

WHO WE ARE

Ramboll was founded in 1945 and has since then expanded to be a leading engineering, design and consultancy company with a strong presence in the Nordic countries. With more than 12,800 dedicated specialists and almost 300 offices in 35 countries, we emphasise local experience combined with a global knowledge base and perspective.

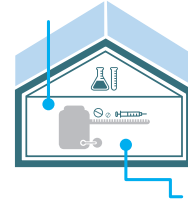
Ramboll's consulting engineers, designers and management consultants are committed to creating sustainable and long-term solutions for our customers and society.

In our consultancy we draw on the entire Ramboll organisation. So our consultants are your ambassadors for Ramboll's overall competencies within project management, building, transport, communication, environment and energy. Our experience and expertise pertain to all phases of a project.

In Denmark alone, Ramboll has assembled over 90 pharma and biotech specialists, and in particular our competencies within laboratories and cleanrooms are unsurpassed in the Nordic countries. We work closely together to satisfy our customers' needs. To promote the holistic approach and project execution across borders, Ramboll established the internal Ramboll Global Market Network based in Denmark that is tasked to always provide our customers with the best possible consultancy services.

We are proud to offer our pharma and biotech consultancy services combining local and global, technical and social, and financial and sustainable perspectives based on the users' requirements.

That is the holistic approach of Ramboll.



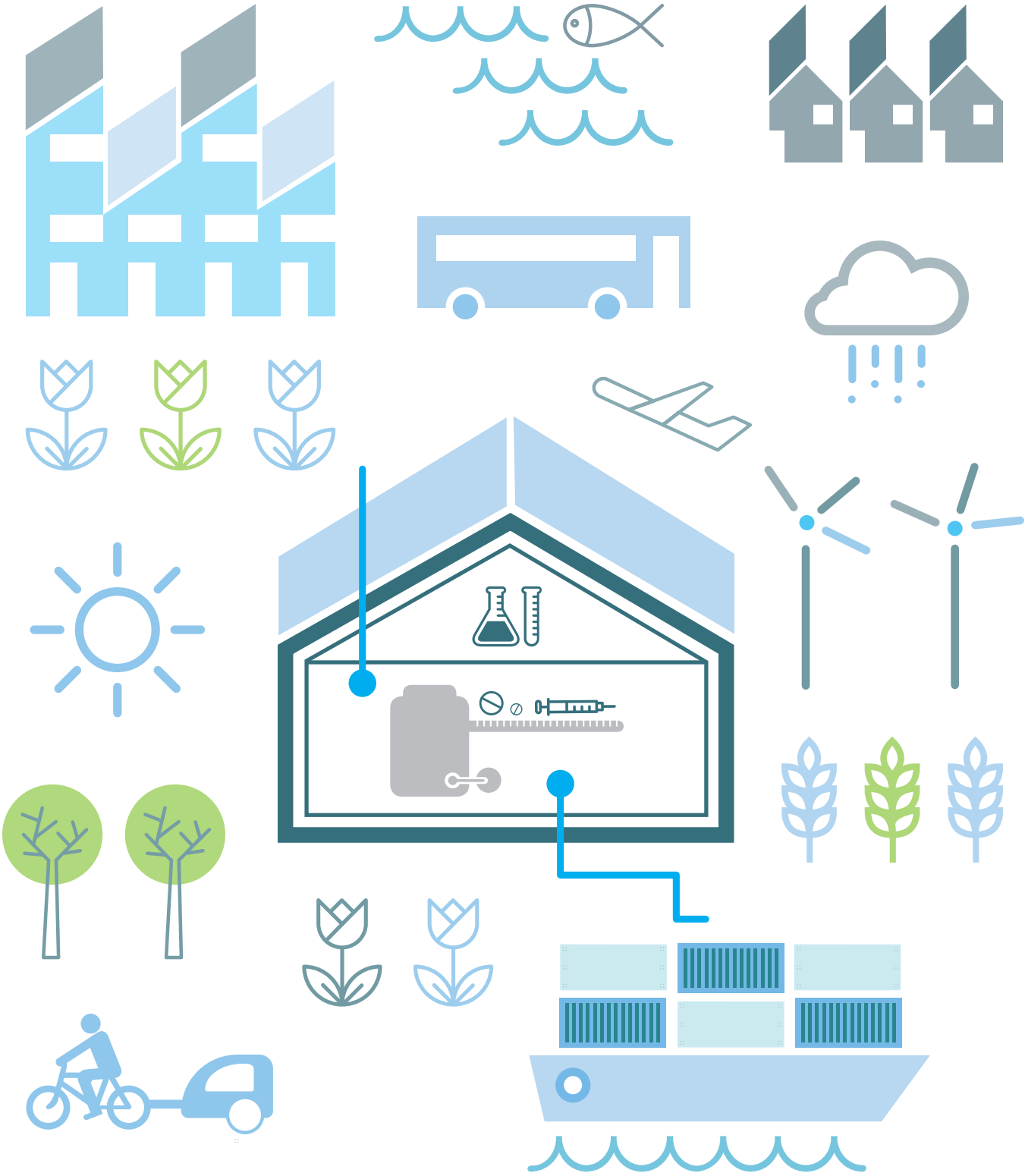
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PHARMA & BIOTECH

A HOLISTIC APPROACH



ABOUT RAMBØLL

Ramboll delivers holistic solutions on the pharmaceutical and biotechnological market, where knowledge of market conditions and continuous development of methods go hand in hand. Ramboll has over 30 years of experience in providing consultancy services in this specific discipline.

