

Process Solutions for the Home & Personal Care Industries



Who we are, What we do

Customized Process Solutions & Global Delivery

With over 25 years experience in the home and personal care markets, GEA has acquired the required expertise in products, raw materials handling, manufacturing techniques and applied cleaning technologies to provide its customers with the most important deliverable in capital and upgrading projects: **security of outcome.**

At GEA we have freedom of design. We look at our customer's needs, listen to understand their manufacturing process and consider the most suitable technologies to achieve agreed performances. From that point, GEA uses its unique combination of skilled process and automation resources as well as our unique global presence to tailor integrated process solutions for optimum performance at the right capital cost.



With our unique set of skills and unique global network we believe it's our responsibility to seek the most effective solution in terms of optimum capital cost and minimum operational cost/risk.

GEA has operating companies located in over 50 countries. Our Center of Excellence for home and personal care process solutions is located in the UK. Together with our Regional Technology Centers in China, Denmark, and the US, specialist groups provide process design and technical support worldwide. In key markets, GEA's operating companies support the structure with local project teams, regional supply chain expertise and plant life cycle support.



Our Portfolio

For Home and Personal Care Processes

Products

Home and Personal Care products are part of everyone's life...

Personal Care & Toiletries...

Shampoos & Conditioners
Bathing & Hand Wash Liquids
Skin Care Products
Gels, Creams & Lotions
Deodorants
Hair coloring

Beauty & Cosmetics...

Lipstick & Lip gloss
Foundation
Mascara

Laundry Products...

Bio/Non-Bio Washing Liquids
Fabric Softeners
Pre-soaking Agents
Fabric Finishes

Consumer Healthcare...

Toothpaste
Mouthwash Liquids
Cosmeceuticals
Gels, Creams & Lotions
Ointments
OTC Liquids

Cleaning products...

Liquid Detergents
Dishwashing Liquids
Bathroom & Toilet Cleaners
Bactericidal Cleaners

Others...

Water Softeners
Bleaching Liquids

Performance Drivers

Manufacturer's in these markets operate a highly competitive and consumer driven businesses where innovation and brand reputation are stars. GEA's 'Best-of-Breed' integrated process solutions deliver value by securing the project outcome in terms of product safety, batch time, hygiene, clean-ability & quality and delivery time to market so that the benefits of innovative products and brand market share are fully realized.

Processes

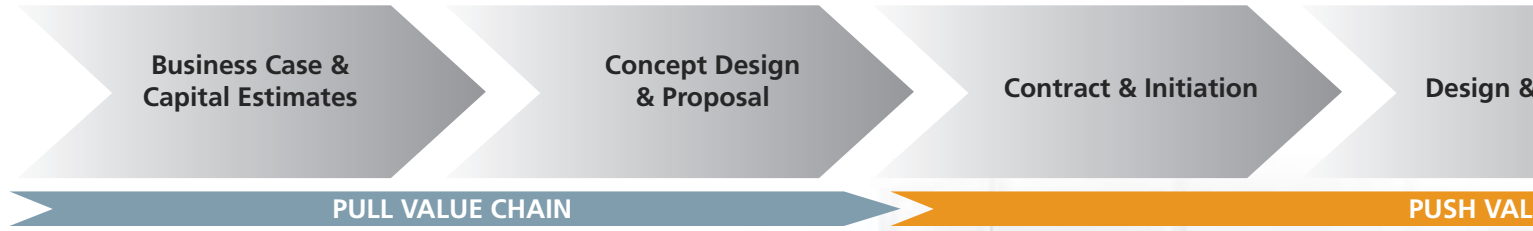
The processes in these areas present very specific challenges and require very specific skills. By developing and executing projects using dedicated resources and by dealing with a wide range of equipment and application troubleshooting through its 'Design Freedom', GEA has built a unique expertise in dealing with the significant variability of ingredients handling, mixing techniques, product characteristics, cleaning and hygienic processing. From bulk ingredients to minor additions, from miscible liquids to hard to disperse powders, from pasty and wax based products to flammable and water like ones, and from clear liquids to nano-emulsions, GEA has applied "know-how" in home and personal care manufacturing.

GEA Products & Applied Unit Operations

In-tank & in-line mixing, vacuum-mixing, dispersing, high-shear and high-pressure homogenizing, heating, cooling and flash cooling, powder & liquid dosing, de-aeration, bulk & product storage and distribution, product 'pigging' recovery, CIP & SIP are the key products and applied unit operations that GEA integrates in its projects.



From Conceptual Process Design ...



Building Trust

The partnership starts with listening to customer's specific needs and expectations. Understanding them is the key to our mutual success. GEA appoints an engineering team of dedicated professionals to work in its project team from the development of basic concepts through detailed design to fabrication, testing, and installation. By understanding our customer's processes, we take responsibility for delivering solutions on time, to agreed performances and on budget.



Conceptual Development

Working with the customers from the User Requirement Brief (URB), preliminary engineering is done to reflect a mutual understanding of specification, communicate process concepts, define the boundaries of the process, and determine the best way to integrate process modules into a plant wide operation. Our Proposals & Concept engineering teams consist of knowledgeable process and automation engineers, working in unison, to develop the very best process solution.

Engineering

Integration of the process design, detailed piping, instrumentation & electrical engineering is done by experienced in-house staff under the direction of a Project Manager familiar with the industry standards and requirements. GEA employs modern project management techniques including clearly defined stage gate reviews. We also apply the latest CAD techniques to generate manufacturing and installation diagrams up to the creation of 3-D imaging and Virtual Walk-Through'.

