



# NORMIT

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## HOMOGENIZERS



# vacuum homogenizer

Models: VMG S 650 M

**Effective and reliable vacuum homogenizing unit designed to produce a wide range of liquid and viscous products.**



## Processes

- homogenizing
- dispersing
- heating
- cooling
- vacuum
- deaeration
- emulsification

## For production of wide range of liquid and viscous products

Model Normit VMG S 650 M is an **effective and reliable** vacuum homogenizing unit designed to produce a wide range of liquid and viscous products with different requirements for the production conditions. Ideal solution for industrial production of various sauces, whether they are completely homogeneous or contain inclusions.

# vacuum homogenizer

Models: VMG S 650 M

## Perfect homogenization, energy saving

The complete dissolving of components. Energy saving is achieved by reducing the processing time. The powerful homogenizers that are applied in the plant are the leaders in their class and they ensure the maximum level of product homogenization in the minimum possible time, with minimum energy consumption.

## Hoppers for dosing of ingredients, dosing system

The device is equipped with several hoppers for loading of ingredients, automatic dosing system of liquid solutions, touch panel control.



## Characteristic features:

- **Automatic control system.** by the customer's request, the plant can be supplied with a manual or semiautomatic control system.
- **Modern and compact design** - the optimal location of all modules with minimum space taken up and easy access for the operator and maintenance staff.
- **Hygienic design** - easy access to all surfaces with no dead zones in the vessel where the product can accumulate. Additional unloading pump is not required - which leads to higher hygiene.

## Macro-mixing without damaging the structure of product

Macro-mixing. A slow-speed agitator of a special shape with installed Teflon scrapers ensures an even distribution of ingredients across the entire volume - even if there is a small quantity of the product. The shape of the mixer ideally reflects the conical bottom part of the operating tank, which guarantees that there are no unmixed spots. Macro-mixing is carried out carefully, without damaging the structure of the product or its inclusions and without it breaking down into fractions.

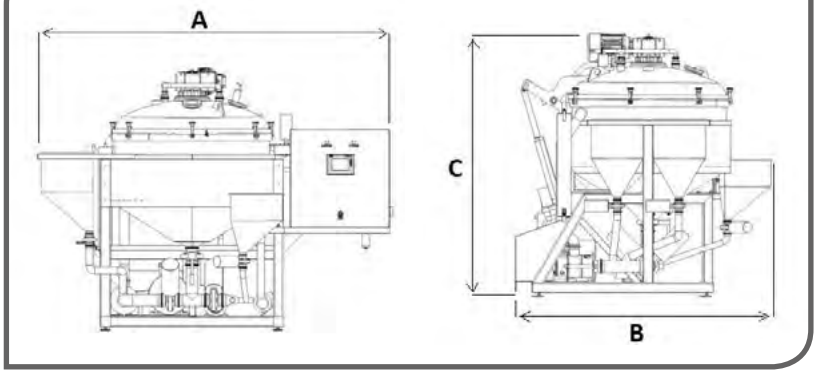




# vacuum homogenizer

Models: VMG S 650 M

## Technical drawings



Model	VMG S 650 M
Working volume, L	520
Geometric volume, L	650
A: length, mm	2 900
B: width, mm	2 200
C: height, mm	2 400
Weight, kg	926



NORMIT FOOD, s. r. o.  
Pezinská cesta 5104  
901 01 Malacky, SLOVAKIA

Skype:  
manager.normit

Telephone number:  
+421 902 400 321

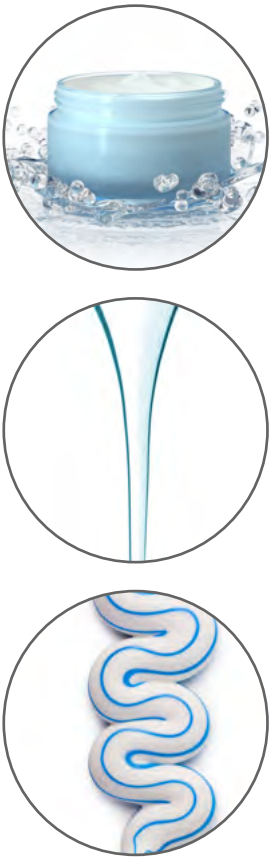
E-mail:  
sales@normit.com

Web:  
www.normit.com

# vacuum homogenizer

Model: VMG S 650

Homogenizing unit used for many different types of products, many different processes performed. High quality results



### Processes:

- mixing
- grinding
- homogenizing
- dispersing
- heating and cooling
- vacuum
- deaeration on a high quality.

### Effective and reliable vacuum homogenizing unit

Vacuum homogenizer VMG S is an effective and reliable vacuum homogenizing unit designed to produce a wide range of liquid, pastry and viscous products with different requirements for the production conditions. One of the uses is in cosmetic industry for producing cosmetic creams, toothpaste, gels or face masks.

# vacuum homogenizer

Model: VMG S 650

# vacuum homogenizer

Model: VMG S 650

### Perfect homogenized emulsions and dispersions

It creates perfect homogenized emulsions and dispersions. Unlike in the case of other similar models, homogenization and pumping are carried out separately. This approach ensures a higher level of homogenization that can be achieved by comparing to a combined mixer-homogenizer with an enhanced pumping function.

### Several hoppers for loading ingredients

The necessary degree of homogenization and grinding of the particle is achieved by circulating the mixture through a dispersing device integrated into the machine. The device is equipped with several hoppers for loading ingredients, automatic dosing system of wet solutions, touch panel control. The equipment is intended for use in the food, chemical, cosmetic and other industries.



