

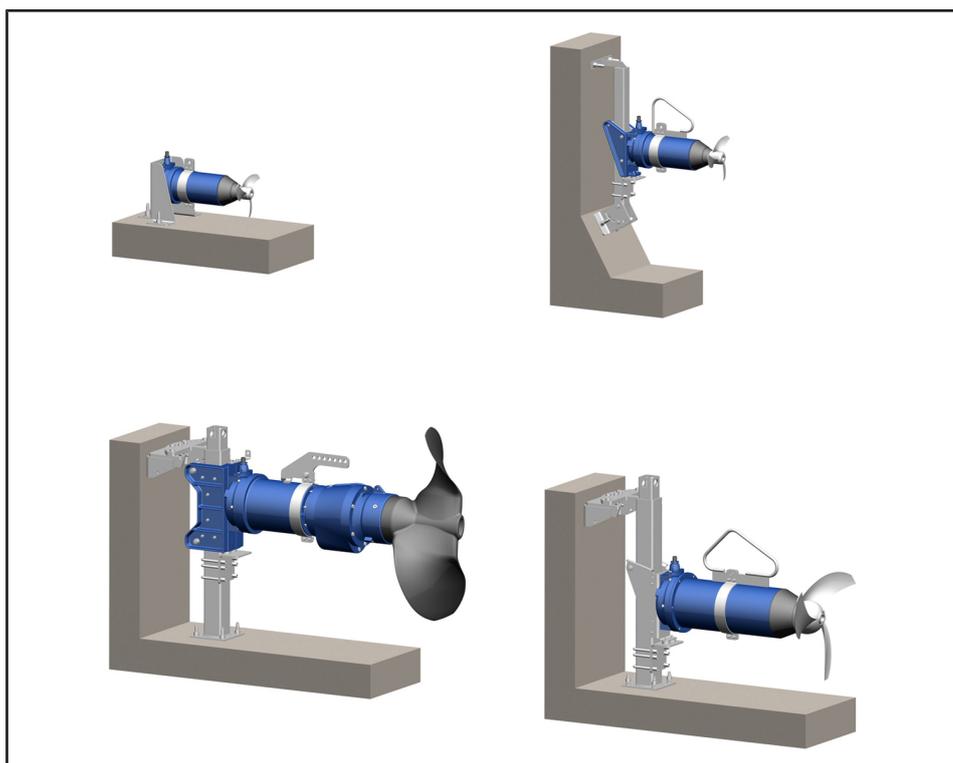
Submersible Mixer Stands

Amamix / AmaProp

Submersible Mixer Stands for
1000 - 60 Hz Amamix and AmaProp
and AmaProp 802 / 1002 - 60 Hz

Installation Parts / Accessories

Installation/Operating Manual



Mat. No.: 01316143

Legal information/Copyright

Installation/Operating Manual Amamix / AmaProp

Original operating manual

All rights reserved. The contents provided herein must neither be distributed, copied, reproduced, edited or processed for any other purpose, nor otherwise transmitted, published or made available to a third party without the manufacturer's express written consent.

Subject to technical modification without prior notice.

Contents

	Glossary	5
1	General.....	6
	1.1 Principles	6
	1.2 Target group.....	6
	1.3 Other applicable documents.....	6
	1.4 Symbols	6
	1.5 Key to safety symbols/markings.....	6
2	Safety	8
	2.1 General.....	8
	2.2 Intended use	8
	2.3 Personnel qualification and personnel training	8
	2.4 Consequences and risks caused by non-compliance with these operating instructions	8
	2.5 Safety awareness	9
	2.6 Unauthorized modes of operation.....	9
3	Transport/Storage/Disposal	10
	3.1 Transport.....	10
	3.2 Storage and preservation.....	10
	3.3 Return to supplier.....	11
	3.4 Disposal	11
4	Description.....	12
	4.1 General description	12
	4.2 Product information as per Regulation No 1907/2006 (REACH).....	14
	4.3 Design details.....	14
	4.4 Configuration and function.....	14
	4.5 Scope of supply.....	15
	4.6 Dimensions and weights	18
5	Installation at Site	19
	5.1 Safety regulations.....	19
	5.2 Prerequisites.....	19
	5.3 Checks to be carried out prior to installation.....	19
	5.3.1 Preparing the place of installation	19
	5.4 Installing the submersible mixer stand	20
	5.4.1 Preparing the installation position	20
	5.4.2 Installing the submersible mixer stand – accessories 6	20
	5.4.3 Installing the submersible mixer stand – accessories 7	21
	5.4.4 Installing the submersible mixer stand – accessories 22	23
	5.5 Mounting the submersible mixer on the submersible mixer stand.....	25
	5.5.1 Fitting the guide bracket.....	25
	5.5.2 Fitting the pitch adapter (optional).....	26
	5.5.3 Fitting the supporting clamp, supporting strap or lifting bail.....	27
	5.5.4 Transporting the submersible mixer	28
	5.5.5 Adjusting the attachment point	28
	5.5.6 Lifting rope.....	30
	5.5.7 Fitting the submersible mixer to the submersible mixer stand.....	30
	5.5.8 Fastening and tensioning the power cable	30
	5.5.9 Fastening the lifting rope.....	31
	5.5.10 Installing/handling the lifting equipment (crane)	31
	5.5.11 Fitting the rope winder/bollard	31
6	Commissioning/Start-up/Shutdown.....	33
	6.1 Commissioning/start-up	33
	6.2 Shutdown.....	33

