GEA BATCH FORMULA® PRO High Shear Mixer

Typical applications include dressings, soups and sauces, beverages, dairy and home & personal care products.

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Placed at the bottom of the tank, without needing a recirculation loop, the BATCH FORMULA® PRO High Shear Mixer facilitates the production of uniform products. this single-pot processing solution decreases energy use, saves time and optimizes both clean-in-place (CIP) processes and manufacturing profitability.

Technology overview

Typical applications include dressings, soups and sauces, beverages, dairy and home & personal care products.

In the GEA BATCH FORMULA® PRO High Shear Mixer, powder is introduced via vacuum below the liquid surface to instantly wet the ingredients. Capable of handling difficult applications such as highly viscous products and/or those requiring micro-bubbles, the BATCH FORMULA® PRO High Shear Mixer is extremely flexible and is available with the following features:

- Vacuum for the instant wetting and deaeration of powders
- Heating and cooling jacket
- Direct steam injection
- Flash cooling and/or evaporation by vacuum
- Wide range of stators and knives

Hygienic design and total batch-to-batch drainage...

Benefits

- High shear and no shear in the same tank
- Stable suspensions
- Gentle product handling
- Hygienic design and total batch-to-batch drainage
- Multiple application versatility for highly viscous products
- Rapid dissolution of powders into liquids without fish eyes or agglomerates
- Multi-purpose applications

Typical applications include foodstuffs such as dressings, soups and peanut butter, household products such as detergent and window cleaners and personal care products such as creams, lotions, face masks and toothpaste.

GEA BATCH FORMULA® PRO High Shear Non-Vacuum Mixer

Batch Unit 500L, 1000L, 1500L, 2000L, 3000L

Affecting product quality, batch cycle times and total cost of ownership, selecting the most appropriate mixing and/or cooking technology is crucial for your process.

The GEA BATCH FORMULA® PRO High Shear Non-Vacuum Mixer enables all powder and liquid to be added manually from the top of the mixer. The powder will instantly be wetted, thereby creating a uniform and homogenous product. The high shear mixing device produces small oil droplets that contribute to a stable emulsion.

This one-pot process also decreases energy use, saves time and optimizes both clean-in-place (CIP) processes and manufacturing profitability. Typical applications include dressings, soups, sauces within the food industry as well as beverages and dairy products.

Key benefits

- One-pot-process for efficient cooking and mixing processes
- Dissolution of powders into liquids
- Support a stable suspension
- Hygienic design and total batch-to-batch drainage

Main components
- Tank
- High shear mixing device (HSMD)
- Stator ring, ø4 mm (available in other sizes)

Materials
All parts in contact with the product are made from stainless steel EN 1.4404 (AISI 316L). Other parts are made from EN 1.4301 (AISI 304).

Options
- Direct steam injection
- Knife/cutter
- Bin lifter
- Load cells
- Insulation

GEA BATCH FORMULA® PRO High Shear Non-Vacuum Mixer	500L	1000L	1500L	2000L	3000L
Processing parameters					
Batch capacity, L/h	500-2000	1000-4000	1500-6000	2000-8000	3000-12000
Batches per hour	1-4	1-4	1-4	1-4	1-4
HSMD, mm ø	190/290	190/290	190/290/390	290/390	290/390
Minimum batch, L	90	165	240	300	430
Max. dry matter, %	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
Max. viscosity, cP	≤ 5000	≤ 5000	≤ 5000	≤ 5000	≤ 5000
Consumption data					
Installed power, kW	37-45	37-55	37-75	55-75	55-75
Power supply, IE3, IP66, 50/60 Hz, V	380-480	380-480	380-480	380-480	380-480
Mixing temperature, °C	≤ 100	≤ 100	≤ 100	≤ 100	≤ 100
Seal water, L/h	10	10	10	10	10
Instrument air, NL/min	200	200	200	200	200
Steam quality	Dry & culinary	Dry & culinary	Dry & culinary	Dry & culinary	Dry & culinary
Connections* (for all sizes)					
Steam	Flange DN50, DIN 11850 type 11B				
Liquid inlet	DN50 - DN65 / ISO 2" - ISO 2½"				
Product outlet	DN65 - DN100 / ISO 2½" - ISO 4"				
Service water, ball valve	Female, BSP½"				
Cooling/hot water	Flange DN50, DIN 11850 type 11B				
Air	6 mm tube				
Estimated dimensions					
Length, mm	3000	3000	3000	3100	3700
Width, mm	1600	1800	1800	1900	2000
Height, mm	2800	3400	3600	3700	4000

* All connections are DIN 11851, unless stated otherwise
Above process parameters are guidelines and can vary depending on powder ingredients.

GEA BATCH FORMULA® PRO High Shear Vacuum Mixer

Batch Unit 500L, 1000L, 1500L, 2000L, 3000L, 4000L, 5000L up to 12000L

Affecting product quality, batch cycle times and total cost of ownership, selecting the most appropriate mixing and/or cooking technology is crucial for your process.

