ARaymond™

MORE THAN FASTENING

INNOVATION EXCELLENCE AND BEST-IN-CLASS FASTENING SOLUTIONS

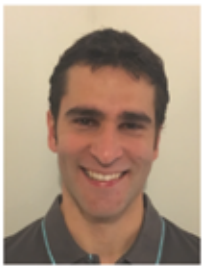
ARaymond, your **preferred partner** for all fastening and fluid connection solutions for powertrain, chassis, carbody and electrical applications.

www.araymond-automotive.com

CLIPPING SYSTEMS BONDING SOLUTIONS FLUID CONNECTION SOLUTIONS

SIMULATION BY ARAYMOND AT THE SERVICE OF THE AUTOMOTIVE INDUSTRY

Time-honoured expertise of ARaymond in the field of fasteners has been growing stronger for more than 15 years thanks to digital simulation, which serves as a 'virtual test lab' for the fine-tuning of products and process. With more than 7,000 employees in 25 countries around the world, ARaymond designs, manufactures and markets assembly and fastening systems. Created in 1865, this family business has always put human values at the heart of its success. Guided by innovation and value creation, ARaymond is today one of the global leaders in the automotive fastening market. Here's the latest from Julien Rat, Expert on Simulation and I.P. at ARaymond.



Julien Rat
Expert on Simulation and I.P. at ARaymond

You have the benefit of genuine expertise when it comes to simulation in a variety of physical fields. Tell us more about it.

ARaymond offers fastening solutions such as quick connectors which meet strict mechanical requirements (easy assembly effort, high resistance, etc.). This involves issues associated with non-linear contact and material, which we need to resolve efficiently. We also have to perform fluid simulation studies (CFD) to optimize the flow and pressure drop. All this is done at high thermal gradients.

We also have the benefit of genuine expertise in valve design, achieved by controlling the « flow rate / pressure » relationship associated with flow geometry.

In addition to product simulation, we also simulate the various manufacturing process, such as plastic injection via a rheological study and stamping via plastic deformation of a metallic strip. To do this, we rely on recognised digital tools that we use at a very early stage in the product development process.

In addition to digital testing, we have our own test laboratory which enables us to be present at the physical tests, so that we can compare the digital results with a view to confirming our modelling. We also implement our own materials characterization at our test laboratory to improve our models.

You make use of your in-house Simulation Community to capitalize on your know-how and exchange information about good practices. How does this enable you to improve your expertise and optimize your solutions?

It is vital to maintain this link via our simulation community, which includes the simulation engineers from the ARaymond Network. The idea is to pool our efforts for establishing methodologies and providing the same level of results worldwide.

This collaboration is enabling us to divide up the investigation projects, so as to test new functions, benchmark other tools or indeed provide feedback that will be fruitful and generate innovative ideas.

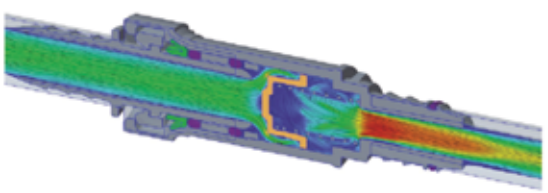
Together, we can move forward more quickly and develop our skills in a way that is in step with the digital world. We are talking about an international community that represents how embedded the ARaymond Network has become around the world.

What is the added value that your solutions provide in the product development process, and in the services you offer to your customers?

Simulation enables us to improve the quality of our products and to increase our responsiveness in relation to our customers. We conduct product simulations and process simulations, jointly, as early as in the product development stage, to remove functional uncertainties, so that we can anticipate and better control the risks.

We have to confront an array of challenges which call for great agility and a high degree of precision. Although it is difficult to design something exactly right on the first try, simulation enables us to expand the field of possibilities and to limit the prototypes, so that we have the right part at the outset.

In addition to the product aspect, we use simulation internally to design our specific test tools or to exceed the physical limits of our test benches, and also to identify, understand and respond effectively to any potential deficiencies that we can rectify.



ARaymond™
MORE THAN FASTENING