

Foundrybench D24 Workshop presentations and reports

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Foundrybench

Foundry Energy Efficiency Benchmarking

Intelligent Energy – Europe (IEE)
SAVE – Industrial Excellence in Energy

D24 Workshop presentations and reports

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D24. Workshop presentations and reports

Authors: INASMET

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1. PREFACE

The Foundrybench project's overall goal is to foster energy efficiency and rational energy use in the metal casting sector. The project involves directly at least 15 participating foundries to improve their energy efficiency by providing them with clear information on their energy use and energy flows. A pool of energy saving options generated through these energy analyses will be described in a guide of the best energy saving solutions for foundries. An online database to reach a wider foundry sector audience will be launched. An Energy Efficiency Index for the metal casting industry will be developed, taking into consideration the production technology and product type. The benchmarking results will be actively promoted among foundries and policy makers to improve the foundry industry's energy performance. The project consortium consists of eight partners from Finland, Sweden, Germany, UK, Spain, France and Poland. The partners are recognised consultants, research institutes and industry associations.

During the development of the project it will carry forward several workshops in order to explain all sectors those are interested in the results of the Foundrybench (several workshops will hold in order to explain to all interested sectors the results of the Foundrybench). It is for we will do them in each partner's country (The workshops are going to celebrate in each partner's country and it could be in others). The first workshop was in Paris, the second on Sweden, the third one in Spain and the fourth will be in Germany. Every workshop has different goal and the idea is to invite the associated foundries and companies relational foundry. The fourth workshop in Germany will be held in the GIFFA, the most important trade fair for foundry technology in the world.

2. FIRST WORKSHOP

The first workshop was celebrated from 21 to 24 of September in Sevres (Paris). The agenda included Foundrybench Steering committee meeting and two day training seminars.

Participants: Hermia, IMMCO and AXCONS (Finland), IfG (Germany), SFA (Sweden) – FRI(Poland), CTIF(France) and INASMET(Spain).

The objective of the meeting was to create a debate on the different measurement methods to agree on a common way to carry out the measurements of energy audits in foundries and learn how those measurements

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should be done. This way, all participants would have same methodology to evaluate the energy along the auditions in foundries.

During the three days of meeting, implementation committee, theoretical explanations and practical exercises were done. France exposed the importance of the meeting in the context of the measurements and described the points that would be analyzed along the meeting. CTIF led the training seminar about general discussion on training energy analysis reporting and training arrangements.

Axcom and IMMCO explained how the measurements of energy should be carried out in the following processes:

Prima energy (electricity, fuels), Furnaces (induction, flame, cupola), Heat treatment, Flue gas and combustion efficiency, Cooling, Compressed air, Heating, Ventilation and dedusting, Heat recovery, Indoor climate and Foundry technology.

Along the meeting foundry processes, heat recovery and ventilation and compressed air systems were analyzed. IMMCO and IfG explained Cupola furnace and INASMET showed induction furnace technology.

The measurements in these processes should be done using different tools presented in the meeting of Sevres. During the theoretical and practical explanations Axcoms showed the proper working of the following tools:

Ultrasonic liquid flow in pipes



Liquid flow 2 Ultra-Sonic
transducers Clap-on fixture

IR-thermometer

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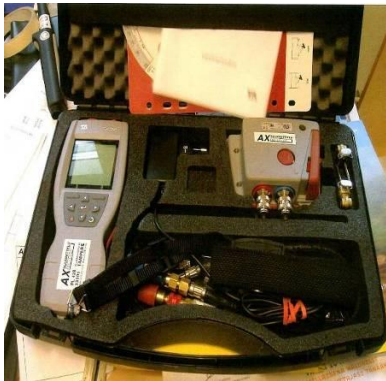
For remote control of surface temperature of pipes, furnaces and kilns

Combustion Analyzer



Oil, gas, coke furnaces and kilns
Combustion efficiency gauge

Gauge of Liquid Pipe Flow



Gauge for liquid Line regulator valve adjustment of heating and cooling systems

Electricity Analyzer



Consumption of electricity for separate drives and driving powers 3-phase current.

Clap-on Ampmeter

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El. power consumption of separate
electricity Lines 1-phase current

Pressure Indicator



Pressure level control of compressed
air systems

Air Velocity Instruments

Vane anemometer for grille flow

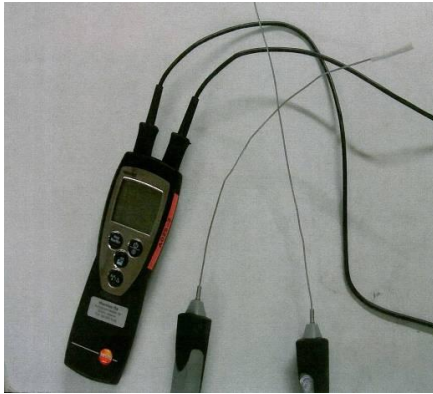


Pitot-tube (Small Pitot-tube for
velocity and static air pressure
measurements)



Thermometer

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Thermometer with dry and wet bulbs to measure air temperature and humidity

Data Logger



Standard signal (V/mA) data logger

1.1.1.

In addition, foundry processes and the most important energy audit parameters were explained, analyzed and discussed, reaching some interesting agreements for future activities.

The conclusions of training were presented. In addition, D3 “Description of common energy analysis methods, tools and reporting templates appropriate for the purposes of the project” was discussed and some annexes were presented.

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3. SECOND WORKSHOP

The second workshop was celebrated from 23 to 25 of February in Gothenburg/Skövde. The agenda included Foundrybench meeting with all the partners and analysis of energy efficiency situation from the point of view of CEMAFON, and the foundries: Georg Fischer from Germany, JAFAR S.A. from Poland, HUT and MESSO from Finland. In addition, new Volvo Foundry in Sweden was energetically studied, analyzing the influence of the energy saving measures in the different processes.

