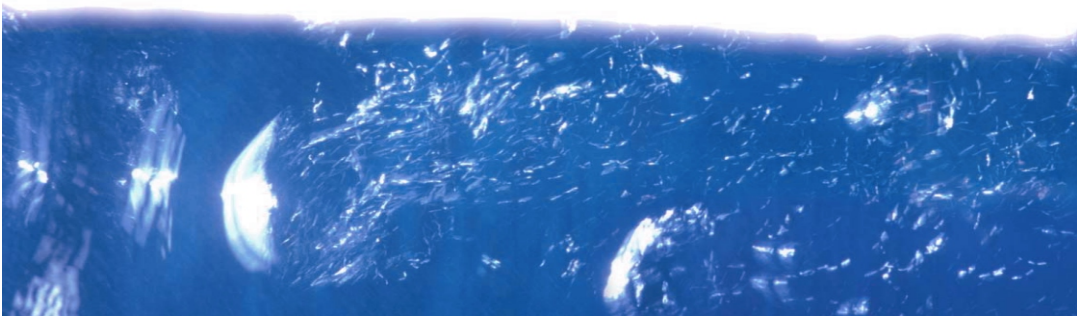




AQ Elteknik

AQ Dynamic Mixer

manual



AQ Dynamic Mixer

□ Manual version: 2.1 September 2010



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1. Declaration of conformity

Manufacturer information

AQ Elteknik AB operates a policy of on-going development and reserves the right to make changes and improvements to any of the products described in this manual without prior notice.


Under no circumstances shall AQ Elteknik AB be held responsible for any loss or indirect damage howsoever caused. The contents of this document are provided as it is. AQ Elteknik AB reserves the right to revise this document or withdraw it at any time without prior notice.

EC declaration of conformity

Manufacturer: AQ Elteknik AB Sweden declares, that the product:

The AQ Dynamic Mixer marked with CE-label conforms with the following standards: EN 61000-6-2, EN 55011 (Group 1, Class B). Machinery standard 2006/42/EC

The AQ Dynamic Mixer is RoHS Compliant, directive 2002/95/EC.

The AQ Dynamic Mixer marked with  conforms to WEEE. When the AQ Dynamic Mixer is to be discarded it shall be sent back to AQ Elteknik AB for safe disposal. See "Manufacturer Information" for return address. Before sending the AQ Dynamic Mixer to AQ Elteknik AB it must be clean and without any harmful contaminations.

A certificate shall be attached with the AQ Dynamic Mixer that confirms the cleaning and shows information:

- Who has cleaned the AQ Dynamic Mixer (company if other than sender)
- Who has checked and confirmed that the AQ Dynamic Mixer is clean (company and person)
- Who is sending back the AQ Dynamic Mixer (company)

Limited Warranty

AQ Elteknik AB warrants to the original end user that the AQ Dynamic Mixer is free from any defects in materials or workmanship for a period of one year from the date of purchase. During the warranty period, should the AQ Dynamic Mixer have indications of failure due to faulty workmanship or materials, AQ Elteknik AB will replace it with no charge. This warranty shall not apply if the AQ Dynamic Mixer is opened, modified, misused or subjected to abnormal working conditions.

Replacement as provided under this warranty is the only remedy of the purchaser. The purchaser pays freight to AQ Elteknik AB. AQ Elteknik AB shall in no event be held liable for indirect or consequential damages of any kind or character to the purchaser.

The AQ Dynamic Mixer is intended to be used with the Motor Controller and Stirrer manufactured by AQ Elteknik AB. AQ Elteknik AB takes no responsibility for any possible damage that could happen if the AQ Dynamic Mixer is connected to any equipment not manufactured by AQ Elteknik AB.

Manufacturer information

Manufacturer: AQ Elteknik AB
address: Alsikegatan 4
SE-753 23 Uppsala
Sweden
phone: + 46 (0)18-18 34 30
fax: + 46 (0)18-10 50 04
web: www.aqelteknik.com
e-mail: info@aqelteknik.se

2. Introduction

Important

This manual must be read carefully before installation and start-up. All warnings and prohibitions must be considered. Negligence can result in personal injuries and or material damage.