### Benefits of vacuum

Mixing under vacuum – efficient elimination of air, degassing. The prepared product has a homogenous structure without air inclusions. The absence of air prevents bacteria from multiplying and significantly extends product storage time. Thanks to the minimum oxidation, it is possible to preserve the colour and taste of the product at its most natural, which is especially important in the case of oil- or fat-based products. The process of removing air allows you to lower the temperature of the product processing, maximally preserving its utility properties

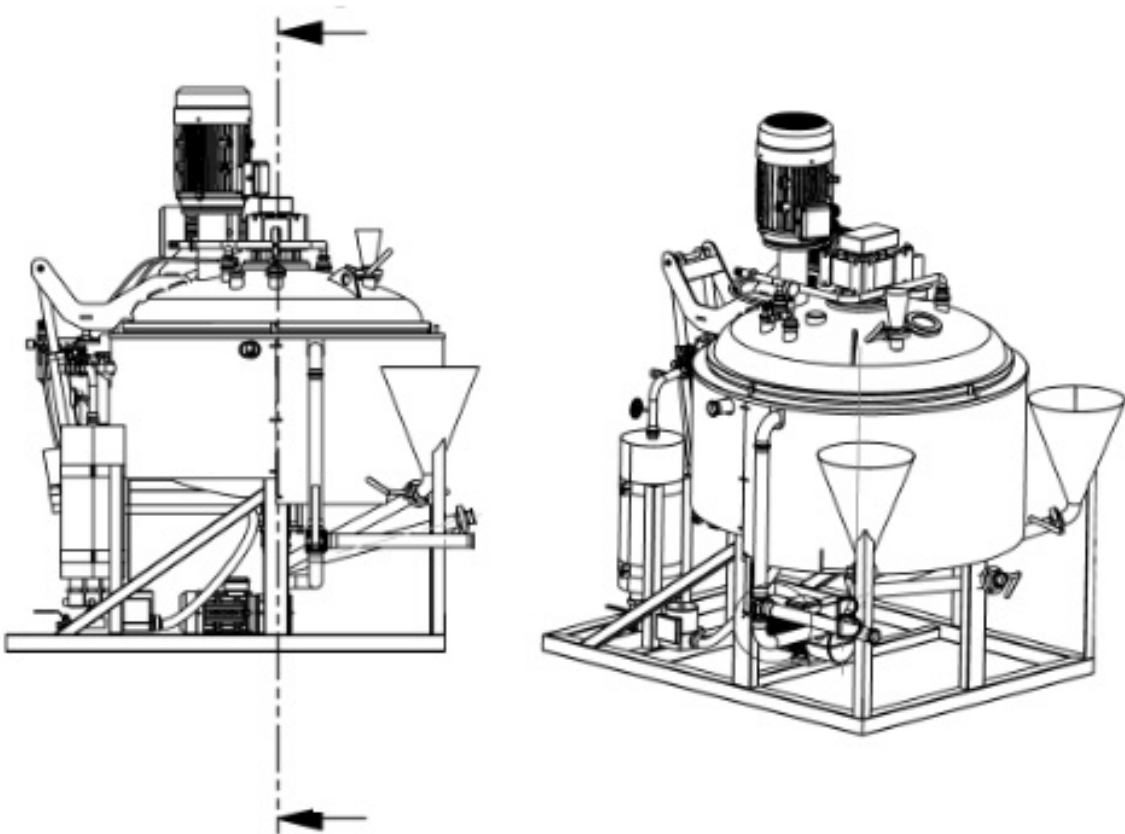


### OPTIONS:

- Direct steam injection - maximum intensive heating without loss
- The working vessel designed for work with overpressure
- The possibility of the production material AISI316L or AISI316Ti for parts that are in contact with the product
- A dose of ingredients with flow-meters and strain gauge weighing system
- Unload the product using a homogenizer or a supplementary pump



### Technical drawings



MODEL	VMG S 650
Capacity, l	795
Working capacity, l	570
Lenght, mm	1661
Height, mm	2316
Width, mm	1938
Height / width at open lid, mm	2617/2306
Material	AISI304/AISI316
Voltage, Volt	400/230
Frequency, Hertz	50



# vacuum homogenizer

Model: VMG S 650



NORMIT FOOD, s. r. o.  
Pezinská cesta 5104  
901 01 Malacky, SLOVAKIA

Skype:  
manager.normit

Telephone number:  
+421 902 400 321

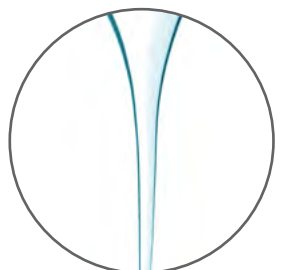
E-mail:  
sales@normit.com

Web:  
www.normit.com

# vacuum homogenizing mixer

Models: VMU 800

**Highly efficient production of a high viscosity pharmaceutical and cosmetic products.**



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## **Mixing of the product in horizontal and vertical direction**

In order to create intense rotational flow in the cover two reinforced breakwaters are mounted, equipped with blades providing specific mixing of the product in horizontal and vertical direction.

## **Universal use in pharmaceutical and cosmetic industry**

The module is a cylindrical container with a lid, equipped with a homogenization unit, a mixing device with scrapers, and a product recycling system. This equipment is designed especially for production of high viscosity pharmaceutical and cosmetic products such as cosmetic creams and other cosmetic products.

