

MANUAL

Enmix Light

High-speed agitator mixer



Version: 2023-06

FOREWORD

This assembly manual is intended for use by technicians who are qualified to install this type of machine. It is not a user manual.

The Enmix Light has no real function when it is not connected to the appropriate facility for this installation and consequently it is classified as an unfinished machine. This assembly manual contains only those instructions pertinent to the safe assembly, correct installation and safe operation of the Enmix Light. It does not contain operating instructions for the entire installation. The approved installer should provide these.

Each chapter is numbered and, where appropriate, the chapters are divided into sections. The table of contents on page 3 gives an overview of the chapters and sections and a reference to the appropriate page number.

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1 IDENTIFICATION

This overview contains general information about the machine. The aim of this document is to define the purpose, the overall functioning and the application field of the machine.

1.1 General

1.1.1 Description of the machine

The Enmix Light consists mainly of four components:

1. Electric motor (1)
2. Assembly plate; PVC black (5)
3. Mixing shaft; stainless steel 316, max. length: 1250 mm (6)
4. Mixing disc; PVC black (7)

A mounting frame which can be placed between the Enmix Light and the liquid reservoir is optionally available. The material for this frame is stainless steel 304. It's also possible to request the mounting frame as stainless steel 316. This all must be specifically requested.

The purpose of the machine is to keep liquids in motion in order to promote their dissolution and prevent precipitation. The Enmix Light drive unit must be mounted above a fertilizer bin or other container of liquid substances such that the mixing disc will continue to rotate below the surface of the liquid up to the lowest liquid level.

1.1.2 Specifications

Standard specifications Enmix Light	
Motor power	0,37 kW
Sealant	IP55
Condenser	12,5 μ F
Material	Stainless steel 316

Engine specifications							
Frequency	Supply voltage	Current	Motor revolutions	Fase	Cos ϕ	Weight	No. VDEG
50 Hz	200 V	3.0 A	1400 RPM	3F	0.69	6.0 kg	53010460
50 Hz	230 V	3.0 A	1370 RPM	1F	0.96	6.2 kg	53010400
50 Hz	230 V / 400 V	1.99 A / 1.15 A	1400 RPM	3F	0.69	5.4 kg	53010440
60 Hz*	230 V	3.6 A	1650 RPM	1F	0.99	6.2 kg	53010420
60 Hz*	480V	0,98A	1710 RPM	3F	0,65	5,4 kg	53010480

Table 1 Specifications

* cURus certificated

1.1.3 Schematic diagram of the machine

Below are the main components of the Enmix Light, represented by a number and corresponding name.