A HOLISTIC APPROACH

All our projects are based on a holistic approach, including not only the construction itself, but also the surrounding environment. We create our sustainable solutions on the basis of technical, economic and environmental parameters.

We plan and run the entire process from start to finish; we prepare the technical solutions, consider the user requirement specifications and handle the tender procedure, execution and follow-up. An

important part of this planning is to ensure that the final phases and the execution are decided from the very beginning. This is the only way to provide a fully integrated holistic solution.

RAMBOLL'S SPECIALISTS ARE YOUR SPECIALISTS

With Ramboll's wide range of dedicated specialists we can offer all the consultancy services relevant for your project, from sustainable building and installation design to construction management and commissioning – always according to the 'just in time' principle, introducing the relevant knowledge at the right time for the entire project.

Today, Ramboll has over 90 dedicated specialists in the pharmaceutical field within the following disciplines:

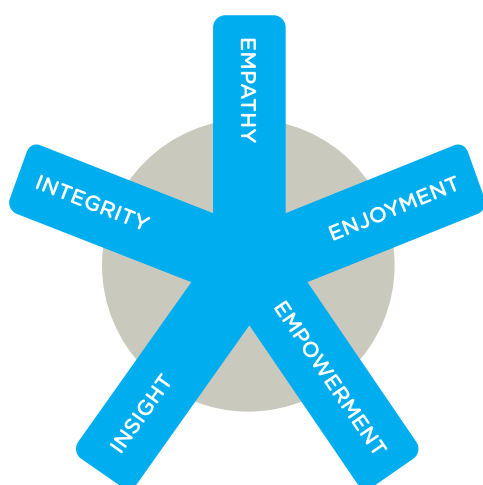
- Cleanrooms/laboratories
- Process equipment
- Clean utilities
- Qualification and validation
- Controlled environments
- Process technology and optimisation
- Project management.

ALWAYS IN COMPLIANCE

Our services always comply with current legislation and EU/US GMP regulations, and we can contribute during all project phases, from development of business and master plans to choice of solutions, development of process flow diagrams and finished qualification. In our experience, we create the best overall solutions for our customers, by prioritising the customers' needs as the basis.

ENGINEERING ONE STOP SHOP SOLUTION
PROCESS EQUIPMENT
ATEX **PROCUREMENT** **GMP**
PROJECT MANAGEMENT **CLEAN ROOM**
FACILITY DESIGN **QUALIFICATION**
BLACK UTILITIES **VALIDATION**
HSE HUMAN FACTOR DESIGN
USER PROCESS **HEALTH & SAFETY**
PROCESS ARCHITECTURE **CONTROL** **QA**
CONTROLLED ENVIRONMENTS
CLEAN UTILITIES
PHARMACEUTICAL PRODUCTION **BIO TECHNOLOGY**
PERFORMANCE TESTING **CONSTRUCTION MANAGEMENT**

AT RAMBOLL 30 YEARS OF EXPERIENCE IN PHARMA AND BIOTECH CONSULTANCY GO HAND IN HAND WITH THE LATEST KNOWLEDGE, RESEARCH AND METHODS



PRODUCTIVITY OPTIMISATION



USER INVOLVEMENT IN 3D CONTINUITY FROM THE BEGINNING OF THE PROJECT TO COMMISSIONING

Ramboll is utilising virtual 3D models actively in the dialogue with the users from the very beginning of the construction. In our experience, this method provides a better mutual understanding and continuity between the users' requirements and the technical solutions. The same 3D models form the basis for the services of the contractors and the suppliers, so what is agreed with the users matches what is done.

HUMAN FACTOR DESIGN LIFE BETWEEN "THE WALLS"

The human factor design provides a key tool for creating human well-being and optimal work environment in aseptic factories. The method is developed to actively involve the users, consultants and suppliers with the purpose of creating the best physical environment in spaces with limited possibilities. This is done for instance by optimising the acoustics or creating visual connections to green surroundings as a contrast to the clinical production facilities.

OPTIMISING PRODUCTION DETAILED KNOWLEDGE OPTIMISES OPERATION AND PRODUCTION

Insight into the production potential and the costs involved ensures an optimal production potential and capacity. Our analyses are based on state-of-the-art methods for modelling of production facilities that provide the most realistic results. This allows for an optimised design and optimised operating practices.

COMPUTATIONAL FLUID DYNAMICS (CFD) TO MAKE THE INVISIBLE VISIBLE

CFD is an essential tool for examining, visualising and understanding the conditions in relation to gas and liquid flows. Ramboll's Advanced Flow Engineering group possesses the experience and resources required to make these calculations at international level. Thus Ramboll can assist with both development and improvement of all types of flow systems.