# vacuum homogenizing mixer

Models: VMU 800

### Easy operation

The insulation of the installation is made of polymeric materials with foil and stainless steel. The support structure has a working platform and a ladder for easy operation of the installation. The legs of the frame are adjustable for vertical installation.

### Improving thermal conductivity

Heating is provided in the form of Pillow-plate. It is possible to:

- use tap water
- reduce the thickness of the metal
- improve thermal conductivity
- eliminate the formation of local overheating.



### Technical features:

- The bottom has an ellipsoidal shape.
- At the bottom of the installation is the homogenizer
- Continuously adjustable disperser rotational speed, which works on the rotor-stator principle
- Product feed in front of a homogenizing head.
- There are two entrances to the work.
- The circuit is equipped with shut-off valves.
- The installation cover has an ellipsoidal shape.
- Along the perimeter of the cover there are seals and threaded fasteners for tight connection of the cover
- In the middle of the cover is located mixing gear motor

### Specially shapped agitator

The special design of the anchor type agitator with additional paddles and double-sided scrapers is designed for thorough mixing of the product without "dead zones" as in the horizontal and in vertical equipments. The stirrer is made of polished AISI31 stainless steel, scrapers are made from Teflon. Shaft mixing device equipped with a vacuum mechanical seals.



# vacuum homogenizing mixer

Models: VMU 800

### Technical drawings



MODEL	VMU 800
Geometric volume, l	800
Working volume, l	500
Lenght, mm	2050
Height, mm	2613
Width, mm	1764

NORMIT FOOD, s. r. o.  
Pezinská cesta 5104  
901 01 Malacky, SLOVAKIA





## vacuum homogenizer / mixer

Model: VMG M 100

**Vacuum homogenizing plant is designed for processing and manufacturing a wide range of liquid, pasty and viscous products with different requirements for their production conditions.**

### Carried out processes:

- Heating, cooling
- Cooking
- Mixing
- The evacuation
- Dispersion
- Emulsification
- Homogenization
- Deaeration

### Suitable products for use:

- **Milk** - soft cheese, yogurt, condensed milk, cream cheese, milk and cream
- **Fat** - oil, margarine, mayonnaise, pasta
- **Garden** - jams, ketchup, sauces, purees, pastes
- **Confectionery** - cream filled chocolate hazelnut, chocolate, etc



- **Soft** - juices, nectars and drinks
- **Cosmetics** - creams, shampoos, conditioners, gels, toothpaste
- **Pharmaceutical products** - ointments, emulsions, gels
- **Chemicals** - detergents, adhesives, paints and disinfectants



The structure of the device consists of a working container on the supporting frame with an insulating layer and a heating / cooling jacket. The low speed mixer with scraper has a top drive. On the bottom of the working vessel is an integrated homogenizer with the rotor-stator principle. Vessel mounted on rotatable supports with fixator. Product is unloaded by recirculation system of plant.

Depending on the customer's needs, different levels of automation can be selected: weighing and dispensing of raw materials, heating and cooling control, defrosting, emulsification, homogenization, agitator speed control and level of vacuum.

**Creating of vacuum** - the process of removing air allows you to lower the temperature of the product processing, maximally preserving its utility properties.

**Mixing** - Special shape mixer and geometry of working container ensure even mixing of the product without dead zones. Thanks to special "floating" scrapers, the product does not blend into the walls of the container and also helps to maximize heat or cold heat exchange from the walls to the product.

**Homogenization** - the integrated rotor-stator homogenizer at the bottom of the container ensures fast and efficient dispersion, emulsification and homogenization. The obtained product has an appealing outer appearance,

a stable and homogeneous structure does not separate and has a long shelf life. With the help of homogenizer, recirculation and product discharge are generated, no additional pumps need to be used, which increases the hygiene and ease the maintenance of the device.

**Heating and cooling** - the heating and cooling jacket allows heating, melting and cooling processes to be carried out in one device. Optionally, "direct injection of steam into a product" allows a significant reduction in the heating time and shorten product processing time.

The automated control system eliminates the human factor and guarantees a consistently high quality of finished product from batch to batch.

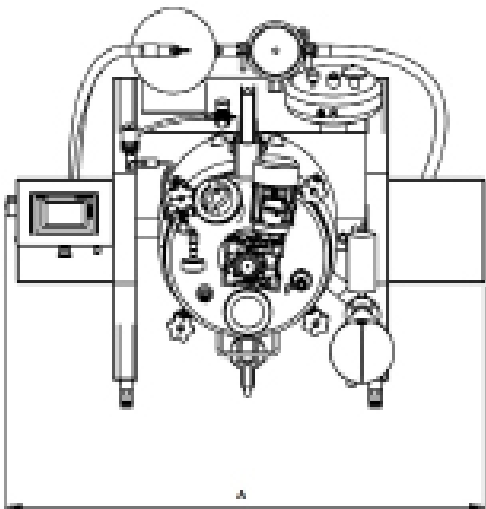
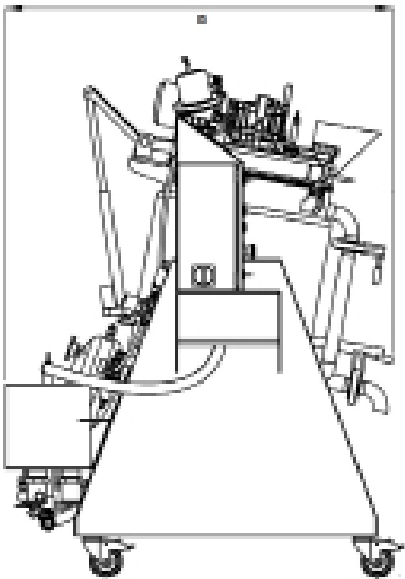
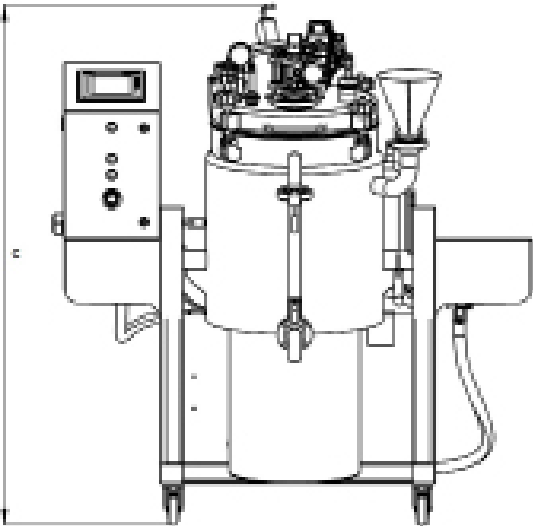