7	Servicing/Maintenance	34
7.1	Safety regulations.....	34
7.2	Servicing/inspection.....	35
7.3	Tightening torques.....	35
8	Trouble-shooting	36
9	Related Documents	37
9.1	General arrangement drawings	37
9.1.1	Installation with accessories 6 - Amamix 200 / 300	37
9.1.2	Installation of accessories 7 – Amamix 200 / 300.....	38
9.1.3	Installation of accessories 7 – Amamix 200 / 300.....	39
9.1.4	Installation of accessories 22 – Amamix 200 / 300 / 400 (except size 4135).....	40
9.1.5	Installation of accessories 22 – Amamix 200 / 300 / 400 (except size 4135).....	41
9.1.6	Installation of accessories 22 – Amamix 200 / 300 / 400 (except size 4135).....	42
9.1.7	Installation of accessories 22 – Amamix 400 (size 4135 only) / 600.....	43
9.1.8	Installation of accessories 22 – Amamix 400 (size 4135 only) / 600.....	44
9.1.9	Installation of accessories 22 – Amamix 400 (size 4135 only) / 600.....	45
9.1.10	Installation of accessories 22 – Amamix 400 (size 4135 only) / 600.....	46
9.1.11	Installation of accessories 22 - AmaProp 802 and 1002 (Ø 800 mm / Ø 1000 mm)	47
9.1.12	Installation of accessories 22 - AmaProp 802 and 1002 (Ø 800 mm / Ø 1000 mm)	48
9.1.13	Installation with upward pitch.....	49
9.1.14	Installation with downward pitch.....	51
10	Certificate of Decontamination	53
	Index	54

Glossary

Certificate of decontamination

If a product is to be returned to the manufacturer, the customer declares in a certificate of decontamination that the product has been properly drained to eliminate any environmental and health hazards arising from components in contact with the fluid handled.

Submersible mixer

Submersible mixers are mixing units with open axial propeller hydraulics and an air-filled submersible motor.

1 General

1.1 Principles

This installation/operating manual is valid for the type series and variants indicated on the front cover. It describes proper and safe installation.

The name plate indicates the type series and size, the main operating data, the order number and the order item number. The order number and order item number clearly identify the installation part/accessories and serve as identification for all further business processes.

In the event of damage, immediately contact your nearest KSB Service center to maintain the right to claim under warranty.

1.2 Target group

This operating manual is aimed at the target group of trained and qualified specialist technical personnel.

1.3 Other applicable documents

Table 1: Overview of other applicable documents

Document	Contents
Data sheet	Description of technical data
General arrangement drawing / outline drawing	Description of mating dimensions and installation dimensions
General assembly drawing ¹⁾	Description in a sectional drawing

1.4 Symbols

Table 2: Symbols used in this manual

Symbol	Description
✓	Conditions which need to be fulfilled before proceeding with the step-by-step instructions
▷	Safety instructions
⇒	Result of an action
⇔	Cross-references
1. 2.	Step-by-step instructions
	Note Recommendations and important information on how to handle the product

1.5 Key to safety symbols/markings

Table 3: Definition of safety symbols/markings

Symbol	Description
 DANGER	DANGER This signal word indicates a high-risk hazard which, if not avoided, will result in death or serious injury.
 WARNING	WARNING This signal word indicates a medium-risk hazard which, if not avoided, could result in death or serious injury.

¹ If included in agreed scope of supply

Symbol	Description
	<p>CAUTION This signal word indicates a hazard which, if not avoided, could result in damage to the machine and its functions.</p>
	<p>General hazard In conjunction with one of the signal words this symbol indicates a hazard which will or could result in death or serious injury.</p>
	<p>Electrical hazard In conjunction with one of the signal words this symbol indicates a hazard involving electrical voltage and identifies information about protection against electrical voltage.</p>
	<p>Machine damage In conjunction with the signal word CAUTION this symbol indicates a hazard for the machine and its functions.</p>



2 Safety

All the information contained in this section refers to hazardous situations.

In addition to the present general safety information the action-related safety information given in the other sections must be observed.

2.1 General

- This operating manual contains general installation, operating and maintenance instructions that must be observed to ensure safe operation of the system and prevent personal injury and damage to property.
- Comply with all the safety instructions given in the individual sections of this operating manual.
- The operating manual must be read and understood by the responsible specialist personnel/operators prior to installation and commissioning.
- The contents of this operating manual must be available to the specialist personnel at the site at all times.
- The operator is responsible for ensuring compliance with all local regulations which are not taken into account.

2.2 Intended use

- The submersible mixer stand must only be used in the applications described in the other applicable documents.
- Only use submersible mixer stands which are in perfect technical condition.
- Only use the submersible mixer stand in the fluid described in the data sheet or product literature.
- Consult the manufacturer about any other modes of use not described in the data sheet or product literature.
- Never exceed the permissible operating limits and use limits specified in the data sheet or product literature regarding temperature etc.
- Observe all safety information and instructions in this manual.

2.3 Personnel qualification and personnel training

All personnel involved must be fully qualified to install, operate, maintain and inspect the product this manual refers to.

The responsibilities, competence and supervision of all personnel involved in transport, installation, operation, maintenance and inspection must be clearly defined by the operator.