General

AQ Dynamic Mixer is specially designed to sit on a tank and stirring liquids. The simple design makes it easy for users to assemble and disassemble the stirrer without using any tools. Because a simple design there is no servicing to do except to clean it. Motor Controller manufactured by AQ Elteknik AB allows you to control AQ Dynamic Mixer via Profibus or 4-20mA. AQ Dynamic Mixer is compact and designed for pharmaceutical and biotech industry demands. All wetted parts are made of acid-proof 316L steel and USP VI class plastic.

Installation

AQ Dynamic Mixer is not intended to be a separate unit. AQ Dynamic Mixer must always be mounted on a tank in order to comply with all safety precautions when operating. Under no circumstances should anything other than AQ Elteknik AB materials be used with AQ Dynamic Mixer to guarantee the equipment and CE approvals. All electrical installations must be performed by qualified personnel.

Safety

AQ Elteknik AB is not responsible for fluids and chemicals which AQ Dynamic Mixer come in contact with. It is therefore important that the operator or surrounding personnel determines which protective equipment and routine applies.







Cleaning

AQ Dynamic Mixer is designed to withstand CIP cleaning (clean in place) up to 65 °C for a maximum of 20 minutes. The stirrer can be steam sterilized separately. Take 95% ethyl alcohol on a soft cloth to clean the outside at the AQ Dynamic Mixer. If the connector on top of the AQ Dynamic Mixer have been removed make sure that it is dry before refitting the connector. **IMPORTANT!** Make sure the stirrer is dry before refitting into the AQ Dynamic Mixer, also the hole at the top of the stirrer must be dry. Never spray directly at the outside of AQ Dynamic Mixer.






3. Labels

AQ Dynamic Mixer is labelled with the following information:

- Type
- Serial number
- Max Power
- Max Current
- Speed
- Protection Class
- Weight
- Manufacturing year
- Max Voltage
- Revision
- Manufacturer information
- Warning

 AQ Elteknik AB Alsikegatan 4 753 23 Uppsala Sweden Phone: +46 18183430 Fax: +46 18105004 www.aqelteknik.com	AQ Dynamic Mixer	
	Type: Serial no: Max Power: Max Current: Speed:	Protection Class: Weight: Mfg Year: Max Voltage: Rev.:
     Made in Sweden		



Symbol	Description
	WARNING! Read the manual before using the Mixer.
	China RoHS Environment-safety use period 20 years.
	This symbol indicates that the waste of electrical and electronic equipment must not be disposed as unsorted municipal waste and must be collected separately. See page 4 how to do.
	The Mixer complies with the requirements for electromagnetic compliance (EMC) in Australia and New Zealand.
	The Mixer meets all the essential requirements of applicable EU directives.

4. Symbols

Danger



Danger in case of wrong use of the Mixer. If wrongly used it can lead to severe body injuries or death. This symbol can also mark risk for damages on equipment.



Careful

Danger that can lead to damages on the Mixer or surrounding equipment.



Document reference

Reference to a document.

5. Safety and directions of use



The Mixer contains moving parts.
Never insert your fingers/ parts of the body into the Mixer while it is in operation.



Do not touch parts of the Mixer that has been in contact with the fluid after operation. When the Mixer operates with hot fluids (temperatures above 50 °C), there is a risk of burning the skin.



Before handling the Mixer check what type of liquid it is in the tank to have the right protective equipment if necessary.



Do not use the Mixer in explosive area. (with this symbol )



Make sure the Mixer is steadily mounted. It is not designed to be held by hand. Make sure that no one can fall and be hurt when the Mixer is in operation.



There must be an emergency stop in the vicinity of the Mixer, which breaks the power to the motor controller.



The Mixer is only for industrial use.



The Mixer is only to be used for blending liquids.

