

Al Mg LIGHT METALS



IMS Experts-Conseils is a leading multi-disciplinary engineering firm, well-known for its entrepreneurship and its commitment to the advancement of quality in technical design for the benefit of the metallurgy industry, namely through its wide range of superior quality services. Always aiming for higher levels of achievement, we build on client/supplier partnerships where vitality, innovation and excellence prevail.

Driven by basic principles such as team spirit and on-going improvement, **IMS** has developed its mission and has made a commitment to excellence through its leadership and with open and honest communication.

Our growth over the last few years has earned us a position as international leader in the metallurgy and metallurgical engineering sector in general, and in high value-added manufacturing niches such as aluminium and magnesium in particular. The successful completion of major projects positions us at the forefront in these fields worldwide. **IMS** employs over 100 professionals, technicians and experts to provide services involving planning, design and realization of major industrial projects for its clients on three continents.

Our creativity and the practical means that we use to make our ideas work have made us one of the largest interveners in our field of speciality. But we haven't stopped there. We forge ahead and broaden our horizons. We can help you do the same for your business. For more information, just key in www.ims-experts.com.

MISSION

IMS has undertaken the mission of supplying high-quality professional services that meet the needs of clients while promoting innovation and the development of added value.

In practical terms, our intervention methodology begins with open communication with you so that we fully understand your concerns and to ensure that the solutions we design specifically for your business truly meet your needs. Once we have designed your installations, we will help you to plan the realization, to train your personnel, to put them into operation and we will provide you with control measures using the most advanced technologies. When all is done, we remain at your service and at your disposal, because that is our mission.

Services

Founded in 1991, **IMS** offers integrated engineering consulting services. We are now well-known for our know-how in several fields, and especially in metallurgy and metallurgical engineering. This discipline is in itself an amalgamation of several fields such as chemical process engineering, structure and civil engineering, power systems, industrial mechanics and building mechanics. The sustained growth of this integrated team is largely tributary of the development of the metallurgy sector and more particularly, in the last few years, in the aluminium magnesium industries. We also have solid roots in the following fields of expertise:

- Telecommunications

- Civil engineering

- Industrial engineering

- Environment

- Project management

- On-site customised training

- Urban planning, land-use management and geomatics

Light metals: Foundry

Whether for aluminium or for magnesium, **IMS** is known for its specific expertise in the foundry sector. Our realizations stand out from the rest by the high efficiency of the installations put into production and by the project management process which we use, inspired by the thoroughness of the analyses that we carry out at both the design stage and the realization stage of the projects that are entrusted to us. International companies such as Alcan in the aluminium sector and Norsk-Hydro and Noranda (Magnola) in the magnesium sector, call upon our services on a regular base.

Specialized equipment

Over the years, **IMS** has acquired extensive knowledge of the equipment and equipment manufacturers all over the world. When the time comes for recommending certain types of equipment for the client's specific needs, you can count on **IMS's** expertise to help you choose equipment.

Considering that the foundry sector is made up of a wide range of equipment, of which only about half is available on the market and requires more or less major customization, it is therefore logical and economical to call upon a specialized firm like **IMS** to handle such equipment needs. Furthermore, some equipment just doesn't exist, and therefore needs to be custom-designed. **IMS** can design this equipment according to technical specifications that are suited to the process.

Technological development

Our many realizations in the foundry sector combined with the creative talent of our engineering team have enabled us to initiate certain research and development projects that are currently beneficial for our clients. Some of **IMS's** engineering designs have been patented, including one of our major projects, the design of a continuous flow magnesium refining furnace. This unprecedented concept is economical and includes operation properties that reduce melt losses during the melting operation.

Technological achievements

We are particularly proud of some of our many realizations because of their unusual nature, of their scope and of their technological challenge.

SMgProject Stanwell Magnesium Project

The cast house for the Stanwell Magnesium Project located in Australia (with an approximate \$80 M AUS budget) was foreseen to process 96 000 t/year of magnesium based on the use of the innovative technology developed by IMS for the magnesium refining furnace.

IMS's scope of work covered the other following items :

- *Pre-feasibility study (1999) to help AMC in their technology choice, estimate and preliminary layout;*
- *Process/technology selection and design for the magnesium refining furnace and main process equipment;*
- *Complete detailed engineering, procurement support and construction/pre-commissioning support.*

Process equipment includes: IMS's refining furnace, casting line, packaging system, alloying furnace, reverb furnace, sludge removing system, preheating furnace, metal pump, pre-heater, refractory, cover gas mixing system, cooling system, mould cleaning system, scrubber system, operation tooling equipment.