Deficits in knowledge must be rectified by means of training and instruction provided by sufficiently trained specialist personnel. If required, the operator can commission the manufacturer/supplier to train the personnel.

Training must always be supervised by technical specialist personnel.

2.4 Consequences and risks caused by non-compliance with these operating instructions

- Non-compliance with these operating instructions will lead to forfeiture of warranty cover and of any and all rights to claims for damages.
- Non-compliance can, for example, have the following consequences:
 - Hazards to persons due to electrical, thermal, mechanical and chemical effects and explosions
 - Failure of important product functions
 - Failure of prescribed maintenance and servicing practices
 - Hazard to the environment due to leakage of hazardous substances

2.5 Safety awareness

In addition to the safety information contained in this operating manual and the intended use, the following safety regulations shall be complied with:

- Accident prevention, health regulations and safety regulations
- Explosion protection regulations
- Safety regulations for handling hazardous substances
- Applicable standards, directives and laws

2.6 Unauthorized modes of operation

Never operate the submersible mixer stand outside the limits stated in the data sheet and in this installation and operating manual.

The warranty relating to the operating reliability and safety of the submersible mixer stand supplied is only valid if the stand is used in accordance with its intended use.

3 Transport/Storage/Disposal

3.1 Transport

	DANGER
	<p>Improper transport Danger to life from parts falling or tipping over! Damage to the submersible mixer stand!</p> <ul style="list-style-type: none"> ▷ Attach lifting accessories only to the attachment points provided. ▷ Never use the lifting chain or lifting ropes included in KSB's scope of supply for lifting loads other than the KSB product supplied. ▷ Safely attach lifting ropes or chains to the attachment points and crane. ▷ Always place submersible mixer stands, whether transported with or without a pallet, on solid and level ground. ▷ Use suitable lifting accessories for the square guide rail.

Transport Transport the submersible mixer stand in a horizontal position and in its original packaging (submersible mixer stand and mixer strapped to the pallet), as shown. Transport the submersible mixer stand with a forklift truck or pallet truck of sufficient load-carrying capacity.

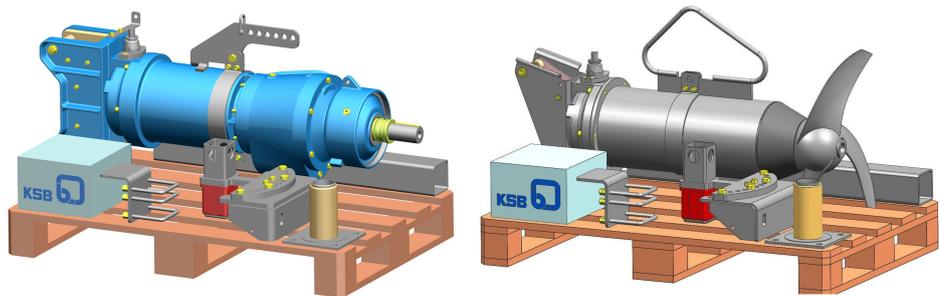


Fig. 1: Transporting the submersible mixer stand

Placing in upright position Use a crane of sufficient load-carrying capacity to place the submersible mixer stand in upright position.

	DANGER
	<p>Load may swing when pulled upright Danger to life from parts falling or toppling over!</p> <ul style="list-style-type: none"> ▷ Place the submersible mixer stand on solid and level ground only. ▷ Keep lifting gear attached.

1. Attach the lifting rope or chain to the crane.
2. Pull the lifting rope or chain taut.
3. Pull the submersible mixer stand upright.

3.2 Storage and preservation

If commissioning is to take place some time after delivery, we recommend that the following measures be taken:

	CAUTION
	<p>Damage during storage by humidity, dirt or vermin Contamination of the submersible mixer stand!</p> <ul style="list-style-type: none"> ▷ For outdoor storage cover the submersible mixer stand and accessories with waterproof material.

- Store the submersible mixer stand under dry and vibration-free conditions, if possible in its original packaging.
- Protect against ingress of rain water and dirt.
- Protect against frost.
- Avoid storing in direct sunlight.
(Material properties may be affected)

Table 4: Ambient conditions for storage

Ambient conditions	Value
Relative humidity	5 % to 85 % (non-condensing)
Ambient temperature	14 °F to 112 °F [- 10 °C to + 50 °C]

3.3 Return to supplier

1. Always flush and clean the submersible mixer stand, particularly if it has been used in noxious, explosive, hot or other hazardous fluids.
2. If the submersible mixer stand has been used in fluids leaving residues which might lead to corrosion when coming into contact with atmospheric humidity, or which might ignite when coming into contact with oxygen, the submersible mixer stand must also be neutralized and treated with anhydrous inert gas for drying purposes.
3. Always complete and enclose a certificate of decontamination when returning the submersible mixer stand.
Always indicate any safety and decontamination measures taken.

	NOTE
	<p>If required, a blank certificate of decontamination can be downloaded from the KSB web site at: www.ksb.com/certificate_of_decontamination</p>

3.4 Disposal

	! WARNING
	<p>Fluids posing a health hazard Hazardous to persons and the environment!</p> <ul style="list-style-type: none"> ▷ Submersible mixer stands used in fluids posing a health hazard must be decontaminated. ▷ Collect and dispose of any flushing liquid. ▷ Wear safety clothing and a protective mask, if required. ▷ Observe all legal regulations on the disposal of harmful substances.