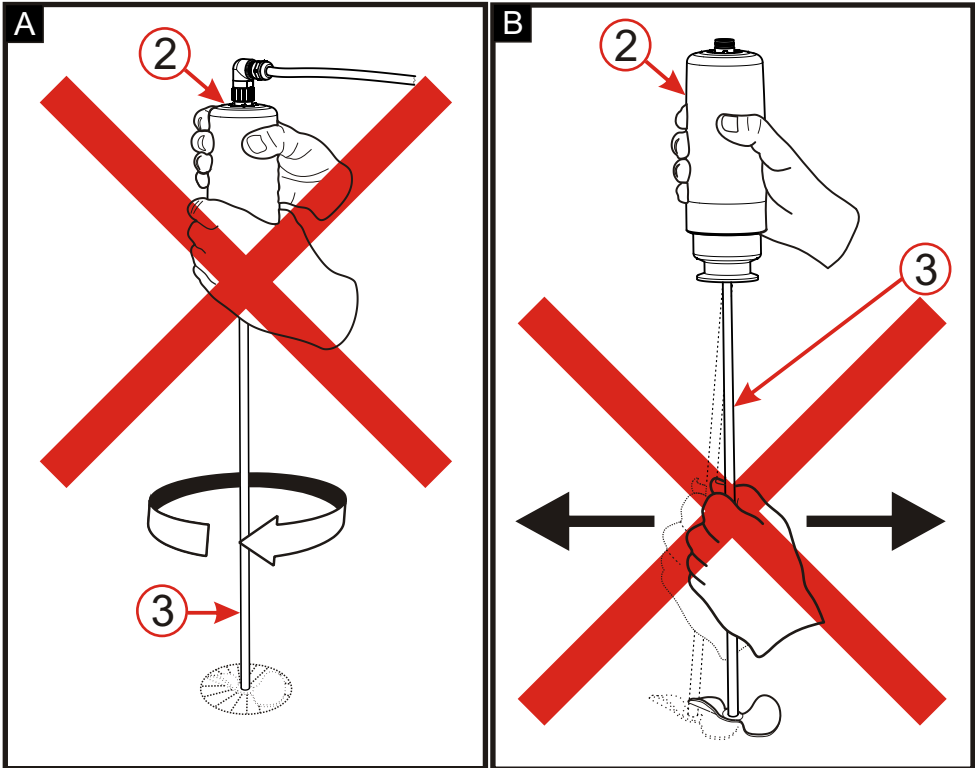


The stirrer must always be inserted into the Mixer when it is assembled on a tank. This is to prevent corrosion due to liquid entering into the Mixer trough the opening for the stirrer.
The pressure inside the tank can not exceed 3 bar g.



The Mixer is not designed to withstand Sterilization-In-Place (SIP).
The stirrer can handle sterilization separately.

5. Safety and directions of use



A
Do not touch the stirrer **3** when it is rotating. There is an imminent risk for a pinch or cut if touching the stirrer **3** when it is rotating. Never hold the mixer **2** with rotating stirrer **3**.



B
Never force the stirrer **3** sideways or carry the mixer **2** at the stirrer **3**.

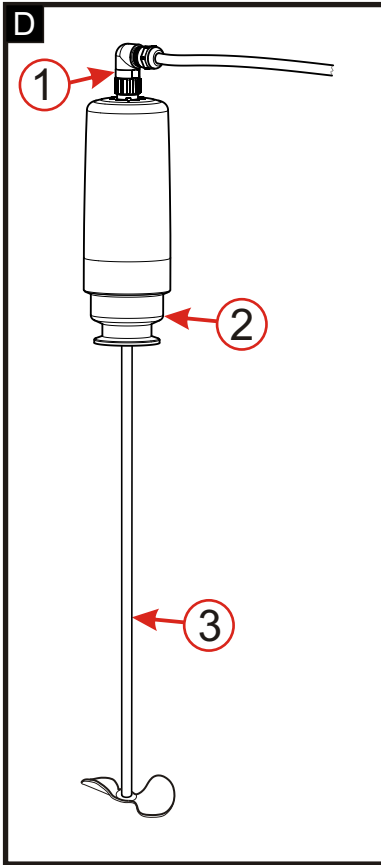
5. Safety and directions of use



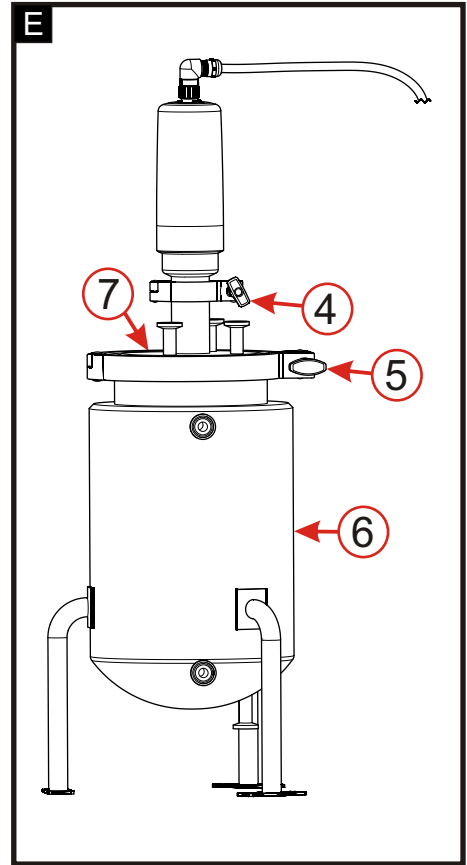
C

Do not pour any kind of liquid inside the mixer **2**. This for preventing corrosion.