- Magnesium crusher 10 t/hr
- Crusher feed system and crushed magnesium storage system
- Continuous feed system of crushed magnesium to the melting furnace
- Participation in the design of a magnesium refining and recycling furnace
- Improvement of the casting station on the casting line
- Installation of a fully automated ingot stacking system (six axle robots)

- Adaptation of pure magnesium refining furnace into alloy magnesium refining furnace
- Design of salt bath furnace including the electrolyte casting system
- Design of a consumable metal pump (low manufacturing cost)
- Improvement of the casting station on the casting line
- Conversion of a casting line that used SF6 as its protection gas into SO2, including the SO2 regenerating process.

Project management

With the thorough project management process which we implement during the realization of a major immobilisation project, **IMS** obtains enviable results. We are particularly proud of two of our recent projects:



Increase of the casting capacity

- "Fast-track" type project completed within 11 months, including commissioning
- Authorized budget \$17.3 M
- Budget used \$17.3 M



Design of a foundry with casting capacity of 63,000 t/m

- Project completed within 25 months, including commissioning
- Foundry sector budget \$50 M
- Budget used \$47 M

Our engineering approach

Our activities relative to the project realization process are based on fundamental principles that are very simple yet very effective: attention to the needs expressed, pooling of expertise with the client, attention to detail, thoroughness in design and follow-up (ISO 9001), service and support during production.

As an example, the following are the six (6) main stages of the process:

Concept engineering

Right at the onset of the project, our experts team up with the client's experts. We can collaborate and even review the design basis parameter at this crucial phase of the project. Knowing how important it is to elaborate the basic hypotheses used for the realization of a project, we apply our knowledge and know-how to the preparation of a strong, feasible, recognized and efficient basic concept.

Detail engineering

At the detail engineering phase, we carry out the necessary studies that enable us to apply the solutions proposed in the previous stage and to optimize the basic concept. We prepare the drawings, P&ID, calculation notes, equipment list, specifications, data sheets and any other technical documents needed for the realization of the project. Our work usually includes the following activities:

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|--------------------------|-------------------------------|---------------------------------|
| - Architecture | - Piping | - Automatic devices |
| - Civil | - Building mechanics | - Computer network architecture |
| - Structure and concrete | - Power systems | - Environmental certification |
| - Industrial mechanics | - Instrumentation and control | - Training and documentation |

Purchases

The purchases required for the realization of a project demand special attention. In this respect, our expertise is at your disposal and includes:

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| - Preparation of call for tender documents | - Approval of supplier's documentation | - Follow-up with suppliers |
| - Technical analysis of the bids | - Shop inspection and testing | - Examination and comments regarding the operation and maintenance manuals |
| - Recommendations | | |

Construction

While work is in progress, we verify the quality of the work, control the compliance with the drawings and specifications contained in the contract's progress control and cost control.

In the event of modifications, we analyze the impact and submit our recommendations. These changes are always made within the projected costs and work schedules, while favouring bringing added value to the project.

Commissioning

Putting theory into practice, the commissioning stages represent the completion of the project. We actively participate in the elaboration of programmes and work schedules, and we supervise the testing for the pre-operational verification (POV) phases and pre-operational tests (POT). In this phase, we simulate the operation sequences, emergency stop sequences, alarms and interlocking operations, and we ensure the calibration of the equipment. Finally, in the pre-production test (PPT) phase, we provide the assistance needed and requested by the client.

Training

Our training services ensure technical training and, when required, human resources training of the operators and managers who are associated with the installations. Using custom made training, we handle the training process starting with the drawing up of course outlines to the post-training monitoring. Our team of instructors handles the drawing up of the production manuals and ensures the distribution of such manuals. Upon request, multimedia support such as interactive terminals can be created directly from the production equipment to increase personnel training capacity.

Solutions: expertise

Experience, state-of-the-art expertise, extensive know-how in the field of foundries, the scope and relevance of the realizations of **IMS** make us a wise choice for any professional firm looking for fast and reliable performance guarantees. Our thoroughness, our creativity, our discipline in respecting costs and work schedules, our constant commitment to bringing added value to any project are the fundamental elements that distinguish us and that ensure the profitability of your realizations. We have earned the trust and recognition of major multinational (1) clients. You could do the same. Contact us and you will see the difference.

(1) References available upon request

List of clients and nature of interventions

Magnola Canada
Australian Metal Co., Australia
Norsk Hydro Canada
Alcan Canada
Alcoa (Lauralco) Canada
etc.



Ordre des ingénieurs
du Québec (OIQ)
Association of Consulting Engineers
of Quebec (ACEQ)
Association of Consulting Engineers
of Canada (ACEC)
Ordre des urbanistes du Québec (OUQ)
Association de géomatique municipale
du Québec (AGMQ)
Environment Network
Quebec Environmental Auditing
Association
Canadian Environmental Auditing
Association (CEAA)

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