1. Dismantle the submersible mixer stand.
Collect flushing liquids and lubricants during dismantling.
2. Separate and sort the materials, e.g. by:
 - Metals
 - Plastics
3. Dispose of materials in accordance with local regulations or in another controlled manner.

1592.8216/04-EN-US

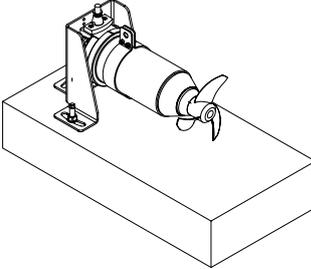
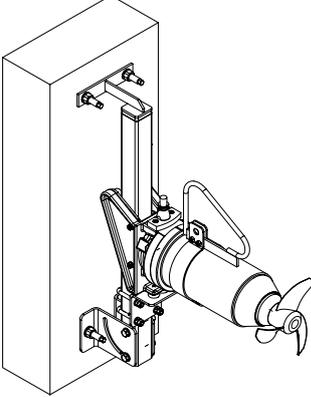
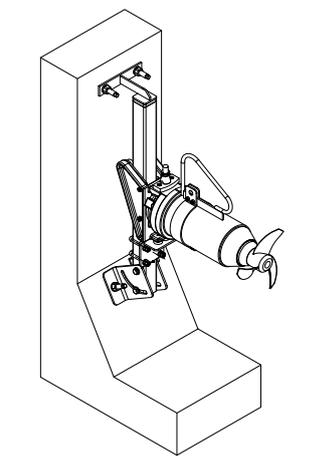
4 Description

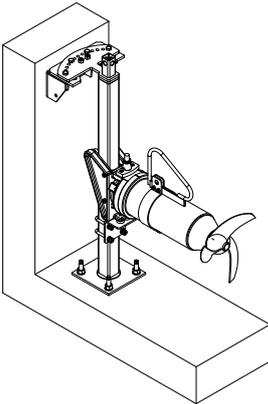
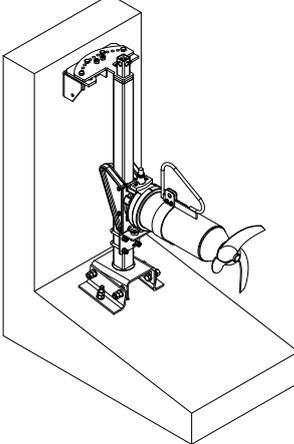
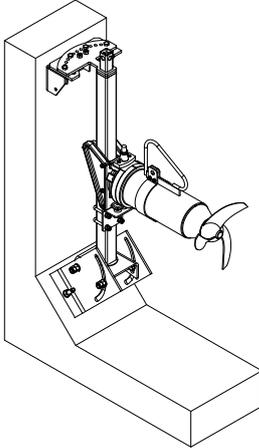
4.1 General description

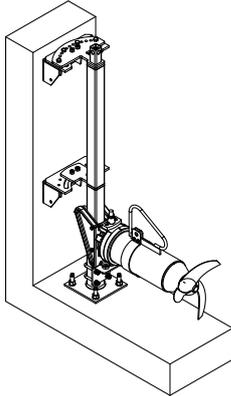
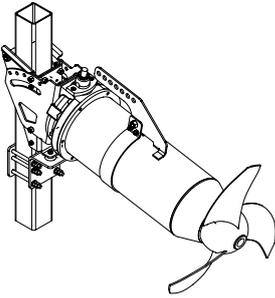
- Submersible mixer stand

Submersible mixers are used in sewage treatment plants for handling municipal and industrial waste water and sludges. The submersible mixer is installed near the tank floor on the submersible mixer stand.

Table 5: Installation types

Installation type	Illustration	Description
Floor-mounted		<ul style="list-style-type: none"> ▪ For Amamix 200 / 300 with accessories 6 ▪ Condition: Place of installation is accessible (e.g. stormwater relief structures)
Mounted on sump/tank wall		<ul style="list-style-type: none"> ▪ For Amamix 200 / 300 with accessories 7 ▪ Continuously adjustable installation depth with fixed jet direction. The submersible mixer can be lifted out of the tank or sump for maintenance and inspection work.
Mounted on the benching and sump/tank wall		<ul style="list-style-type: none"> ▪ For Amamix 200 / 300 with accessories 7 ▪ Special feature: continuously adjustable installation depth and adjustable jet direction. The submersible mixer can be lifted out of the tank or sump for maintenance and inspection work.

Installation type	Illustration	Description
<p>Mounted on the sump/tank wall and horizontal tank floor (inclined by 0 - 0.5°)</p>		<ul style="list-style-type: none"> ▪ For Amamix 200 - 600 and AmaProp 802 / 1002 (Ø 800 / Ø 1000) with accessories 22 ▪ Special feature: continuously adjustable installation depth and adjustable jet direction. The submersible mixer can be lifted out of the tank or sump for maintenance and inspection work.
<p>Mounted on the sump/tank wall and sloping tank floor (inclined by 0.5 - 10°)</p>		<ul style="list-style-type: none"> ▪ For Amamix 200 - 600 and AmaProp 802 / 1002 (Ø 800 / Ø 1000) with accessories 22 ▪ Special feature: continuously adjustable installation depth and adjustable jet direction. The submersible mixer can be lifted out of the tank or sump for maintenance and inspection work.
<p>Mounted on the sump/tank wall and on the inclined tank floor or on the sump/tank wall (inclined by 10 - 90°)</p>		<ul style="list-style-type: none"> ▪ For Amamix 200 - 600 and AmaProp 802 / 1002 (Ø 800 / Ø 1000) with accessories 22 ▪ Special feature: continuously adjustable installation depth and adjustable jet direction. The submersible mixer can be lifted out of the tank or sump for maintenance and inspection work.