6. Mixer parts and Mixer on a tank



- D**
- 1 Connector
 - 2 Mixer
 - 3 Stirrer



- E**
- 4 Small clamp
 - 5 Big clamp
 - 6 Tank
 - 7 Tank lid

7. Electrical installation



Before connecting the power supply to the mains, check local regulations on electrical safety as well as the applicable standards.

All connection must be performed by qualified personnel.

Take the appropriate measures to prevent any fault.

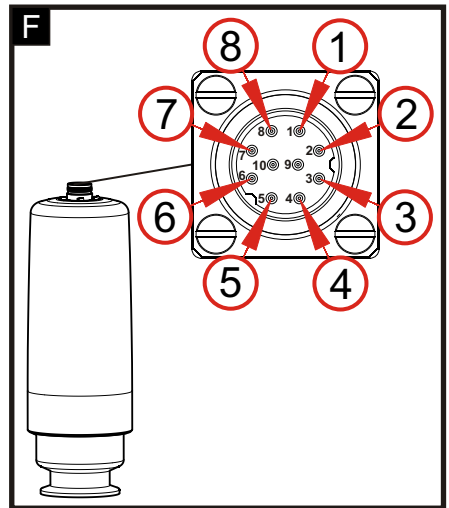
The power supply must be provided with devices for protection against power overload and short-circuits.

The mixer must be connected correctly in order to function correctly.

F

Pin configuration. Cable color.

1	Motor winding A	White
2	Motor winding B	Brown
3	Motor winding C	Green
4	Hall sensor -0V	Yellow
5	Hall sensor A	Gray
6	Hall sensor B	Pink
7	Hall sensor C	Blue
8	Hall sensor +5V	Red
9	Not used	
10	Not used	

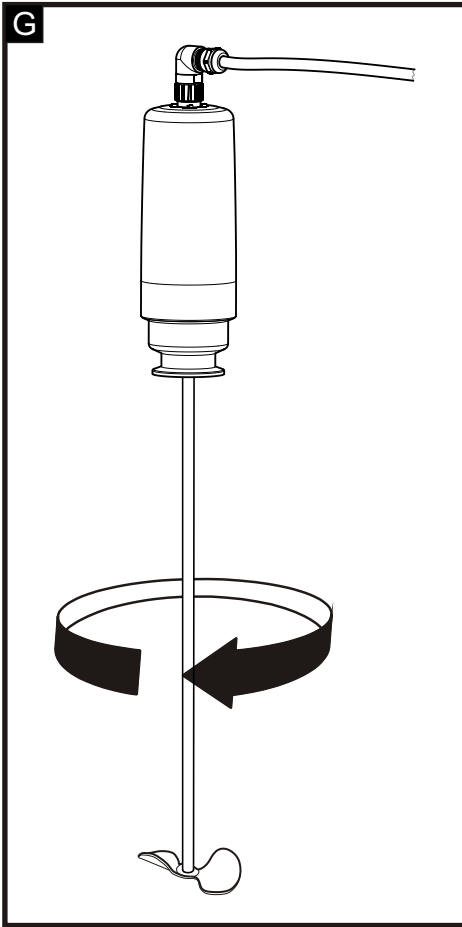


The mixer must be calibrated before it is used the first time if used with a motor controller supplied by AQ Elteknik AB. Calibration minimizes current consumption and optimizes the smoothness of operation. During calibration it is important that the mixer has been removed from the tank and the stirrer has been removed from the mixer.