## Benefits of Vacuum Mixer Homogenizer

- Possibility of processing a wide range of liquid, pasty, viscous and high viscosity products.
- Minimum filling, 15% of the container volume.
- High performance.
- Reliable construction and long trouble-free operation.
- Fast transition to new product types.
- Simple operation, maintenance and sanitation.
- Low noise level.
- Recirculation system.

## OPTIONS:

- Inserting additional ingredients into the homogenizer vacuum chamber.
- The funnel for inserting the ingredients into the container during the working cycle.
- Tilting the container.
- Lid can be opened with gas-filled silencers.
- Various types of stirrers.
- Adjustable rotational speed of the agitator.
- Giving the sharp steam into the product.
- Different levels of automation.
- GMP design.



Model	VMG M 100
Geometric volume, L	100
Working volume, L	80
A: length, mm	1 503
B: width, mm	1 214
C: height, mm	1 632

NORMIT FOOD, s. r. o.  
Pezinská cesta 5104  
901 01 Malacky, SLOVAKIA

Skype:  
manager.normit

Telephone number:  
+421 902 400 321

E-mail:  
sales@normit.com

Web:  
www.normit.com





# NORMIT MH 120

## milk homogenizer/ kettle

The milk homogenizer/kettle is intended for highly efficient production of **soy, almond, rice or poppy seed milk and other types of plant milk.**

### Processes:

- mixing
- heating
- cooking
- homogenization down to a particle size of 2–5 microns

The Normit MH 120 milk homogenizer is made for producing plant milk. It consists of a cylindrical operating tank, an integrated high-power rotor/stator homogenizer, a heating system based on a direct steam injection, and a control system.

Direct steam injection to the product enables the heating process to be significantly intensified with minimal energy loss, as well as providing additional product macro-mixing effect.

The main intensive circulation of the product is performed by a homogenizer integrated into the bottom of the tank, which enables reduction of product particles down to the size of 2-5 microns. The homogenizer includes an autonomous lubricating and cooling system for the double end seal.



## EXCELLENT HOMOGENIZATION

Highly effective homogenization is achieved by the combined effect of the following factors:

- mechanical grinding and crushing
- multi-level cutting
- geometric acceleration of linear speed

- alteration of pulsating voltage
- cavitation
- ultrasound

**Ensures an exceptional level of homogenization.** The ready product does not exfoliate even during long-time storage.

## EFFICIENT HEATING

Direct steam injection to the product is the **most cost-effective and intensive method of heating with minimal inertia.** An additional factor that increases the cost effectiveness and efficiency of production of plant

milk on Normit MH 120 homogenizer is the effect of transformation of mechanical energy of the homogenizer to the thermal energy which enables faster heating and saves steam.

## IT IS HYGIENIC

The Normit MH 120 milk homogenizer has a hygienic design, which is **easy to clean and inspect.** There are no dead zones where the product could accumulate. The plant

has a **self-cleaning system:** the cleaning is performed by circulating of a cleaning detergent and water through the homogenizer following the way the product passes.

## CONTROL SYSTEM

In its basic version the homogenizer is equipped with a semi-automatic control system. Upon the client's request it can be equipped with an automatic control system based on an industrial controller that offers a function to program and save recipes.

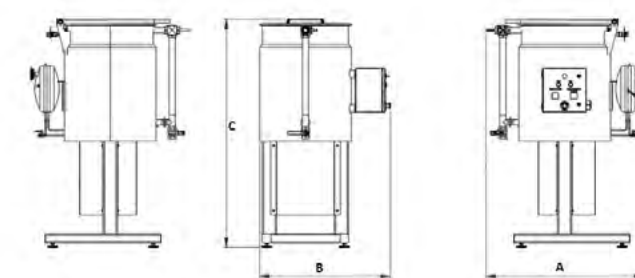
## ADVANTAGES

- high efficiency and productivity
- compact design
- economical solution
- hygienic
- easy to use and maintain
- high quality equipment made entirely in the EU with the application of European-produces materials and parts

## OPTIONS

A wide range of options allows choosing the plant that will best fit the desired production process:

- heating through a jacket
- possibility of cooling
- vacuum version
- manufacturing the equipment from AISI316 grade stainless steel
- can be equipped with any additional devices to create a complete production line according to customer's technological process



Model	MH 120
Working volume, L	120
Geometric volume, L	150
A: length, mm	1 100
B: width, mm	910
C: height, mm	1 580

NORMIT FOOD, s. r. o.  
Pezinská cesta 5104  
901 01 Malacky, SLOVAKIA

Skype:  
manager.normit

Telephone number:  
+421 902 400 321

E-mail:  
sales@normit.com

Web:  
www.normit.com



## Suitable products for use:

- **Milk** - soft cheese, yogurt, condensed milk, cream cheese, milk and cream
- **Fat** - oil, margarine, mayonnaise, pasta
- **Garden** - jams, ketchup, sauces, purees, pastes
- **Confectionery** - cream filled chocolate hazelnut, chocolate, etc



- **Soft-** juices, nectars and drinks
- **Cosmetics** - creams, shampoos, conditioners, gels, toothpaste
- **Pharmaceutical** products - ointments, emulsions, gels.
- **Chemicals** - detergents, adhesives, paints and disinfectants



## vacuum homogenizer / mixer

Models: VMG M LAB 20 / VMG M 50

The Vacuum Homogenizer Mixer **is the ideal solution for the production of pilot product batches and industrial production of a wide range of products in small and medium series.**

Thanks to its favorable price and versatility in the produced types of products, it is an optimal solution for start-ups and for production of pilot batches, preparation of recipes and testing of new types of production.

### Carried out processes:

- Heating, cooling
- Cooking
- Mixing
- The evacuation
- Dispersion
- Emulsification
- Homogenization
- Deaeration



The structure of the device consists of a working container equipped with an insulating layer and a heating / cooling jacket. The low speed mixer with scraper has a top drive. On the bottom of the working vessel is an integrated homogenizer with the rotor-stator principle. Vessel mounted on rotatable supports with fixator, product unloading is secured by tilting the container (manual or mechanical, depending on the volume of the container). The lid is easily tilted (manually or with the help of gas-filled silencers installed at the rear) and is sealed in its closed position by four clamps.

Depending on the customer's needs, different levels of automation can be selected: weighing and dispensing of raw materials, heating and cooling control, defrosting, emulsification, homogenization, agitator speed control and level of vacuum.





**Creating of vacuum** - the process of removing air allows you to lower the temperature of the product processing, maximally preserving its utility properties.

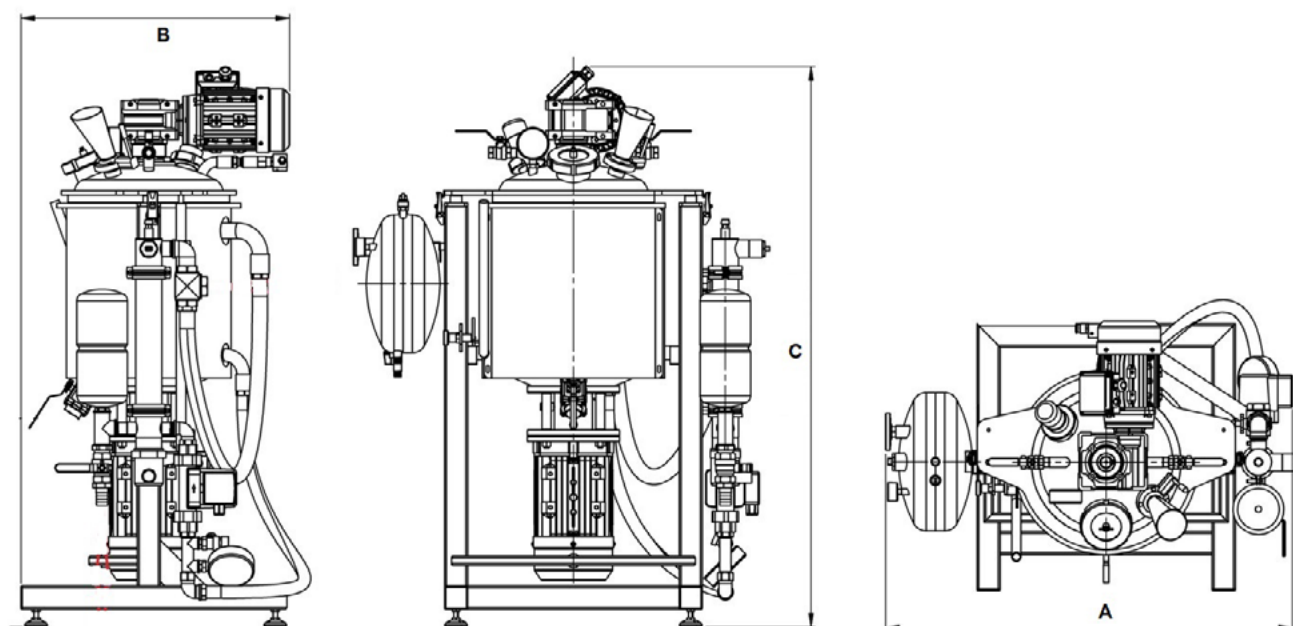
**Mixing** - Special shape mixer and geometry of working container ensure even mixing of the product without dead zones. Thanks to special "floating" scrapers, the product does not blend into the walls of the container and also helps to maximize heat or cold heat exchange from the walls to the product.