Installation type	Illustration	Description
With middle support for guide rail		<ul style="list-style-type: none"> ▪ For installation depths > 6 m
With pitch adapter		<ul style="list-style-type: none"> ▪ For Amamix 200 - 600 and AmaProp 802 / 1002 (Ø 800 / Ø 1000) ▪ For upward or downward pitch adjustment in increments of 10° from 40° upwards to 40° downwards (Amamix 600 G 15° or 30° upward or downward pitch)

4.2 Product information as per Regulation No 1907/2006 (REACH)

For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see <https://www.ksb.com/en-global/company/corporate-responsibility/reach>.

4.3 Design details

Design

- Submersible mixer stand for mounting on the tank floor, tank coping or tank wall

Fastening

- The submersible mixer stand is fastened to the tank with chemical anchors

Installation types

- Accessories 6
- Accessories 7
- Accessories 22

4.4 Configuration and function

Design Accessories 6

- Submersible mixer stand consisting of a stand for mounting on the tank floor
- Material A 276 type 304 [1.4301] or A 276 type 316 Ti [1.4571]

Accessories 7 and 22

- Submersible mixer stand consisting of a square guide rail, upper and lower holders and a retaining bracket.
- Material A 276 type 304 [1.4301] or A 276 type 316 Ti [1.4571]
- Square guide rail

- For Amamix 200 / 300: cross-section $2 \frac{3}{8}$ " x $2 \frac{3}{8}$ " [60 x 60 mm], wall thickness $\frac{1}{8}$ " [3 mm]
- For Amamix 400 / 600: cross-section 4 x 4" [100 x 100 mm], wall thickness $\frac{3}{16}$ " [5 mm]
- For AmaProp 802 / 1002 (Ø 800 / Ø 1000): cross-section 4" x 4" [100 x 100 mm], wall thickness $\frac{3}{16}$ " [5 mm]

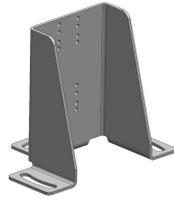
Function The submersible mixer stand is designed to absorb all forces and moments generated during mixer operation and transfer them to the foundation.

4.5 Scope of supply

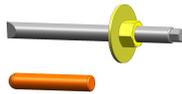
Depending on the model, the following items are included in the scope of supply:

Standard accessories for accessories 6

- Stand for floor mounting



- Chemical anchors

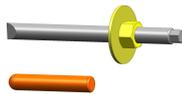


- 5 x UPAT chemical mortar



Standard accessories for accessories 7

- Chemical anchors



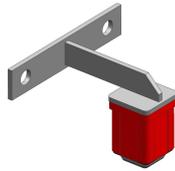
- Square guide rail with square guide rail extension (if applicable)



- Lower holder for mounting on the sump/tank wall or benching



- Upper holder



- Retaining bracket

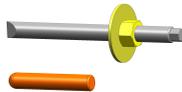


- Guide bracket
Version C or version G,
usually supplied fitted to the mixer



Standard accessories for accessories 22

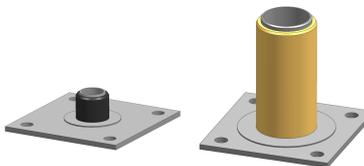
- Chemical anchors



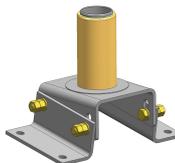
- Square guide rail
with square guide rail extension (if applicable)



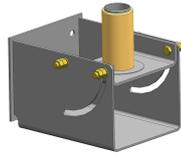
- Lower holder
for mounting on a horizontal tank floor (0° - 0.5°)
Version 2 3/8" x 2 3/8" or 4" x 4" [60 x 60 or 100 x 100 mm]



- Lower holder
for mounting on a sloping tank floor (0.5° - 10°)



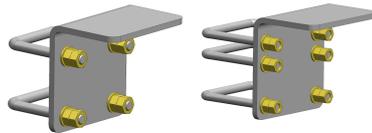
- Lower holder
for mounting on an inclined tank floor or on the sump/tank wall (10° - 90°)



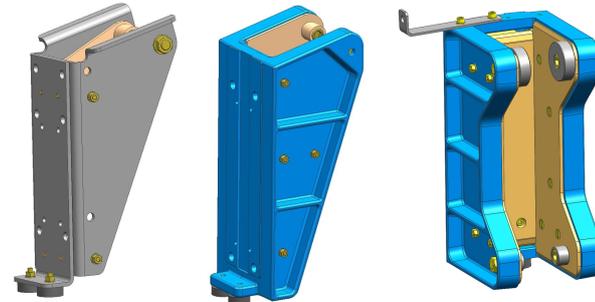
- Upper holder
Version 2 3/8" x 2 3/8" or 4" x 4" [60 x 60 or 100 x 100 mm]