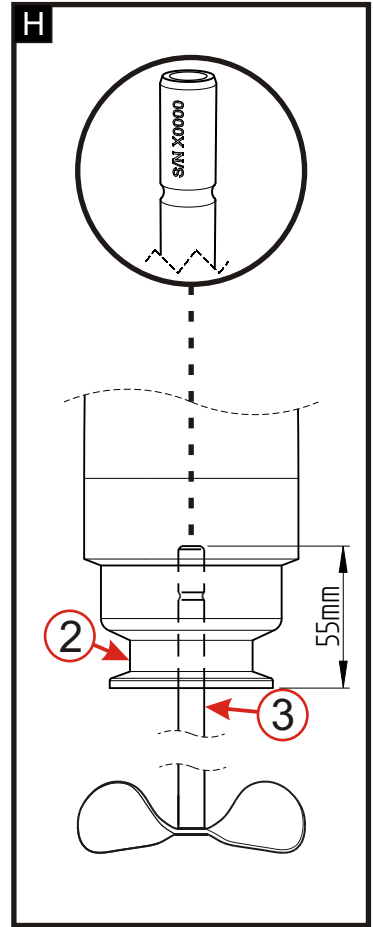


Se further information about calibration in Motor Controller manual available at www.agelteknik.com

8. Stirrer information

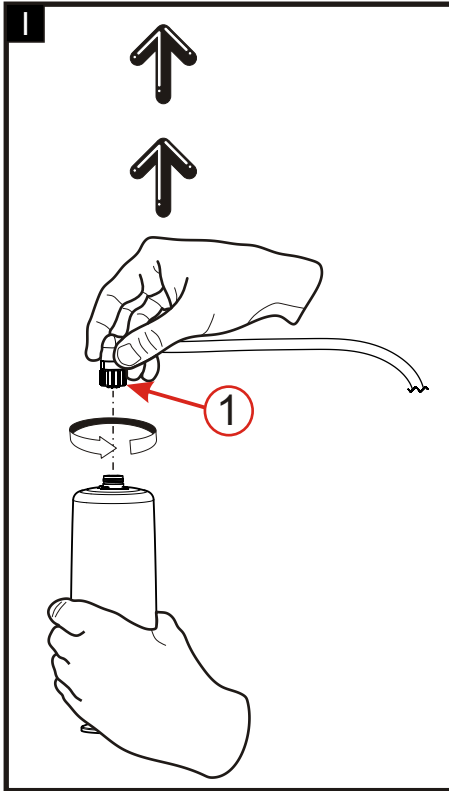


G
Direction of rotation.

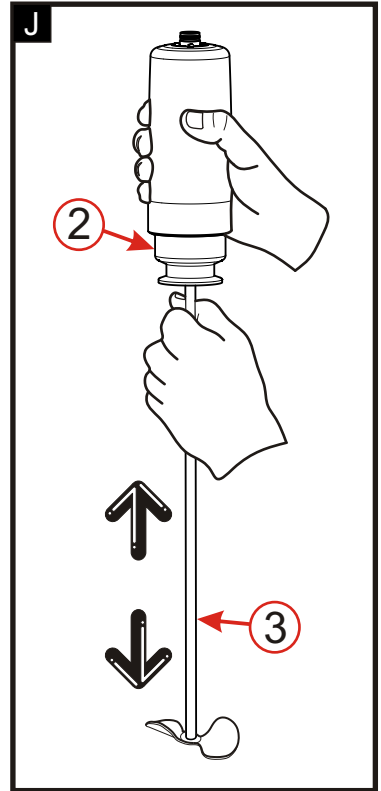


H
The insertion length of the stirrer 3 into the mixer 2.
You find the serial number on top of the stirrer 3.