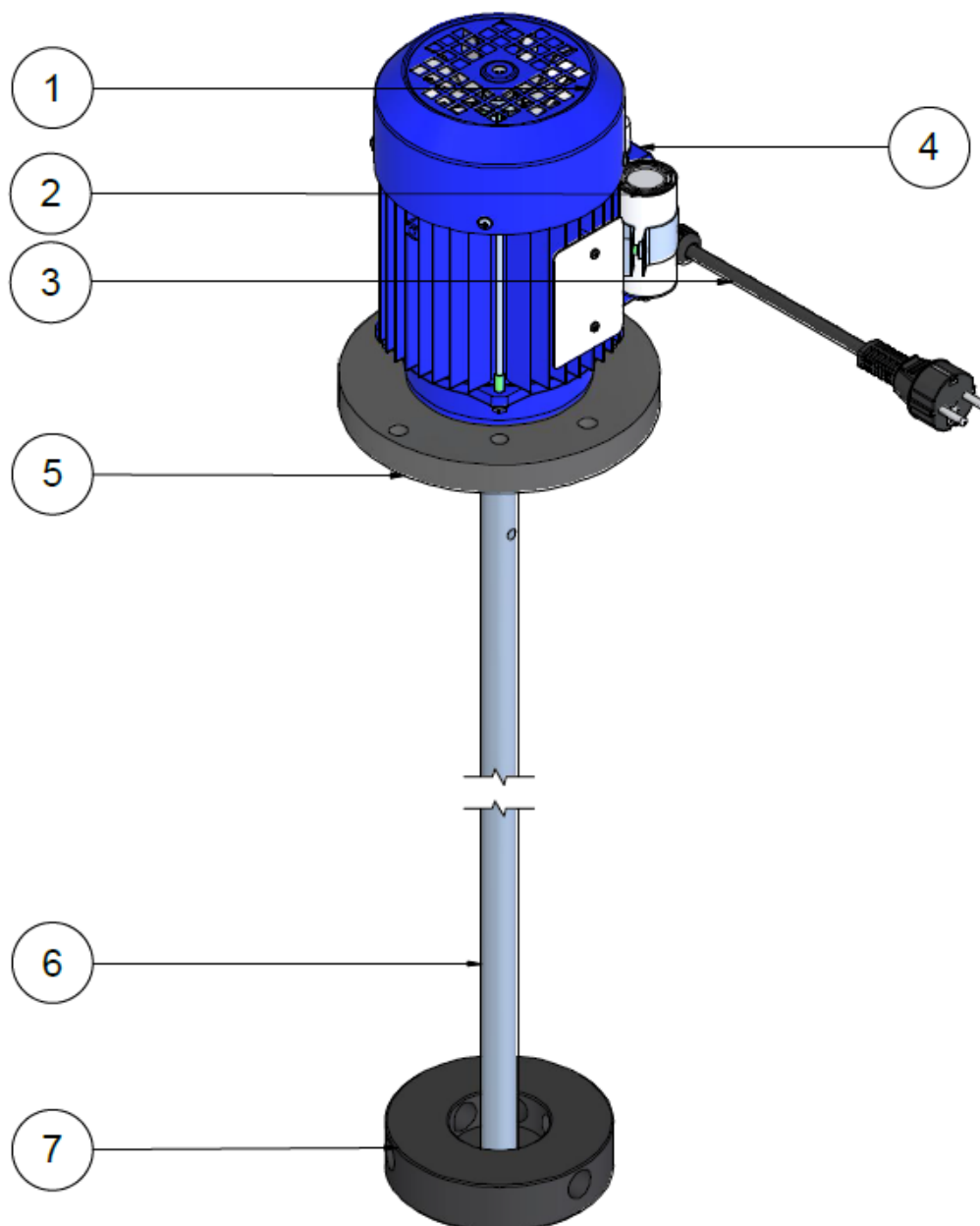


Figure 1 Overview of components Enmix Light

No.	Description	
1	Electric motor	
2	Capacitor 12.5 μ F	(Only at 1-phase motors)
3	Cable + Plug (2 meter)	(Only at 1-phase motors)
4	Terminal box + thermal protection	(Only at 1-phase motors)
5	PVC mounting plate	
6	Mixer shaft	Length max. 1250 mm
7	PVC mixing disc	\varnothing 128 mm @50 Hz \varnothing 112 mm @60 Hz

Table 2 Main components of the Enmix Light

1.2 Operation

The Enmix Light is supplied without controls. The Enmix Light 230 Vac version is supplied with locking thermal protection and with approximately two meters of cable.

The Enmix Light must be connected to a switched socket outlet or a timer to operate the machine. The reset button for the thermal protection is located in the cover of the motor's terminal box.



Reset button
Thermal
switch

Figure 2 Location of the reset button

1.3 Use

The Enmix Light is intended to be used for the mixing and continuous agitation of liquids containing additives. To achieve this, the Enmix Light must be mounted above a fertilizer bin or other container with the mixing disc in the liquid.

In connection with the chemical resistance properties of the materials which make up the Enmix, the Enmix cannot and must not be used in just any medium. The manufacturer should be contacted for questions and advice in this matter. Upon request, the manufacturer can also provide a list of suitable and unsuitable chemicals.

Under no circumstances may the media contain long fibers (longer than 5mm), neither may viscous media (>1000 mPas) be mixed with the Enmix Light.

The supplier or the manufacturer should be contacted for advice on the use of media and the Enmix Light in general.

The Enmix Light is **not** intended to be used without being placed on a liquid reservoir. The Enmix is not intended to be used for the purpose of processing foodstuffs.

1.4 Users

Intended users are at least 18 years of age, employed by the company where the Enmix Light is installed and appointed by the management as the competent and qualified person to operate the Enmix Light.

Unintended users are users who do not meet the above requirements. Unintended users are all users who, by using the Enmix Light, create unsafe situations or cause danger to themselves and/or others

1.5 Media

Placing an image/comment in relation to the Enmix Light should always be discussed in advance with the producer/supplier. If this is not observed, any consequential damage can be recovered from this person/company.