The GEA BATCH FORMULA® PRO High Shear Vacuum Mixer uniquely introduces powder under vacuum below the liquid surface. This instantly wets and deaerates the powder, thereby creating a uniform, homogenous, highly stable product with a long shelf-life. The high shear mixing device produces very small oil droplets that contribute to a stable, consistent emulsion.

This one-pot processing also decreases energy use, saves time and optimizes both clean-in-place (CIP) processes and manufacturing profitability. Typical applications include fragrances and flavors, pastry (“liquid” dough) within the food industry as well as beverages, personal care products and dairy products to some extent.

Key benefits

- One-pot-process for efficient cooking and mixing processes
- Rapid dissolution of powders into liquids without fish eyes or agglomerates
- Support a stable suspension
- Hygienic design and total batch-to-batch drainage
- Gentle product handling
- Multiple application versatility for highly viscous products

Main components

- Vacuum tank
- High shear mixing device (HSMD)
- Stator ring, ø4 mm (available in other sizes)
- Vacuum pump

Materials

All parts in contact with the product are made from stainless steel EN 1.4404 (AISI 316L). Other parts are made from EN 1.4301 (AISI 304).

Options

- Direct steam injection
- Knife/cutter
- Insulation
- Pressure tank (4 barg) up to 1000L
- Dimple jacket for heating/cooling
- With recirculation: Load cells & flowmeter

GEA BATCH FORMULA® PRO High Shear Vacuum Mixer	500L	1000L	1500L	2000L	3000L	4000L	5000L
Processing parameters							
Batch capacity, L/h	500-2000	1000-4000	1500-6000	2000-8000	3000-12000	4000-16000	5000-20000
Batches per hour	1-4	1-4	1-4	1-4	1-4	1-4	1-4
HSMD, mm ø	190/290	190/290	190/290/390	290/390	290/390	390	390
Minimum batch, L	250	400	550	650	750	1100	1200
Max. dry matter, %	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
Max. viscosity, cP	≤ 5000	≤ 5000	≤ 5000	≤ 5000	≤ 5000	≤ 5000	≤ 5000
Powder, kg/min.	≤ 100	≤ 150	≤ 200	≤ 200	≤ 200	≤ 200	≤ 200
Consumption data							
Installed power, kW	41-51	41-83	41-83	51-83	51-83	75-90	75-90
Power supply, IE3, IP66, 50/60 Hz, V	380-480	380-480	380-480	380-480	380-480	380-480	380-480
Mixing temperature (no vacuum), °C	≤ 100	≤ 100	≤ 100	≤ 100	≤ 100	≤ 100	≤ 100
Mixing temperature (vacuum), °C	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70
Service water, L/h at max 20 °C	≤ 400	≤ 400	≤ 400	≤ 600	≤ 600	≤ 600	≤ 600
Instrument air, NL/min	100	100	100	100	100	100	100
Steam quality	Dry & culinary	Dry & culinary	Dry & culinary	Dry & culinary	Dry & culinary	Dry & culinary	Dry & culinary
Connections* (for all sizes)							
Steam	Flange DN50, DIN 11850 type 11B						
Liquid inlet	DN50 - DN65 / ISO 2" - ISO 2½"						
Product outlet	DN65 - DN100 / ISO 2½" - ISO 4"						
Service water, ball valve	Female, BSP½"						
Cooling/hot water	Flange DN50, DIN 11850 type 11B						
Air	6 mm tube						
Estimated dimensions							
Length, mm	3000	3000	3000	3100	3700	3800	3800
Width, mm	1600	1800	1800	1900	2000	2200	2200
Height, mm	2800	3400	3600	3700	4000	4000	4100

* All connections are DIN 11851, unless stated otherwise
Above process parameters are guidelines and can vary depending on powder ingredients.

GEA BATCH FORMULA® PRO
High Shear Vacuum Mixer with Agitator

Batch Unit 500L, 1000L, 1500L, 2000L, 3000L, 4000L, 5000L up to 12000L

The multifunctional GEA BATCH FORMULA® PRO High Shear Vacuum Mixer with Agitator is a highly versatile powder and liquid mixing solution. Responding to the mixing industry's most pressing needs, including productivity, flexibility, quality and both product and operational safety, our extensive experience in this sector has enabled us to combine up- and downstream unit operations in a single one-pot-process.