9. Inserting and removing of the Stirrer

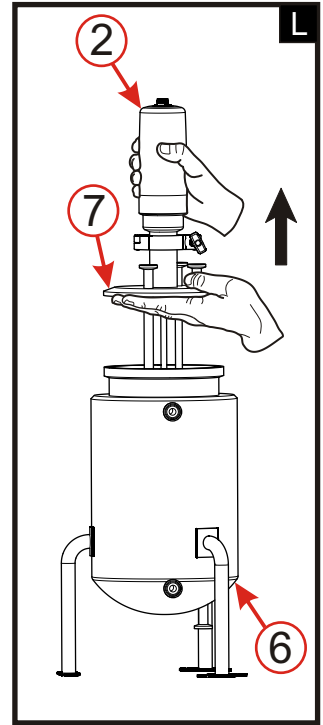
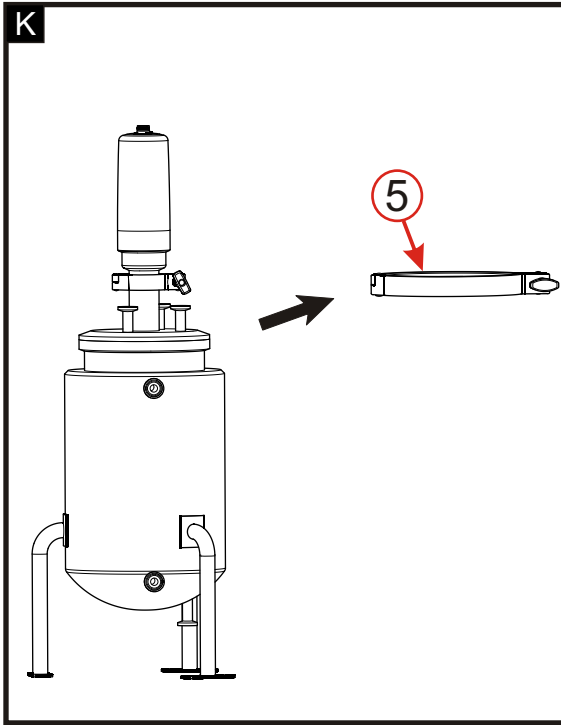


I Before removing the stirrer **3** break the main power to the motor controller and make sure that connector **1** is disconnected.



J Approximately 40N force is needed to pull out / push in the stirrer **3**. To facilitate the assembly/disassembly of the stirrer **3** it is possible to rotate the stirrer **3** by hand while pushing / pulling into the mixer **2**, you will hear a "click" when the Stirrer **3** is in the right position. **IMPORTANT!** Make sure the stirrer **3** is dry before inserting it into the mixer **2** as showed in **P**.

10. Assemble and disassemble of the Mixer on a tank step 1

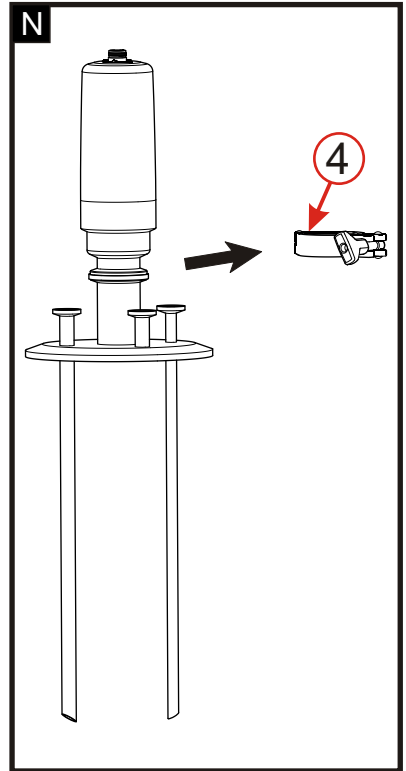
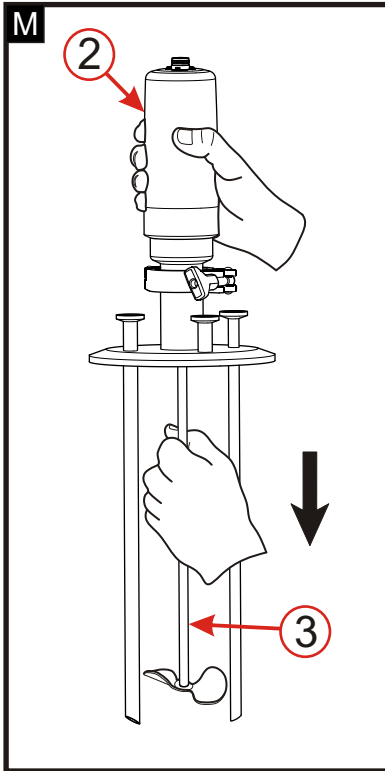


K
Remove the connector
as showed in I.
Remove the big clamp 5.



L
Lift the tank lid 7 that is assembled
together with the mixer 2. Lift straight
up without scratching the inside of
the tank 6.