**Homogenization** - The integrated rotor-stator homogenizer at the bottom of the container ensures fast and efficient dispersion, emulsification and homogenization with a particle size of up to 3 microns (even smaller on demand). The obtained product has an appealing

outer appearance, a stable and homogeneous structure, does not separate and has a long shelf life. With the help of homogenizer, recirculation and product discharge are generated, no additional pumps need to be used, which increases the hygiene and ease the maintenance of the device.

**Heating and cooling** - the heating and cooling jacket allows heating, melting and cooling processes to be carried out in one device. Optionally, "direct injection of steam into a product" allows a significant reduction in the heating time and shorten product processing time.

The automated control system eliminates the human factor and guarantees a consistently high quality of finished product from batch to batch.



Model	VMG M LAB 20	VMG M 50
A: length, mm	883	883
B: width, mm	584	988
C: height, mm	1 200	1 200

## Benefits of Vacuum Mixer Homogenizer

Low costs for equipment purchases, suitable for start-ups, for developing new recipes and for production of pilot production batches.

- Possibility of processing a wide range of liquid, pasty, viscous and high viscosity products.
- Minimum filling, 15% of the container volume.
- High performance.
- Reliable construction and long trouble-free operation.
- Fast transition to new product types.
- Simple operation, maintenance and sanitation.
- Low operating costs and low resource consumption.
- Low noise level.

## OPTIONS:

- Inserting additional ingredients into the homogenizer vacuum chamber.
- The funnel for inserting the ingredients into the container during the working cycle.
- Tilting the container.
- Lid can be opened with gas-filled silencers.
- Various types of stirrers.
- Adjustable rotational speed of the agitator.
- Giving the sharp steam into the product.
- Different levels of automation.
- GMP design.
- A set of validation documents for use in the pharmaceutical industry.

NORMIT FOOD, s. r. o.

Pezinská cesta 5104  
901 01 Malacky, SLOVAKIA

Skype:  
manager.normit

Telephone number:  
+421 902 400 321

E-mail:  
sales@normit.com

Web:  
www.normit.com



## vacuum homogenizer / mixer

Model: VMG S 300 I

Vacuum homogenizer VMG S 300 I is designed for processing and manufacturing a wide range of liquid, pasty and viscous products with different requirements for their production conditions and similar products including products with high viscosity.

The plant provides the highest level of homogenization of the mixture and intensive mixing for a short time and with minimal energy consumption.

## Suitable products for use:

- **Milk** - yogurt, condensed milk, milk and cream
- **Fat** - oil, margarine, mayonnaise, pasta
- **Garden** - jams, ketchup, sauces, purees, pastes.
- **Confectionery** - cream filled chocolate hazelnut, chocolate, etc



- **Soft** - juices, nectars and drinks
- **Cosmetics** - creams, shampoos, conditioners, gels, toothpaste
- **Pharmaceutical** products - ointments, emulsions, gels
- **Chemicals** - detergents, adhesives, paints and disinfectants



## Carried out processes:

- Heating, cooling
- Cooking
- Mixing
- The evacuation
- Dispersion
- Emulsification
- Homogenization
- Deaeration

## BENEFITS:

- Significant time reduction for preparing a batch of products, due to the high efficiency of the processes of heating, cooling, mixing and homogenization.
- Consistently high quality of the finished product, repeatable results from batch to batch.
- Highly reliable construction and long-term trouble-free operation.
- Ability to produce a wide range of products at the same plant.



# DESIGN

The plant's design consists of a thermally insulated cylindrical vessel equipped with a heating jacket for a liquid heat-carrier or steam. Depending on the customer's requirements, the working vessel's design can be welded or fitted with a lifting or hinged lid. The unit is equipped with a frame agitator with a top or bottom drive and built into the bottom of the vessel's homogenizer type rotor-stator. The plant in its standard configuration is equipped with a vacuum station and an automatic control system based on PLC.

The product is intensively circulated through an integrated high performance homogenizer and mixed with a horizontal agitator, providing efficient heat transfer between the sides of the vessel and the product. The special shape of the agitator and the placement of the emulsifying homogenizer ensure efficient operation of the plant using only 15% of the total volume of the vessel. Installation of a one or two-level contour of the outer recirculation is possible.

A highly hygienic design of a vacuum emulsifying mixer is made in accordance with the requirements of GMP.

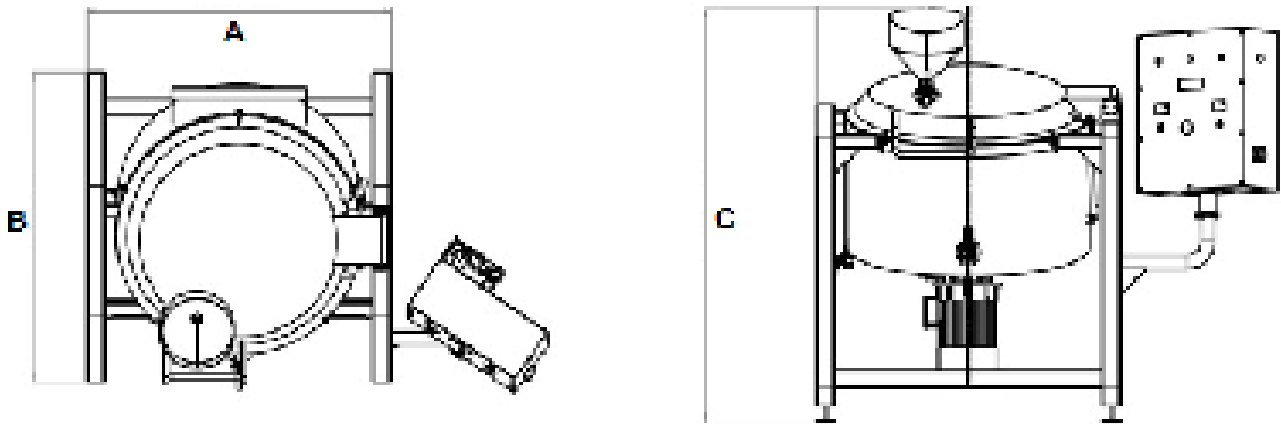


Model	VMG S 300 I
Geometric volume, L	300
A: length, mm	1 360
B: width, mm	1 387
C: height, mm	1 850