Key benefits

- Optimized mixing and process times
- Hot and/or cold emulsification for food (mayonnaise and sauces) as well as cosmetic applications
- Grinding and cutting seeds, beans, whole vegetables, fiber-containing fruits, cheese blocks, etc.
- High shear and no shear in the same tank
- Deaeration during mixing and foam control
- Homogenous oil droplet sizes with small and repeatable particle size distribution
- Heat treatment, cooking and caramelization by indirect and/or direct steam to max. 90 °C (150 °C on request)
- Final soft blending of fragile particles/chunks such as fruits, vegetables and herbs
- Product pushout by applying 0.5 barg pressure in the tank headspace

Main components

- Vacuum tank with agitator
- High shear mixing device (HSMD)
- Stator ring, ø4 mm (available in other sizes)
- Vacuum Pump

Materials

All parts in contact with the product are made from stainless steel EN 1.4404 (AISI 316L). Other parts are made from EN 1.4301 (AISI 304).

Options

- Direct steam injection
- Knife/cutter
- Pressure tank (4 barg) up to 1000L
- Dimple jacket for heating/cooling

GEA BATCH FORMULA® PRO High Shear Vacuum Mixer	500L	1000L	1500L	2000L	3000L	4000L	5000L
Processing parameters							
Batch capacity, L/h	500-2000	1000-4000	1500-6000	2000-8000	3000-12000	4000-16000	5000-20000
Batches per hour	1-4	1-4	1-4	1-4	1-4	1-4	1-4
HSMD, mm ø	190/290	190/290	190/290/390	290/390	290/390	390	390
Minimum batch, L	250	400	550	650	750	1100	1200
Max. dry matter, %	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80	≤ 80
Max. viscosity, cP	≤ 50000	≤ 50000	≤ 50000	≤ 50000	≤ 50000	≤ 50000	≤ 50000
Powder, kg/min.	≤ 100	≤ 150	≤ 200	≤ 200	≤ 200	≤ 200	≤ 200
Consumption data							
Installed power, kW	44-60	44-90	44-90	51-90	51-110	775-110	75-110
Power supply, IE3, IP66, 50/60 Hz, V	380-480	380-480	380-480	380-480	380-480	380-480	380-480
Mixing temperature (no vacuum), °C	≤ 100	≤ 100	≤ 100	≤ 100	≤ 100	≤ 100	≤ 100
Mixing temperature (vacuum), °C	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70	≤ 70
Service water, L/h at max 20 °C	≤ 400	≤ 400	≤ 400	≤ 600	≤ 600	≤ 600	≤ 600
Instrument air, NL/min	100	100	100	100	100	100	100
Steam quality	Dry & culinary	Dry & culinary	Dry & culinary	Dry & culinary	Dry & culinary	Dry & culinary	Dry & culinary
Connections* (for all sizes)							
Steam	Flange DN50, DIN 11850 type 11B						
Liquid inlet	DN50 - DN65 / ISO 2" - ISO 2½"						
Product outlet	DN65 - DN100 / ISO 2½" - ISO 4"						
Service water, ball valve	Female, BSP½"						
Cooling/hot water	Flange DN50, DIN 11850 type 11B						
Air	6 mm tube						
Estimated dimensions							
Length, mm	3000	3000	3000	3100	3700	3800	3800
Width, mm	1600	1800	1800	1900	2000	2200	2200
Height, mm	2800	3400	3600	3700	4100	4100	4300

* All connections are DIN 11851, unless stated otherwise
Above process parameters are guidelines and can vary depending on powder ingredients.

GEA SERVICE - FOR YOUR CONTINUED SUCCESS.

Working with GEA Service means partnering with a dedicated team of service experts.

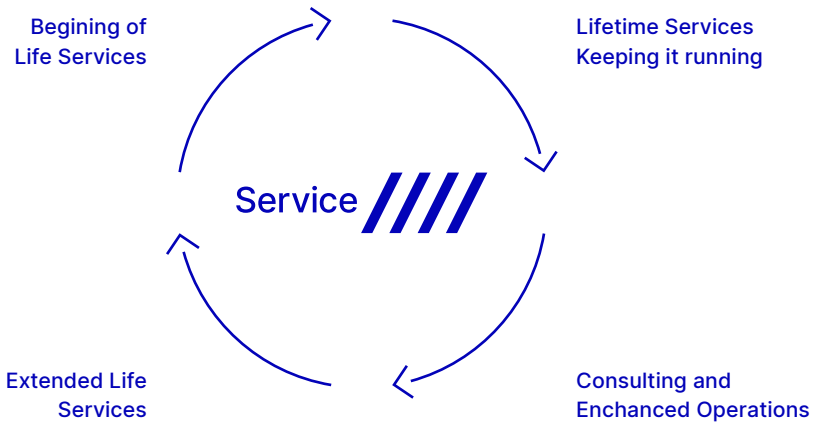
Our focus is to build, maintain, and improve customer performance throughout the entire life cycle of the plant and its equipment.

Begining of Life Services
Getting you started with seamless support for instant productivity and performance.

Lifetime Services
Keeping it running with the cost-efficient way of ensuring safety and reliability.

Extended Life Services
Constantly improving by sharing our knowledge to safeguard your investment

Consulting & Enhanced Operations
Together with you by enduring commitment to you and your business.



Engineering for a better world.

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