1.6 Operating environment

The Enmix Light is intended to be used as a mixer that is mounted on a fertilizer bin or other container. When installing the mixer, care should be taken to ensure there is sufficient free space around the Enmix Light. The Enmix Light must be mounted on a fertilizer bin or other container of liquid substances.

The Enmix Light is not intended for use in explosive surroundings.

1.7 Guarantee conditions

This product is guaranteed for a period of 6 months from the proven date of commissioning, with a maximum date of 2 years after the date of production. The proven date of commissioning means the date on which the machine was installed.

If a claim is made on the guarantee, the parts in question must be submitted to the manufacturer for evaluation.

The warranty will cease to be valid if any of the following conditions apply:

- Improper use or installation
- Repeatedly ignoring the advice of the supplier and/or manufacturer
- Repair, maintenance or use by unauthorized persons
- Use of unsuitable connections with regard to power supply or cables
- Use of the machine in an unsuitable environment
- Intentional damage or adaptations to the machine

The guarantee conditions are conform to the METAALUNIE CONDITIONS (the Dutch organization for small and medium-sized enterprises in the metal industry) published in January 2014.

1.8 CE an UKCA mark

The CE an UKCA mark relates to compliance with the directives as mentioned on the declaration. The Enmix Light is an unfinished machine and consequently does not meet all the conditions and essential safety requirements at the time of delivery. A list of the conditions and safety requirements that the Enmix Light does not meet at the time of delivery may be obtained from the manufacturer.

The CE and UKCA mark can be found on the sticker affixed to the motor.

According to the Low Voltage Directive, the Enmix Light is classified as a Class I device.

1.9 Residual risks

It is practically and economically impossible to cover all risks for the full 100%. Furthermore, one of the risks of the machine may be closely connected to its functionality. The so-called residual risks are shown in the table below. It is important that the user is aware of the risks involved when using this machine. All safety regulations should be followed in order to minimize the risks as much as possible.

Risk page No.	Residual risk description	Risk factor	Category
1.	Machine contains unprotected rotating parts	3	A
2.	Parts can become live under fault conditions which could cause electrocution	3	A
3.	Motor can become very hot when in a warm environment	4	A

Table 3 List of residual risks

2 DESCRIPTION

This chapter contains an explanatory description of the machine, which is the background information that is required to correctly and safely use the machine.

2.1 General

The rotation of the mixer shaft and the mixing disc sets the liquid in the reservoir in motion. The mixing disc takes in the liquid from above and then sends the liquid downwards and to the side via the channels in the mixing disc. In the disc there are 3 channels towards the bottom of the disc and 3 channels directly to the side of the mixing disc. This causes the liquid to move as shown in Figure 3. The standard direction of rotation of the mixing disc is clockwise (viewed from above).