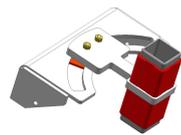
- Retaining bracket
Version 60 x 60 or 100 x 100 mm



- Guide bracket
Version C, version G, or for AmaProp 802 / 1002 (Ø 800 / Ø 1000) with individual rollers, usually supplied fitted to the mixer



Special accessory – Middle support for guide rail



Special accessory – Supporting strap (Amamix only)

Fastened to the mixer via the supporting clamp if a pitch adapter is used; usually fitted at the factory



Special accessory – Lifting bail (Amamix only)

Fastened to the mixer via the supporting clamp; usually fitted at the factory



Special accessory – Pitch adapter (Amamix only)

Usually fitted between the motor housing cover and the guide bracket at the factory



Special accessory – Pitch adapter for Amamix 600 G

Usually fitted between the motor housing cover and the guide bracket at the factory



4.6 Dimensions and weights

For dimensions and weights please refer to the general arrangement drawing/outline drawing or data sheet.

5 Installation at Site

5.1 Safety regulations

	 DANGER
	<p>Improper installation in potentially explosive atmospheres Explosion hazard! Damage to the submersible mixer!</p> <ul style="list-style-type: none"> ▷ Comply with the applicable local explosion protection regulations. ▷ Observe the information given in the data sheet and on the name plate.

5.2 Prerequisites

Installation of the submersible mixer stand requires:

- At least two fitters
- Suitable lifting equipment of sufficient load-carrying capacity with approved lifting tackle
- Portable drill with hard metal drill bit (better: core drill bit)
 - $\text{Ø } \frac{3}{4}''$ [18 mm], hole depth $4\frac{15}{16}''$ [125 mm] – for fitting the lower and upper holders of the square guide rail
 - $\text{Ø } \frac{7}{16}''$ [12 mm], hole depth $3\frac{3}{16}''$ [90 mm] – for fitting the bollard
- Metal drill bit
 - $\text{Ø } \frac{1}{2}''$ [13 mm] – for preparing the square guide rail
- Compressed air for cleaning the drilled holes
- Open-jawed or ring spanner for hexagon head bolt M12 (WAF19), M16 (WAF24)
- Torque wrench
- Cut-off grinder for cutting the square guide rail to length
- Welding unit for welding on a guide rail extension (if required)

5.3 Checks to be carried out prior to installation

5.3.1 Preparing the place of installation

	 WARNING
	<p>Installation on foundations which are unsecured and cannot support the load Personal injury and damage to property!</p> <ul style="list-style-type: none"> ▷ Make sure the foundation concrete is of sufficient strength (min. 3000 psi [class C25/30 to DIN 1045]). ▷ Only place the submersible mixer stand on a foundation whose concrete has set firmly. ▷ Refer to the weights given in the data sheet/on the name plate.

1. Check the structural requirements.
All structural work required must have been prepared in accordance with the dimensions stated in the outline drawing/general arrangement drawing.
2. Clean the concrete surface; if required, clean with a broom to remove any loose particles.

5.4 Installing the submersible mixer stand

5.4.1 Preparing the installation position

1. Mark the installation position inside the tank as shown in the site layout drawing.

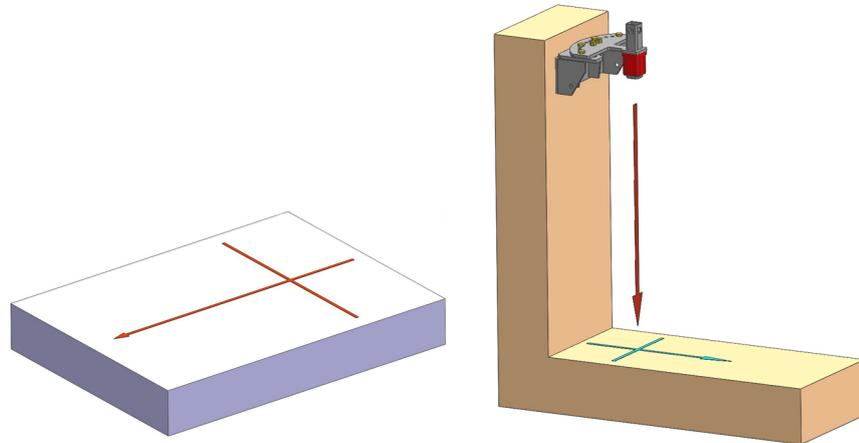


Fig. 2: Marking the installation position

5.4.2 Installing the submersible mixer stand – accessories 6

5.4.2.1 Setting up and fastening the submersible mixer stand

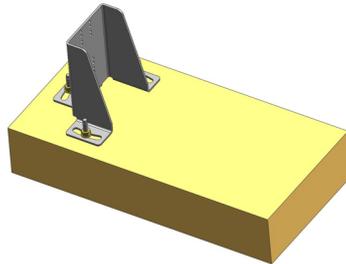


Fig. 3: Setting up and fastening the submersible mixer stand

- ✓ The installation position has been prepared. (⇒ Section 5.4.1, Page 20)