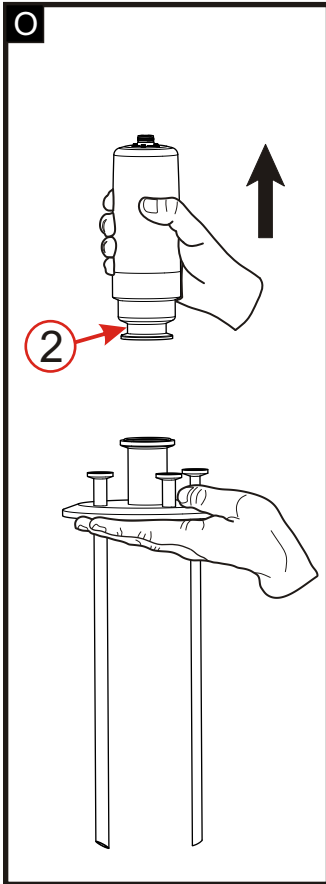
10. Assemble and disassemble of the Mixer on a tank step 2



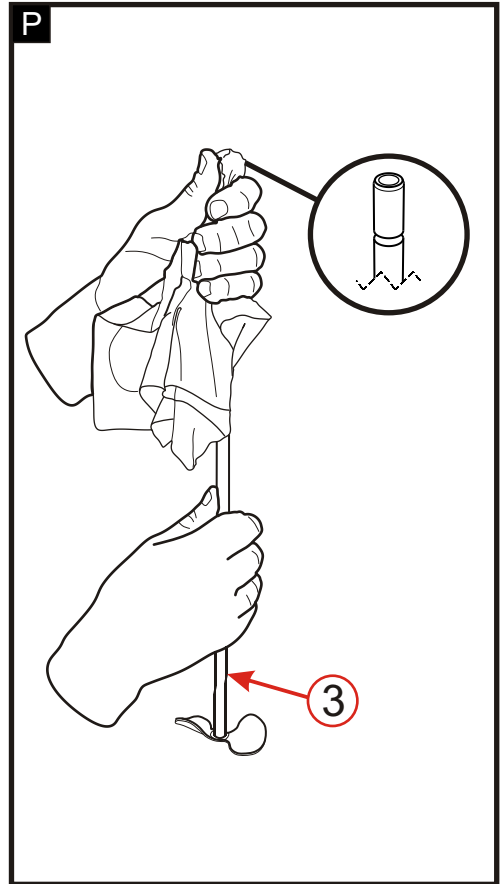
M
Pull out the stirrer 3 from the mixer 2 as showed in J.

N
Remove the small clamp 4 .

10. Assemble and disassemble of the Mixer on a tank step 3



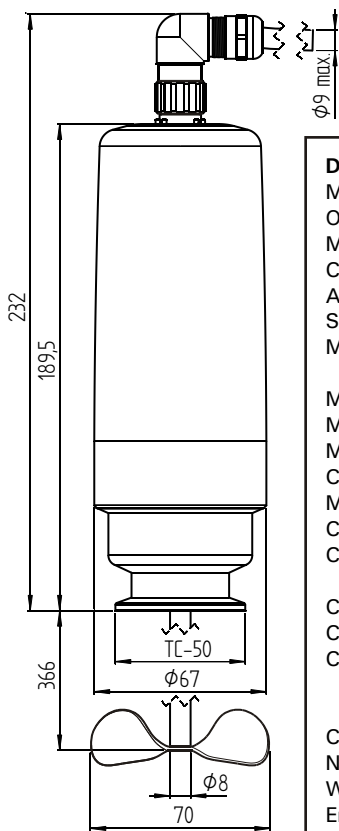
O
The mixer **2** can now be removed.
Remove the gasket under the mixer **2**.



P
Make sure the stirrer **3** is dry before inserting it into the mixer **2**. Do not forget to dry inside the hole on top at the stirrer **3**. To put the mixer **2** back follow the instructions in reverse.