Automation & Controls

A successful process must operate within strict limits and control critical variables to enable robust and reliable solutions. For that GEA's automation and controls are intrinsically related to our process solutions, and - as such - is also done by experienced in-house staff. Moreover, our automation engineers are dedicated to the industry and work 'side by side' with the process specialists.



... to operation & plant life cycle support



Fabrication

GEA has its own manufacturing workshops in Europe, USA, China and India. Every GEA office also works with pre-qualified third party local workshops, the selection of location is carefully studied in a case by case basis and decisions are made based on best quality, cost, transport and delivery conditions. Our team of certified welders, mechanics and electricians – either staff or contractors – are all skilled technicians who take pride in their work, reflected in the high quality of the finished product.



Training & Initial Production Support

At GEA, training is a two tier process: in a first stage customer's key personnel are invited to join GEA's commissioning and start up team; after completion, formal training of operators and maintenance technicians is executed by GEA and - in the case of proprietary equipment - arranged with product managers. In some cases technical support at novel processes and new plants becomes essential



during the start of beneficial use, in such cases GEA also offers extended production support for all of its systems.

Installation, Commissioning & Start Up

Installation at site can be executed either by GEA or by the end-user. In any of these cases installation is supported by the same GEA engineers and technicians that have actively participated in the project development. Commissioning and Start Up are executed by GEA staff and usually involve dry testing, safety tests, initial cleaning & water testing and initial product trials. On completion a handover meeting is organized for smooth transition between GEA's and the customer's team before the start of beneficial use.



Plant Life Cycle Support

GEA deliver after sales service worldwide. The purpose is to provide continuous care to GEA plants including supply of spares and maintenance contracts. Software maintenance is also provided by GEA, remote modem access can be designed for and implemented in any of our automated systems. GEA also provides continuous support in the form of upgrading projects to meet the customer's changing market demand.



Sustainable Process Solutions

The Drive Toward Green and Natural

Many traditional home and personal care manufacturers have acknowledged the consumer trend towards green, natural or even organic products. To add such production lines into existing processing facilities creates a unique set of challenges that often includes concerns for containment and cross-contamination. Additionally, many natural ingredients are bio-sensitive and will degrade if not properly processed and contained prior to packaging. To tackle these issues, GEA Process Engineering has a range of solutions that enable reliable, contained and environmentally sustainable processing. The issues are identified and process solutions proposed through the delivery of:

- Feasibility studies
- Site surveys
- Process audits
- Conceptual designs
- Detail engineering
- Utility studies and calculations

Reduce Your Environmental Footprint

- Reduced batch times or continuous process
- Reduced chemical and water consumption
- Minimized rework due to consistent product quality
- Energy optimization
- Increased utilization and yield through efficient clean & change over
- Reduced effluent and emission
- Recover by-products in effluents as a marketable product



Case Studies

Implementing a Vision – Creams & Lotions

Customer: Top 10 personal care manufacturing company

Strategic Objectives:

- Offer preservative free products
- Manufacturing of a mixed portfolio
- Reduce product losses to less than 1%

Design Challenges:

- Apply best practice hygienic design & implement new product recovery techniques
- Development of flexible manufacturing line
- Integrate CIP & Chemical sanitization

Key Results:

- Customer is a pioneer on preservative free products
- Multi purpose operation 70+ product groups manufactured with product losses less than 1%

Increased Asset Utilization – Toothpaste

Customer: Top 10 personal care manufacturing company

Strategic Objectives: Increase production to meet increased demand

Design Challenges:

- Increase output of existing equipment
- Limited space & site utilities
- Improve cleaning times

Key Results:

- Significant Reduction of Batch Time
- Buffering to avoid bottlenecking of utilities
- CIP reduced from 8 hours to 4 hours

Process Innovation – Toothpaste

Customer: Top 10 personal care manufacturing company

Strategic Objectives: Reduce batch times

Design Challenges:

- Pre-mixing & pre-batching techniques
- Re-utilization of assets to limit investment
- Scale up from R&D to commercial

Key Results:

- Batch time reduced from 90 to 40 minutes
- Energy savings of 100,000 USD/Year
- Cleaning frequency from weekly to fortnightly
- CIP Cycle reduced from 120 to 40 minutes

Manufacturing For The Majors – Soaps & Gels

Customer: Small contract manufacturer

Strategic Objectives:

- Produce for top 10 manufacturing companies
- Increase capacity & quality at low unit costs

Design Challenges:

- Re-utilization of assets to limit investment.
- Upgrading of bulk handling, basic automated batching & washing procedures to 'World Class' level

Key Results:

- Batch time reduced from 7 hours to 4 hours using existing mixers
- Cleaning time reduced from 1 day to 2 hours
- Effluents reduced by 1/3
- First contract from majors awarded within 9 months from concept

Increased Capacity – Shampoo & Conditioners

Customer: Top 10 personal care manufacturing company

Strategic Objective: Reduce batch times

Design Challenges:

- Achieve simultaneous process operations
- Automated raw materials additions

Key Results:

- Batch time for large batches reduced from 6 hours to 3 hours

Keep It Simple and Flexible – Personal & Home Care

Customer: Top 10 personal care manufacturing company

Strategic Objectives: Develop 'World-Class' multi-purpose liquid manufacturing plants

Design Challenges:

- Alignment of different manufacturing techniques
- Standardization

Key Results:

- Reduced project risk & cost
- Reduced time to market
- Customer culture change on handling ingredients



GEA Process Engineering is a process technology organization dedicated to the development, engineering and implementation of integrated processes for home and personal care manufacturing plants, delivering secure outcomes with a global reach.

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Engineering Excellence.