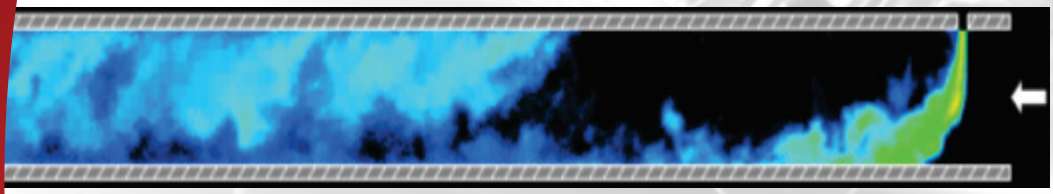

Coanda
Research & Development Corporation
Solving complex industrial problems through science & technology
VANCOUVER - CALGARY - EDMONTON

Company

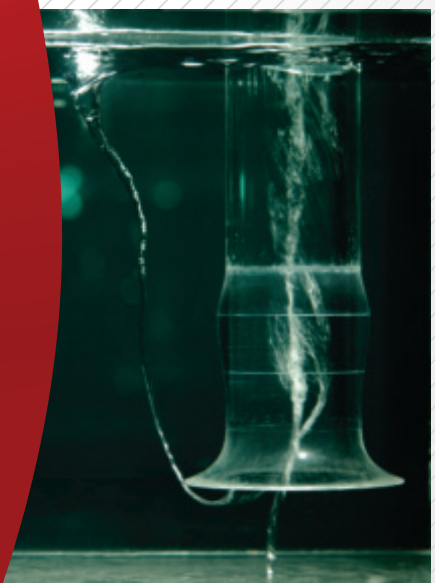
Coanda Research and Development Corporation is devoted to addressing complex industrial and environmental challenges across a broad spectrum of industries. We work closely with each of our clients to define their critical challenges and key requirements to develop comprehensive research and development strategies that are designed to deliver game-changing results in a timely and cost-effective manner.



Strategic. Comprehensive. Client Focused.

Building on over 20 years of experience, Coanda's highly knowledgeable and experienced engineering-scientists use physical, numerical and analytical techniques to develop innovative solutions, whether solving complex problems related to existing processes, or working on the development and optimization of new cutting-edge technologies.

Canadian Roots, Multi-national Talent



Since it was founded in 1995, Coanda has brought together scientists, engineers and technical staff from around the world to form our current team of over 75 employees, including over 20 Ph.D. scientists and a dozen licenced Professional Engineers specializing in Chemical, Mechanical, Physics and Geo-technical disciplines.

Coanda has extensive experience in:

- model design and fabrication
- computational fluid dynamics
- software development
- advanced measurement techniques
- field support services
- custom equipment manufacturing

At Coanda, we leverage some of industry's most advanced design tools, SolidWorks 3D CAD, Ansys FEA design validation, and Fluent CFD simulation.

Vancouver - Calgary - Edmonton

Services

Process Modelling - Coanda offers three key approaches to process modelling and optimization. This array of techniques allows for the optimum combination to be selected for any given problem.

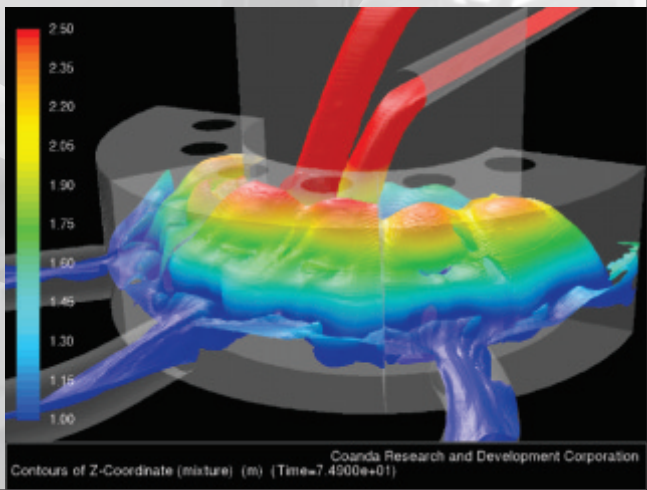
1 - Mathematical Modelling - Many problems can be addressed in part or entirely using analytical techniques. Unlike the computational approach, where the complete system is simulated, an analytical approach distills the most important aspects into a problem that is simpler to solve by employing techniques such as integral momentum methods and empirical/semi-empirical correlations.