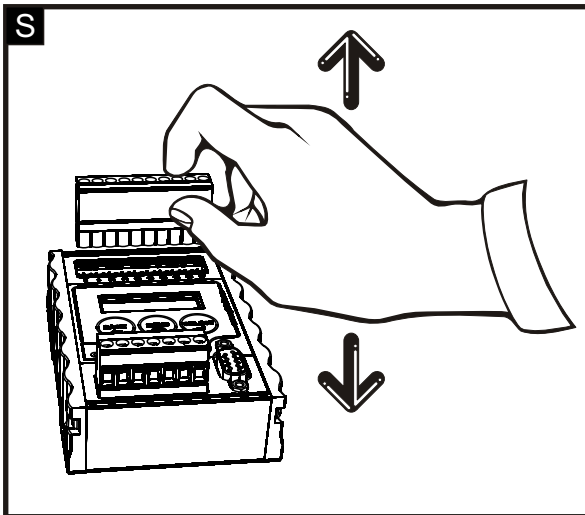
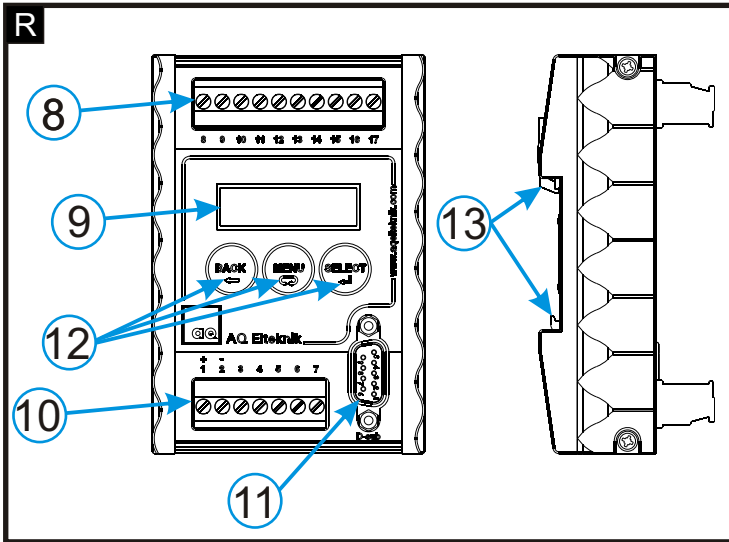
11. Technical data



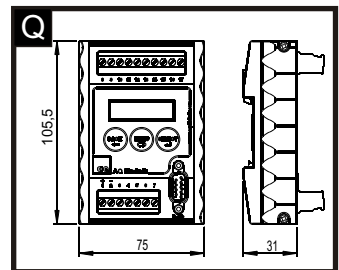
All dimensions are in millimeters.

Data AQ Dynamic Mixer DM50 and Stirrer SS417	
Max operating pressure	0 to 3 bar g
Operating temperature	0 to 50 °C
Maximum temperature at	
CIP (clean in place)	65 °C for max.20min.
Ambient temperature	0 to 30 °C
Speed	0 to 1000rpm
Max viscosity at 1000 rpm	< 4000 m Pa·s
Motor type	BLDC 8pole
Max motor voltage	10VDC
Max motor current	5A
Continuous motor current	4,2A
Max motor power	45W
Continuous motor power	35W
Cable connector	Hummel M16 10 pin Chassis male
Cable lenght maximum	20m
Cable diameter	Max Ø9mm
Cable requirement	8x0,5mm ² (8x20AWG) shielded
Connection to the tank	TC-50 (Tri-Clamp)
Noise	40 dB(A) approximately
Weight	1,8kg
Encapsulation with Stirrer.....	IP56 according to Nema 4X
Encapsulation without Stirrer	IP40
Material	
TC	316L electropolished
Stirrer.....	316L electropolished
Sealing	Plastic USP VI
Cover	Aluminum (anodized)

12. Motor Controller parts



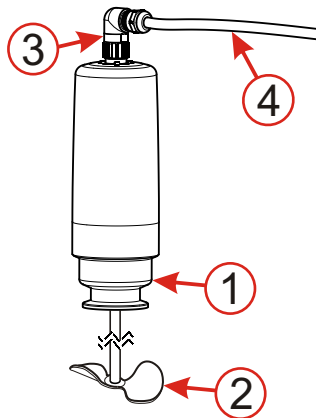
- R**
- 8 Motor terminal
 - 9 Display
 - 10 Terminal
 - 11 D-sub connector
 - 12 Push buttons
 - 13 Din rail connector



S
Terminal **8** and **10** can be removed.
For more information on the electronic unit read manual
Motor Controller available at www.ageltechnik.com

13. Spare parts

	Part	Article number
1	AQ Dynamic Mixer	DM50
2	Stirrer	SS417
3	Cable Connector	1475
4	Cable*	1476



*Please specify length
in meter when ordering.

14. Notes



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