CEMAFON is the European Foundry Equipment Suppliers Association and was founded in 1972. They incorporates the relevant national associations and as such all major manufacturers of foundry machinery and plants, furnaces and products for the foundry industry in Europe.

The objective of the meeting was to agree a common way to carry out the measurements of energy audits in foundries and learn how should that measurements be done. This way, all participants would have same method to evaluate the energy along the auditions in foundries.

Germany presented CEMAFON. There was long discussion about how Foundrybench and CEMAFON can cooperate. CEMAFON will probably be added as observer of project and can help in dissemination actions and could be net worker to equipment industry.

Involve CEMAFON in the activities carried out by Foundrybench is an important objective due to their capacity to relate and connect foundry industries to Foundrybench project.

Finland presented ideas and time schedule of interim report. There are quite many deliverables what has to deliver with interim report.

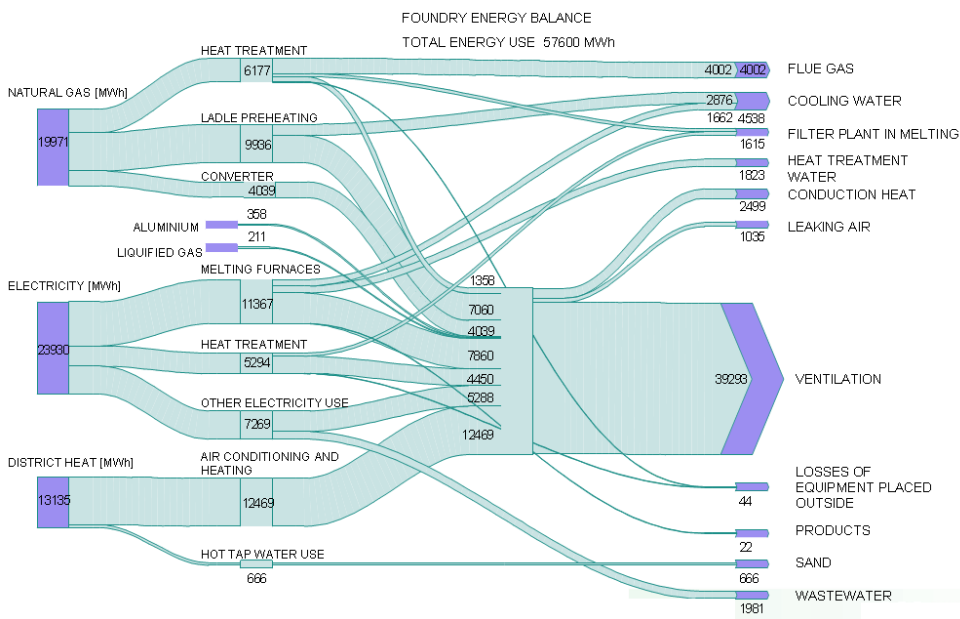
IFG presented ideas for GIFA exhibition. IfG have a stand in GIFA and Foundrybench can be presented there. FoundryBench will keep project meeting in GIFA where also visitors can be invited. Foundrybench will be presented in a lecture on the WFO Technical Forum, probably by AXCOM. The printed information for GIFA should make in April 2011. Also CEMAFON will have a session about furnace energy issues in GIFA. IfG will make arrangements for GIFA.

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Finally, Foundries Georg Fischer from Germany and JAFAR S.A. from Poland analyzed the energy efficiency options in their foundries. Both foundries presented an interesting point of view of the energetic problems in the different foundry processes and also put forward some interesting ideas for future foundry industries.

In workshops “deeper discussion of foundry specific EEI calculations” and workshop “for energy analysis in foundries (questions, problems, calculations ...)” AXCOMS, and HUT explained the process of collecting data un different foundry processes of audits and calculations realized, showing results.

Sweden showed the main energy consumptions and the main indicators affecting to different factors in the processes.



Introduction to the trip to Skövde and presentation of simulation model of the Volvo foundry was realized in order to learn how a new foundry works.

Finally, the strategic of the new VOLVO foundry was discussed comparing the new industrial plant with the old one. In addition, the influence of energy efficiency in the lay-out and research of the foundry was analyzed.

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4. THIRD WORKSHOP

The 3rd Commission CAEF was celebrated on 15th May and it was explained all about the Foundrybench project to all the presents that are from different universities and technological centres from Finland, Germany, Sweden, Poland, Portugal and Spain.

The second Workshop is going to celebrate from 29 of September to 1 of October in San Sebastian.

The main points to be discussed are:

Present the reports of the energy audits in WP3

Present the deliveries that should be finished in M21

Furthermore, Spanish foundries, as Fundiciones del Estanda and Funcasa, and Spanish Foundries Association (FEAF) are planning to participate in the meeting. The aim is to analyze the energy consumption and efficiency in foundries and analyze the steps that are carrying out to improve them.

5. FOURTH WORKSHOP

The meeting of the fourth workshop is going to celebrate during the edition of the GIFA in 2011.

The 12th International Foundry Trade Fair GIFA will take place in Düsseldorf between 28 June and 02 July 2011. It is the most important trade fair for foundry technology in the world celebrated every four years, last one in 2007. The GIFA is the platform for excellent business activities and is the indicator of the innovations which will orientate the future of the foundry. At the same time there are trade fair as Metec, Thermprocess and new Cast.

The main agreed activities are the presentation of Foundrybench project in the conferences and the elaboration of a poster explaining the activities and objectives of Foundrybench.