1. Place the submersible mixer stand on the marked-out area.
2. Drill holes for the chemical anchors.
3. To ensure optimum contact between the stand and the concrete floor, apply the chemical mortar in the installation position area (⇒ Section 4.5, Page 15) with a cartridge press.
Work quickly, bearing in mind the curing time of the chemical mortar. Observe the manufacturer's application instructions.
4. Position the stand in the soft chemical mortar in the marked installation position.
5. Insert the mortar cartridges into the drilled holes.
6. Crack the fitted mortar cartridges open with a threaded rod.
Work quickly, bearing in mind the curing time of the chemical mortar. Observe the manufacturer's application instructions.
7. Fasten the stand by screwing in the chemical anchors.
Observe the processing time of the two-pack resin. Observe the information on the packaging of the mortar cartridges.
8. Tighten the chemical anchors. (⇒ Section 7.3, Page 35)

5.4.3 Installing the submersible mixer stand – accessories 7

5.4.3.1 Preparing the guide rail

1. Mark the required guide rail length if necessary.
2. If required, shorten the guide rail with a 90° cut at a suitable workplace.
3. Deburr the cut edges if necessary.
4. If necessary, drill holes for the lower holder into the guide rail, as shown.

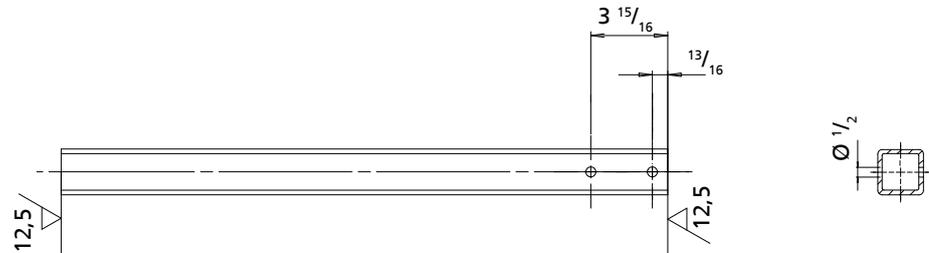


Fig. 4: Preparing the guide rail

5.4.3.2 Fitting the lower holder

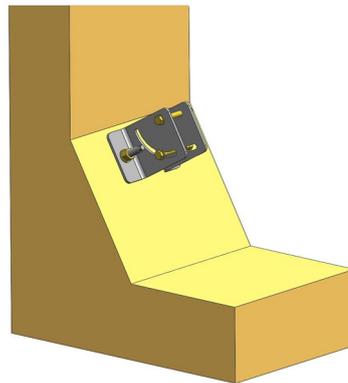


Fig. 5: Fitting the lower holder

✓ The installation position has been prepared. (⇒ Section 5.4.1, Page 20)

1. Place the lower holder on the marked-out area.
2. Drill holes for the chemical anchors.
3. Insert the mortar cartridges into the drilled holes.
4. Crack the fitted mortar cartridges open with a threaded rod.
Work quickly, bearing in mind the curing time of the chemical mortar. Observe the manufacturer's application instructions.
5. Fasten the holder by screwing in the chemical anchors.
Observe the processing time of the two-pack resin. Observe the information on the packaging of the mortar cartridges.
6. Tighten the chemical anchors. (⇒ Section 7.3, Page 35)

5.4.3.3 Setting up and fastening the guide rail

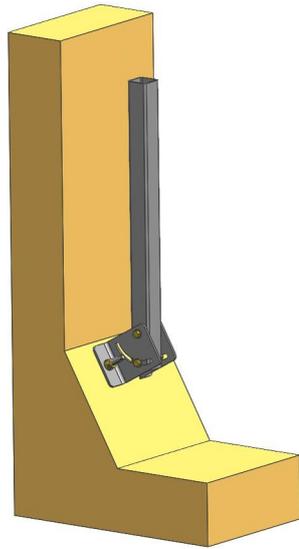


Fig. 6: Setting up and fastening the guide rail

- ✓ The guide rail has been cut to the required length.
- ✓ The lower holder has been mounted. (⇒ Section 5.4.3.2, Page 21)
 1. Insert the guide rail into the lower holder.
 2. Screw the lower holder to the guide rail.

5.4.3.4 Fitting the upper holder to the guide rail

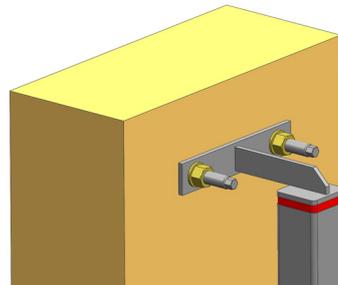


Fig. 7: Fitting the upper holder to the guide rail

- ✓ The guide rail has been cut to the required length.
- ✓ The guide rail has been placed in position and fastened to the lower holder.
 1. Place the upper holder into the guide rail.
 2. Drill holes for the chemical anchors.
 3. Insert the mortar cartridges into the drilled holes.
 4. Crack the fitted mortar cartridges open with a threaded rod.
Work quickly, bearing in mind the curing time of the chemical mortar. Observe the manufacturer's application instructions.
 5. Fasten the holder by screwing in the chemical anchors.
Observe the processing time of the two-pack resin. Observe the information on the packaging of the mortar cartridges.
 6. Tighten the chemical anchors. (⇒ Section 7.3, Page 35)

5.4.3.5 Fitting the retaining bracket

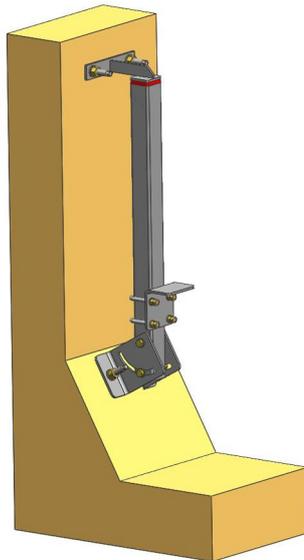


Fig. 8: Fitting the retaining bracket

- ✓ The guide rail has been placed in position and fastened.
(⇒ Section 5.4.3.3, Page 22)
- 1. Fasten the retaining bracket to the guide rail using stirrup bolts and locknuts.
Observe the required distance from the floor.

