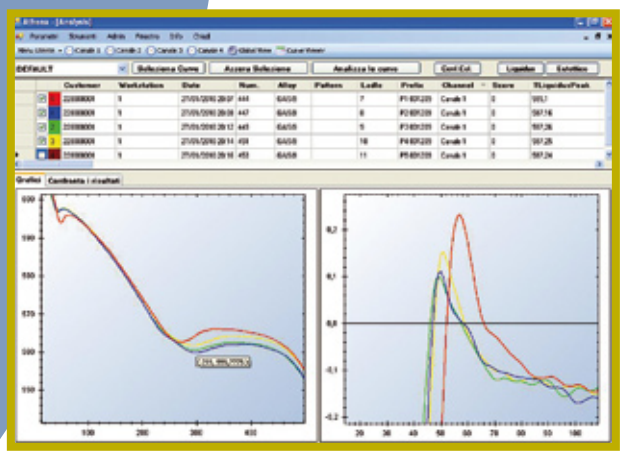
ATHENA is the new thermal analysis Software for aluminum, developed by ProService and tested in many foundries. Thanks to the use of the most advanced Information Technology, with few clicks and in a few minutes ATHENA gives an estimation of the structural characteristics of the metal, analyzing and saving in real time the cooling curves and offering to its users some powerful tools of analysis, at higher levels of competence.

Its main features are:

ACQUISITION INTERFACE:

A user friendly Software, that is intuitive and easy to learn to use, and gives easily understood output to the operator. ATHENA can analyze the metal in the different phases of the process, with an unlimited amount of independent channels, for complete monitoring of the melting plant.



AThEnA

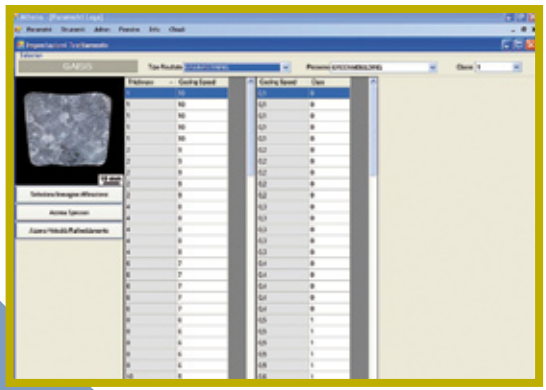
Aluminum Thermal Enhanced Analysis

GRAIN REFINING AND MODIFICATION ANALYSIS:

Immediate forecasting of the level of grain refining and modification, with references to macrographs and micrographs. Interpretation of the result is easy, even for the less experienced personnel!

CASTING LOGIC:

ATHENA adapts to the production of your foundry, with personalized analyses for different kinds of castings. It is possible to create a list of your actual castings and, for each one, ATHENA will prepare a calibrated and specific analysis, adapting to your needs.



AUTOTUNING:

ATHENA is a tool in tune with your foundry. The different indicators can be calibrated to suit your production, in order to have an estimation of grain refining and modification not only referred to the “alloy AlSi7”, but rather it will concern the “alloy AlSi7” produced in the foundry “XYZ”, used to pour the casting “abc”. This is possible thanks to a specific module that will calibrate your ATHENA easily, automatically and intuitively.

SPECTROMETER AND OTHER TOOLS:

ATHENA was born also to communicate. The Software can interact with all the other tools/databases in the foundry, becoming the main “active” data recipient. In fact, the ATHENA SQL SERVER database will not be a simple backup copy of the process data, but it will reuse them to execute new calculations (ALLOY2000 for the calculation of the density, the Fourier analysis for the determination of the solid fraction curve, the chemical composition from spectrometer for the forecasting of mechanical properties, etc...) and to prepare more and more sophisticated reports.

MAPPING FOR THERMAL TREATMENT:

The thermal parameters calculated by ATHENA can be used as input data to identify the best thermal treatment curve.

ESTIMATED POURING TEMPERATURE:

ATHENA suggests the optimal pouring temperature for different alloys, in function of their main physical characteristics and to obtain the maximum in terms of fluidity without excessive waste.

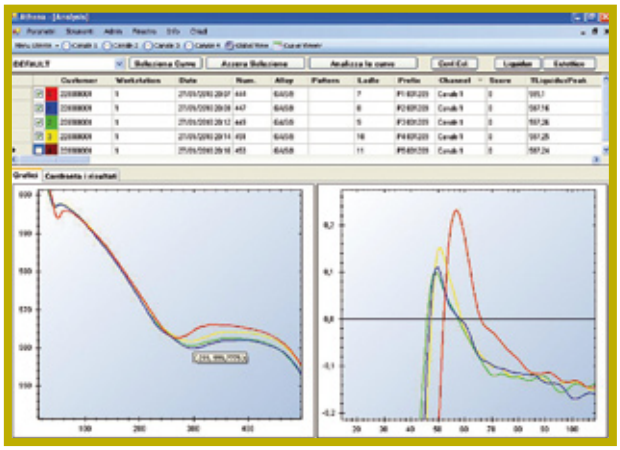
TEMPERATURE OF THE MELT:

ATHENA measures the temperature of the melt and integrates the acquired data with those of the standard thermal analysis.

FLUIDITY:

ATHENA estimates the fluidity from %Si and the temperature of the melt. The estimated data is retained for use in the SQL database.

ANALYSIS OF THE DATA:



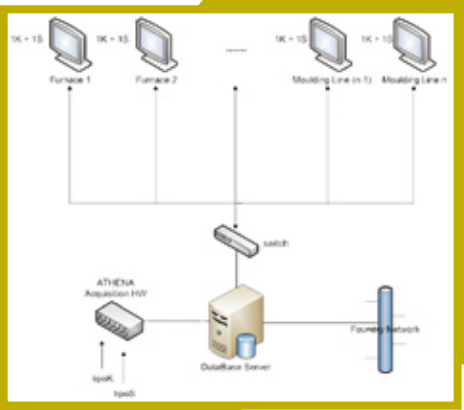
ATHENA is equipped with a fast and intuitive analysis module that can execute simple and combined analyses, over medium and long term, divided by alloy, casting and plant. Thus, it is a very powerful tool in identification of the origin of defects and it becomes a powerful ally to the management of quality within any foundry.

SAMPLING STATION:

Two pneumatic actuators safely regulate the movement of the thermocouple and the elevation of the metallic cup after each acquisition. Thanks to the linear movement, the thermocouple is fixed and the repeatability of each trial is guaranteed. At the flick of a switch, the actuator lowers the thermocouple and the acquisition starts. It will be enough to turn down the actuator for the descent of the thermocouple and the acquisition will automatically start.

THERMAL ANALYSIS PLANTS:

ATHENA adapts to the production context of your foundry, from the simplest configuration (1 channel for 1 production line), up to multi-channel plants that control melting furnaces, pouring furnaces and treatment stations. Each channel can be associated to a single machine, guaranteeing the origin of the thermal data and of the temperatures, in a totally automatic way.



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ProServiceTechnology
SOLUTIONS FOR FOUNDRY PROCESSES

Via Cornara 2L,
35010 Massanzago
(PD) ITALY
Tel. +39 049 5797189
Fax +39 049 9364574
Email: info@proservicetech.it
http://www.proservicetech.it

C.C.I.A.A. Padova R.E.A. n. 331675
Cod.Fisc. e P. IVA n.IT03715930289