# FEATURES AND OPTIONS

- Any degree of surface treatment.
- Standard configuration of the plant is designed to work under a vacuum; it is possible to manufacture the plant for operation at significant pressure.
- Any form of agitator on demand, variable speed mixer.
- Ability to install a multi-stage homogenizer to produce super thin emulsions and ointments.
- Possibility for installation of an external high speed homogenizer, which for certain applications may replace the use of a high pressure homogenizer.
- Feeding of ingredients with a flow meter or tensometric system.
- Device for sanitary sampling during the process.
- When inserting of powdered ingredients directly into the vacuum chamber, a homogenizer for complete wetting and uniform distribution of the particulates in the fluid.
- Fixed or rotary CIP balls.
- Interchangeable working elements of homogenizer allow picking the perfect type of rotor and stator for various applications.
- Advanced control system with visualization, temperature control, agitator speed, homogenizer speed, depth of the vacuum pressure.



NORMIT FOOD, s. r. o.  
Pezinská cesta 5104  
901 01 Malacky, SLOVAKIA

Skype: manager.normit      Telephone number: +421 902 400 321      E-mail: sales@normit.com      Web: www.normit.com



## Carried out processes:

- Heating, cooling
- Cooking
- Mixing
- Emptying
- Dispersion
- Emulsification
- Homogenization
- Deaeration

## Suitable products for use:

- **Milk** - yogurt, milk, cream, condensed milk.
- **Fat** - oil, margarine, mayonnaise, pasta.
- **Paste products** - jams, ketchup, sauces, purees, pastes.
- **Confectionery** - cream filled chocolate hazelnut, chocolate, etc.



- **Soft** - juices, nectars and drinks.
- **Cosmetics** - creams, shampoos, conditioners, gels, toothpaste.
- **Pharmaceutical products** - ointments, emulsions, gels.
- **Chemicals** - detergents, adhesives, paints and disinfectants.



The device guarantees a stable **high quality finished products** and **batch reproducibility**.

## vacuum homogenizer / mixer

Model: Normit VMG S

300 / 600

Model Normit VMG S is an **effective and reliable vacuum homogenizing unit designed to produce a wide range of liquid, pastry and viscous products with different requirements for the production conditions.**

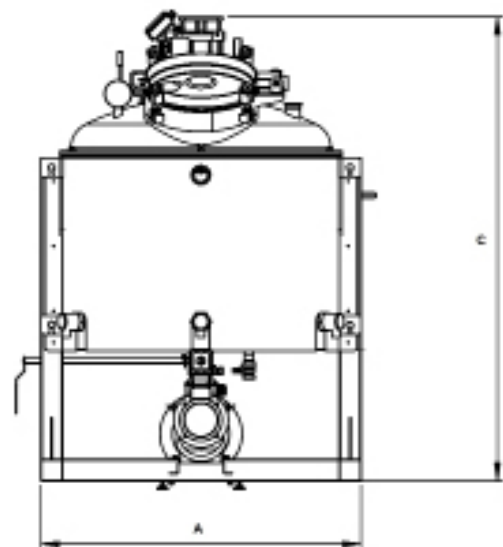
Ideal solution for industrial production of various sauces, whether they are completely homogeneous or contain inclusions.

It creates **perfect stable emulsions and dispersions**. Unlike in the case of other similar models, homogenization and pumping are carried out separately. This approach ensures