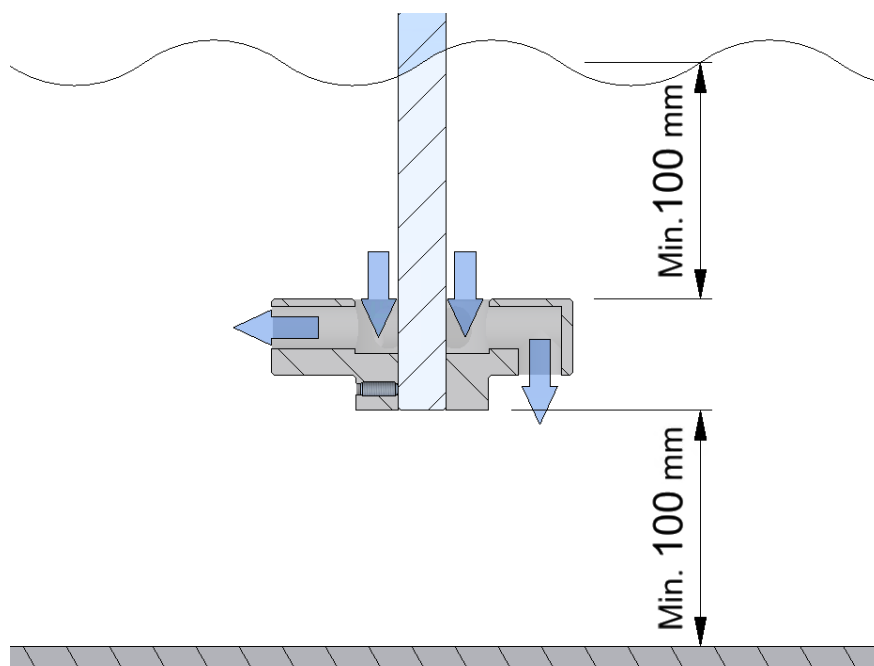


Figure 3 Position of the mixing disc

2.2 Operating principle

The Enmix Light construction comprises a motor and an extended shaft to which a mixing disc has been attached. The shaft can be customized to fit every fertilizer bin or other container of liquid substances shorter or shallower than 140 cm. The mixing disc must be mounted at least 10 cm from the bottom and must be able to rotate freely while submerged in the liquid.

The material used is predominantly stainless steel type 316 and POM black. When working with low pH values (under pH4) or with other stronger chemicals ensure beforehand whether the material is sufficiently resistant to these chemicals.

The shaft is not supported. Because the mixing disc propels the liquid in two directions (downwards and sideways) and from the centre (from the top), the shaft remains balanced.

It is recommended to check the mixing disc once a month to ensure that it is not clogged.

2.3 Transport and storage

The Enmix Light is transported and should be stored in special packaging. The Enmix is transported as a complete product, the shaft length should be adjusted at the end-user by an approved installer. When storing the Enmix Light, care must be taken not to allow the mixer shaft and, where appropriate, the shaft guide to bend.

3 SAFETY INSTRUCTIONS

Please read this assembly manual carefully and ensure that you observe the safety instructions before installing or using the Enmix Light.

The Enmix Light may only be used within the application areas for which it has been designed.

The Enmix Light has been designed to operate as a mixer for a system in which liquid media are used. These media may only contain chemical substances that are compatible with the materials of the Enmix Light components that come in contact with them. Further information on the application areas can be found under paragraphs 1.5, 1.6 and 1.7.

Work on the machine or installation of the electrical part of the Enmix Light may only be carried out by qualified personnel.

Make sure the power supply is connected to a final circuit with an earth connection with a maximum fuse value of 16A and a circuit breaker with residual current of 30mA.

Add solids gradually to prevent blockage of the mixing discs.

Always follow all assembly and safety instructions. Failure to observe these instructions may cause serious damage to persons or property.






Safety symbol	Description
	Automatic starting machine!
	Electric voltage present!
	Hot surface!
	Rotating parts!
	Reading instructions obligated!

Table 4 Safety instructions Enmix Light

4 ASSEMBLY

4.1 General

The Enmix Light is an unfinished product, and consequently the manufacturer cannot install all the required safety devices such as control logic or an emergency stop. It is, therefore, important that the approved installer takes care of these requirements.

4.2 Installation instructions

Please make sure that the Enmix Light is out of reach of children at all times.

Advice with regard to dosage rates and types of fertilizer should be obtained from your supplier.

- Make sure the fluid reservoir which the Enmix light is mounted to is placed on a stable surface.
- Make sure that the Enmix Light is firmly attached to the fertilizer bin or container.
- Make sure at all times that the mixing disc can rotate freely.
- Make sure that contact with the agitator-mixer is prevented by placing a safety grid or lid on the fertilizer bin or container.

During each phase of the assembly the approved installer or the user must ensure that he or she can work safely. The use of a stepladder or the helping hand of an extra person or persons will make assembly of the machine easier and safer.

4.3 Delivery checklist

Make sure all components have been delivered prior to commencing assembly. The Enmix light will be assembled at the supplier before shipping. At every batch of Enmix light there will be an assembly manual attached.

4.4 Assembly

the numbers between parentheses referring to the numbers and parts in Figure 4.

- Measure the depth. from the surface where the mounting plate (5) is assembled to, to the bottom of the reservoir.
- Shorten the shaft (6) if necessary and ensure that the mixing disc (7) is at least 100 mm above the bottom of the fluid reservoir.
 - The shaft (6) can be shortened using a hacksaw or cutting disc.
 - File away any burrs.
- Insert the shaft (6) through the opening in the mixing disc (7).
- Please note that the suction side is facing to the top (see Figure 4).
- Fix the mixing disc (7) to the shaft (6) using two stainless steel set screws m6x16 (8).
- Attach the mounting plate (5) to the reservoir or a structure above this.