2 - Physical Modelling - Many atmospheric and industrial flows are extremely difficult to study at full-scale. Sometimes the flow environment is hostile, inaccessible or suitable measurement techniques are not available, while in other cases the costs are simply prohibitive. In such cases, it is often possible to obtain extremely accurate data through the use of scale model simulations. Our modelling strategy develops simulations in which the most critical non-dimensional groups are matched between the laboratory model and the full-scale commercial system. This ensures a high degree of similitude between the two different scales.

3 - Computational Modelling - Coanda offers Computational Fluid Dynamics (CFD) capability to provide further insight into problems. CFD is used as a design and optimization tool to predict the movement of fluids in, around and through systems without the need for a physical model. Real processes involving heat transfer, chemical reactions and fluid flow can all be modelled using CFD. Coanda offers advanced modelling and consulting capabilities using software packages such as ANSYS Fluent, as well as the expertise to develop in-house codes for special applications and problems. In addition to several high-performance PCs, Coanda maintains a dedicated HPC Linux cluster for parallel processing of high-fidelity CFD simulations.

Scale-Up - The development of new industrial processes typically requires the scale-up of engineering processes and design criterion that have been optimized at reduced scale.

Coanda has the expertise and experience to accurately characterize and measure the performance of small scale units such as bench-top and pilot-scale systems, and to develop appropriate commercial scale designs capable of achieving high production volumes while also meeting required process performance and product specifications.



Services cont'd

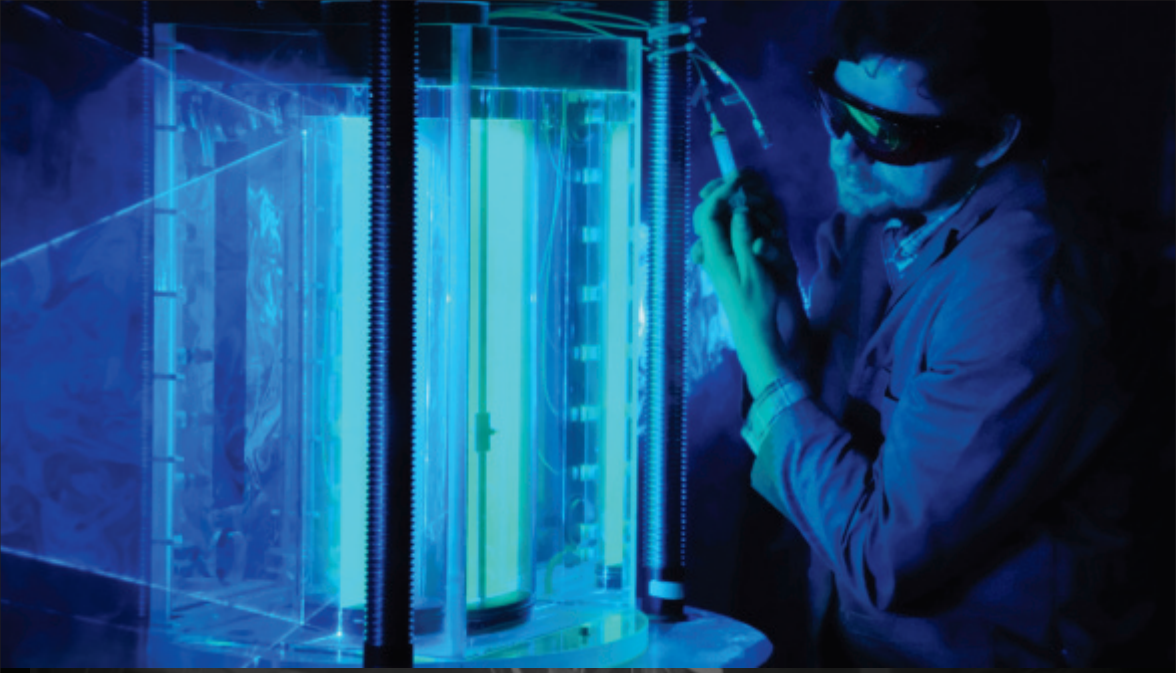
Instrumentation & Equipment Design - At Coanda, we have been designing, developing and building custom research equipment and instrumentation for experimentation purposes for our on-site laboratories as well as for client sites for over two decades. We specialize in turning real-world challenges into manageable lab-based apparatus. Working from client drawings of field installations or devising complete systems from process requirements, the designers, engineers and scientists at Coanda are accustomed to developing entirely custom equipment designs. Scale models are conceptualized, engineered and fabricated to facilitate advanced third-party and Coanda-built measurement technologies to pinpoint problems and identify solutions for the most complex industrial processes.

