes, Products

14th – 16th January 2020
Fairground Center Nuremberg
Nuremberg, Germany

Light Weight Construction in Casting 2019

12th-13th November 2019
Nürtingen, Germany
Participant: Dipl.-Ing. MBA Andreas Sindel
Company: Krapohl-Wirth Foundry Consulting GmbH

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