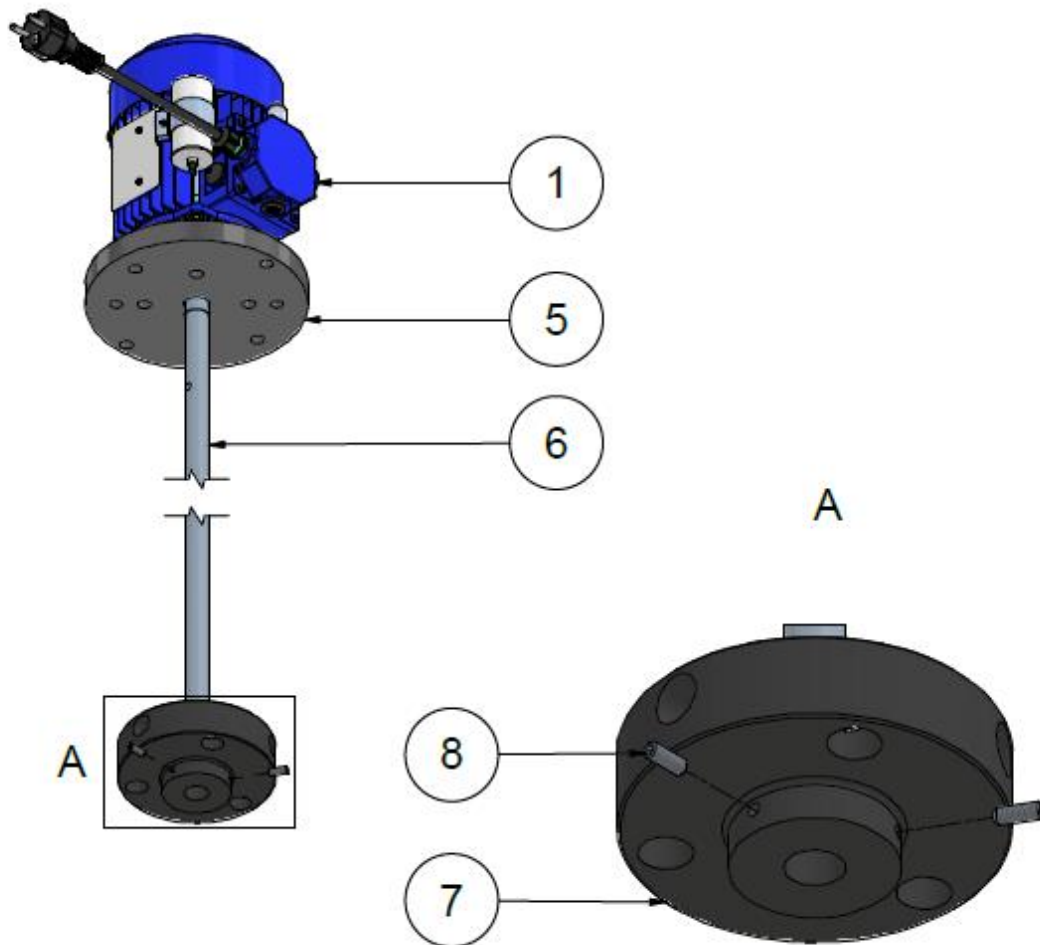


Figure 4 Assembly of the Enmix light

4.5 Installation

- Select a suitable location for the Enmix Light:
 - Ensure the mixing disc can rotate freely.
 - Ensure the mixing disc rotates +/- 100 mm from the bottom of fluid reservoir
 - see Figure 3
 - Ensure that the mixing disc is submerged during standard operation.
 - Ensure there is sufficient space around the Enmix Light.
 - Ensure there is a socket outlet within a maximum range of 2 meters from the Enmix Light.
 - Ensure the Enmix Light is within view of the socket outlet.
- Prepare for installation:
 - Consider where to place the Enmix Light.
 - Make the necessary arrangements to mount the Enmix Light onto the bin or container.
 - Use the pre-drilled holes in the mounting plate to mount the Enmix Light.
 - In a round bin or container, the water sometimes turns and swirls in one direction instead of mixing. In consultation with the manufacturer, place a dividing plate in the bin or container to prevent this from happening or position the Enmix Light away from the centre.
 - Ensure the Enmix Light can be mounted safely onto the bin or container.
 - Request assistance and use practical aids such as a stepladder or a footstool.
- Mount the Enmix Light onto the bin or container.
- Make sure the mixer is fitted with a safety guard and poses no danger to people!
 - Use a cover or grid or any other appropriate guard.
- Assemble the mixing disc following Figure 3 and Figure 4. If the assembly of the mixing disc is done in the wrong way, the fluid can be sprayed upwards. This could create dangerous situations.