Process Engineering - By definition this branch of engineering requires a 'big picture' view, troubleshooting and developing processes for the conversion of materials or energy from one form into another. Our process engineering experience provides our clients a holistic approach to problem solving, circumventing the potential pitfalls associated with a narrower understanding. In addition, Coanda offers specific process engineering services that include the development of process flowsheets incorporating new technologies. Outcomes may include heat and material balances, development of reactor models, development of scale-up relationships, control strategies, process drawings, and cost estimates.

Technology Development Support - Coanda assists its clientele in the development of emerging technologies by providing the technical insight and hands on experience needed to bring them to fruition. Coanda can support nascent technology through all of the life-cycle phases:

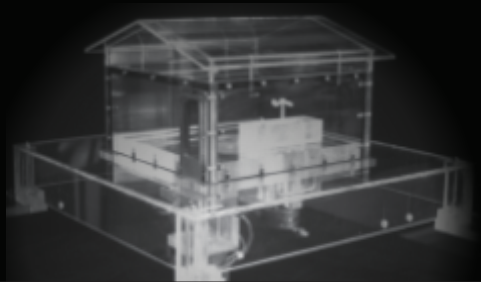
- concept / discovery
- scoping / business case evaluation
- technology development (including Proof of Concept)
- engineering design
- testing & validation of prototypes/pilot
- final design, marketing & launch

Training - Coanda offers insightful seminars and training courses that can be customized to suit your needs on a course by course basis, and can include high quality manuals and training aids such as interactive laboratory visualizations and demonstrations to further illustrate the subject matter.



Expertise | Industries

Mixing	Oil & Gas
Fluidization	Biotechnology
Geotechnical Science	Chemical
Tailings	Petrochemical
Rheology	Pulp & paper
Non-Newtonian Flows	Oilsands
Multiphase Flows	Mining
Separation	Environmental Science
Nozzles, Jets and Sprays	Pharmaceutical
Gasification	Alternative Energy



Facilities | Infrastructure

Strategically located in Western Canada's three largest cities, Coanda's growing presence includes over 65,000 ft^2 split between our head office in the heart of Metro Vancouver; a second fully-equipped branch in Edmonton, and a satellite office in Calgary.

British Columbia (Head Office)

Coanda's head office is located in Burnaby on the outskirts of Vancouver. Key infrastructure at this location includes:

- Experimental laboratories (cold flow models, spray test facilities, cryogenics, high pressure test facilities, etc)
- Advanced computing cluster (supporting state-of-the-art FEA and CFD simulation with complete IP protection)
- Analytical laboratory (wide range of bench top analytical measurements – rheology, particles size, surface tension, etc)
- Engineering office (scientific analysis, design and process engineering, data processing, instrumentation design, software development, etc)
- Electronics laboratory (fabrication of advanced instrumentation and electronics)
- Corporate offices (administration, accounting, human resources, marketing and sales, with extensive conference and training facilities)
- Machine shop (model and equipment fabrication)
- Warehousing (extensive parts and fabrication materials inventory)

Alberta

Coanda operates two branches in Alberta. We offer experimental testing services at our fully equipped laboratory in NW Edmonton and provide technical consulting services from offices conveniently located in Calgary's downtown core. The Edmonton facility provide very similar technical capabilities to the Burnaby location, including experimental and analytical laboratories, workshop, warehousing, and conference and training facilities.

In-House Equipment

Coanda maintains a variety of permanent infrastructure and instrumentation equipment that clients can utilize for their research purposes: complex liquid and gas piping loops, spray testing equipment and visualization tanks as well as a large array of pumps, blowers and compressors, flow meters, and other instruments that can be customized to a client's specific needs.

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