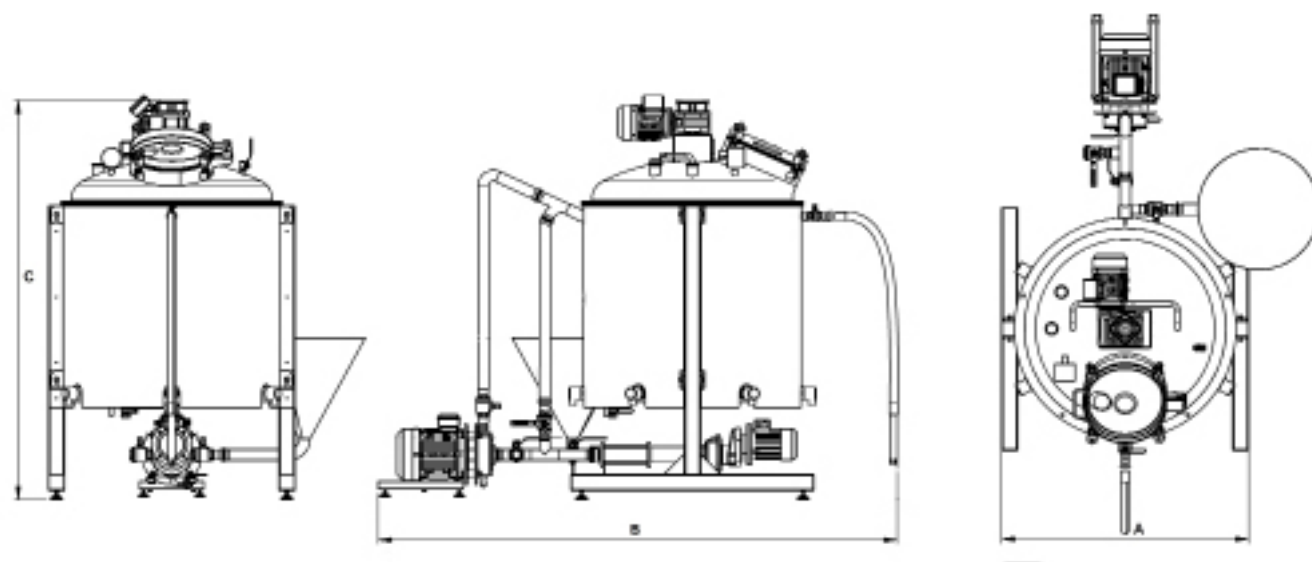
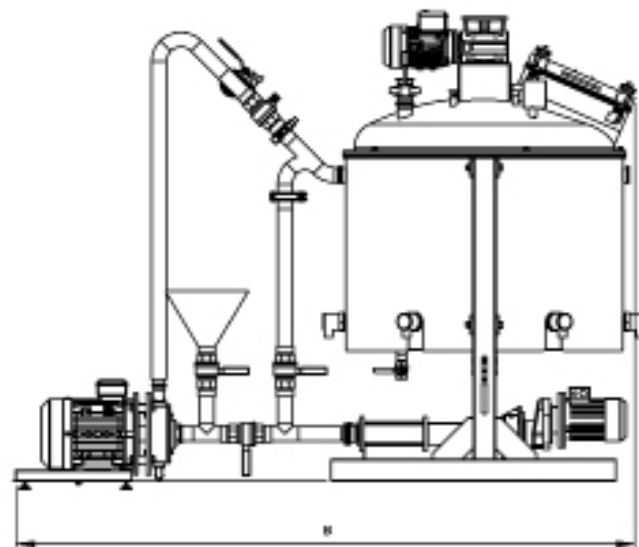
a higher level of homogenization that can be achieved by comparing to a combined mixer-homogenizer with an enhanced pumping function. The necessary degree of homogenization and grinding of the particle is achieved by circulating the mixture through a dispersing device integrated into the machine.







VMG S 300



VMG S 600

Model	VMG S 300	VMG S 600
Geometric volume, L	300	600
A: length, mm	1 170	1 227
B: width, mm	2 260	2 579
C: height, mm	1 695	1 982



## CHARACTERISTIC FEATURES:

- **Control system** - by the customer's request, the plant can be supplied with a manual, semi-automatic or automatic control system.
- **Modern and compact design** – the optimal location of all modules with minimum space taken up and easy access for the operator and maintenance staff.
- **The complete dissolving of components.**
- **Energy saving** is achieved by reducing the processing time.
- **Perfect homogenization.** The powerful homogenizers that are applied in the plant are the leaders in their class. They ensure the maximum level of product homogenization in the minimum possible time, with minimum energy consumption. A homogenizer is installed at the bottom of the vessel, working on the rotor-stator principle. The product is being homogenized at the bottom and unloaded at the top of the working vessel. It is hydraulically connected with the container and ensures fast and efficient dispersion, emulsification and homogenization. If the mixture is too dense, it is recommended to supplement the device with a pump that helps to increase mixing and homogenization efficiency.
- **Heating and cooling.** The specially designed heating/cooling jacket allows heating or cooling. Hot water or steam serve as a heating medium.
- **Macro-mixing.** A slow-speed agitator of a special shape with installed Teflon scrapers ensures an even distribution of ingredients across the entire volume – even if there is a small quantity of them. The shape of the mixer ideally reflects the conical bottom part of the operating tank, which guarantees that there are no unmixed spots. Macro-mixing is carried out carefully, without damaging the structure of the product or its inclusions and without it breaking down into fractions (when manufacturing products that do not require homogenizing but only mixing).
- The scrapers continuously clean the walls of the mixing chamber for **maximum efficiency of the heat exchange**.
- The design of the mixer ensures **efficient mixing** of both liquid and thick products with high viscosity.

# By the customer's request can be plant equipped with:

- air intake system,
- CIP cleaning,
- frequency converter,
- several funnels for loading ingredients,
- automatic dosing system of wet solutions,
- touch control panel.

**Vacuum process** – efficient elimination of air, degassing. The prepared product has a homogenous structure without air inclusions. The absence of air prevents bacteria from multiplying and significantly extends product storage time. Thanks to the minimum oxidation, it is possible to preserve the colour and taste of the product at its most natural, which is especially important in the case of oil- or fat-based products. **The process of removing air allows you to lower the temperature of the product processing, maximally preserving its utility properties.**

## OPTIONS:

- Direct steam injection - maximum intensive heating without loss.
- The working vessel designed for work with overpressure.
- The possibility of the production material AISI316L or AISI316Ti for parts that are in contact with the product.
- A dose of ingredients with flowmeters and strain gauge weighing system.
- Unload the product using a homogenizer or a supplementary pump.
- **Hygienic design** - easy access to all surfaces with no dead zones in the vessel where the product can accumulate. Additional unloading pump is not required - which leads to higher hygiene.