4.6 Connecting / start-up

- Check that the Enmix Light is securely mounted.
- Check that the motor and mixing disc are firmly attached to the mounting plate.
- Check that the shaft can rotate freely.
- Check that the mixing disc can rotate freely.
 - Make sure there are no obstacles in the way of the mixing disc.
- Make sure that the mixing disc is mounted at least 100 mm from the bottom of the bin or container.
- Fill the bin or container with liquid up to at least 100 mm above the mixing disc.
- Make sure the mixer has a safety guard and poses no danger to people!
- Insert the plug in the socket.
 - The Enmix must be within view of the socket outlet.
 - The socket outlet must have an earth connection.
 - A switched socket outlet is highly recommended.
- Check the rotational direction. The standard direction, viewed from above, is clockwise.

Note: In most cases, it is not necessary to continue mixing. Operating the Enmix Light with a timer and/or low water circuit is recommended. This will prevent unnecessary turning and will significantly increase the lifespan of the machine.

5 OPERATION/USING FOR THE FIRST TIME

Use the Enmix Light to dissolve chemical agents in water. Do not dissolve long fibres (longer than 5mm) or viscous agents (viscosity > 1000 MPas) with the Enmix.

- Always make sure that the agents and liquids used are suitable for use in the Enmix Light. The supplier or manufacturer should be able to send you a list, free of charge, containing a complete overview of the agents that may or may not be used.

The Enmix Light may be used for acids to a minimum level of pH4.

6 MAINTENANCE

The Enmix Light is practically maintenance free. It is recommended to check the installation each month and to report any defects to the supplier or the manufacturer.

Always disconnect the power supply before performing any maintenance work on the Enmix. Pull the plug out of the socket.

6.1 Regular checks

Frequency: monthly

- Check that the mounting plate is still firmly attached to the reservoir.
- Check that the motor and reduction gearbox are still firmly attached to the mounting plate.
- Check that the mixer disc can rotate freely.
- Make sure that the mixing disc is mounted at least 100 mm from the bottom of the reservoir.
- Make sure that the mixing disc is free of fixed elements and that all ports are open.
- Check that the mixer shaft is straight

7 MALFUNCTIONS

Below is a table of possible malfunctions and their cause. Always make sure that the power supply is disconnected prior to carrying out any repair work to the Enmix Light.

Problem	Cause	Solution
The mixer no longer turns	No power	Check power supply
	Thermal protection is switched off	Remove any large parts in the bin or container and press the thermal protection reset button
	Condenser is broken	Replace condenser
Thermal protection switches off repeatedly	Too much dirt on the mixing disc (clogged)	Remove large parts and press the thermal protection reset button
	Shaft is bent	Contact your supplier

Table 4 Malfunctions and solutions

8 CE DECLARATION OF CONFORMITY

EC-DECLARATION OF CONFORMITY

(according to Annex II B of the Machinery Directive 2006/42/EC)

We, Van der Ende Pompen B.V.
Aartsdijkweg 23
2676 LE Maasdijk
The Netherlands

declare under our sole responsibility that the machine:

Enmix Light agitator-mixer

to which this declaration relates, complies with all the provisions of the following Directives:

Machinery Directive	2006/42/EC
Low Voltage Directive	2006/95/EC
EMC Directive	2004/108/EC

and (where applicable) complies with the following standards or other normative documents.

The Netherlands
Maasdijk
14 January 2020



9 UKCA DECLARATION OF CONFORMITY

UKCA-DECLARATION OF CONFORMITY

We, Van der Ende Pompen B.V.
Aartsdijkweg 23
2676 LE Maasdijk
The Netherlands

declare under our sole responsibility that the machine:

Enmix Light agitator-mixer

to which this declaration relates, complies with all the provisions of the following Directives and their amendments:

Supply of Machinery (Safety) Regulations	2008:1597
Electrical Equipment (Safety) Regulations	2016:1101
Electro Magnetic Compatibility Regulations	2016:1091

and (where applicable) complies with the following standards or other normative documents.
Not applicable

The Netherlands
Maasdijk
14 January 2020









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