5.4.4 Installing the submersible mixer stand – accessories 22

5.4.4.1 Preparing the guide rail

1. Mark the required length of the guide rail if necessary.
(Take into account the position of the middle support if any.)
2. If required, shorten the guide rail with a 90° cut at a suitable workplace.
3. Deburr the cut edges if necessary.

5.4.4.2 Fitting the lower holder

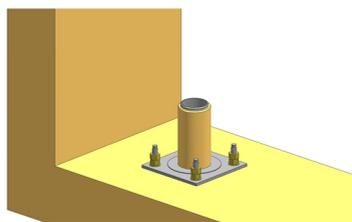


Fig. 9: Fitting the lower holder

- ✓ The installation position has been prepared. (⇒ Section 5.4.1, Page 20)
- 1. Place the lower holder on the marked-out area.
- 2. Drill holes for the chemical anchors.
- 3. Crack the fitted mortar cartridges open with a threaded rod.
Work quickly, bearing in mind the curing time of the chemical mortar. Observe the manufacturer's application instructions.
- 4. Fasten the holder by screwing in the chemical anchors.
Observe the processing time of the two-pack resin. Observe the information on the packaging of the mortar cartridges.
- 5. Tighten the chemical anchors. (⇒ Section 7.3, Page 35)

5.4.4.3 Setting up and fastening the guide rail

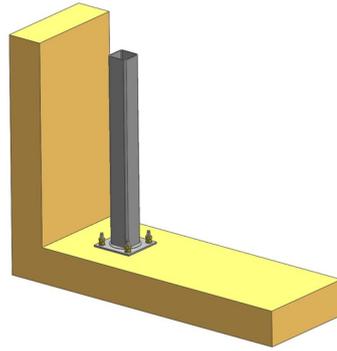


Fig. 10: Setting up and fastening the guide rail

- ✓ The guide rail has been cut to the required length. (⇒ Section 5.4.4.1, Page 23)
 - ✓ The lower holder has been mounted. (⇒ Section 5.4.4.2, Page 23)
1. Place the guide rail onto the lower holder.
(The guide rail is not bolted to the lower holder.)

5.4.4.4 Fitting the middle support to the guide rail (optional)

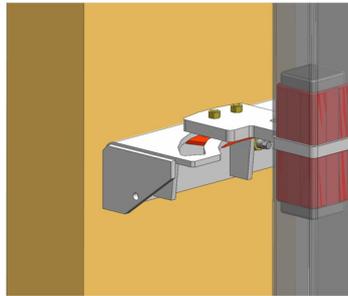


Fig. 11: Fitting the middle support to the guide rail

- ✓ Installation depth > 20 ft [6 m].
1. Take the guide rail out of the lower holder.
 2. Place the guide rail in a horizontal position in a suitable assembly area.
 3. Cut the guide rail at the level of the middle support.
 4. Debur the cut edges if necessary.
 5. Place one half of the guide rail onto the lower holder.
 6. Insert the middle support into the guide rail.
 7. Drill holes for the chemical anchors.
 8. Bolt the middle support to the tank wall.
 9. Place the second half of the guide rail onto the middle support.

5.4.4.5 Fitting the upper holder to the guide rail

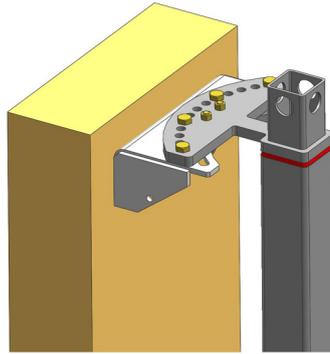


Fig. 12: Fitting the upper holder to the guide rail

- ✓ The guide rail has been cut to the required length.
- ✓ The guide rail has been placed in position and fastened to the lower holder.
 1. Place the upper holder into the guide rail.
 2. Drill holes for the chemical anchors.
 3. Screw on the upper holder.

5.4.4.6 Fitting the retaining bracket

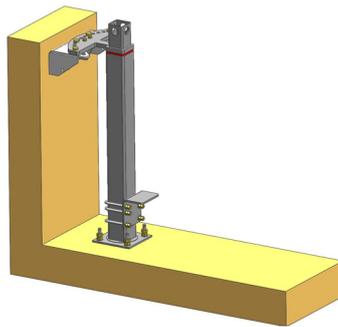


Fig. 13: Fitting the retaining bracket

- ✓ The guide rail has been placed in position and fastened.
(⇒ Section 5.4.4.3, Page 24)
- 1. Fasten the retaining bracket to the guide rail with stirrup bolts and locknuts.
Observe the required distance from the floor.

5.5 Mounting the submersible mixer on the submersible mixer stand

5.5.1 Fitting the guide bracket

Usually, the submersible mixer comes with guide bracket 732 already fitted at the factory.

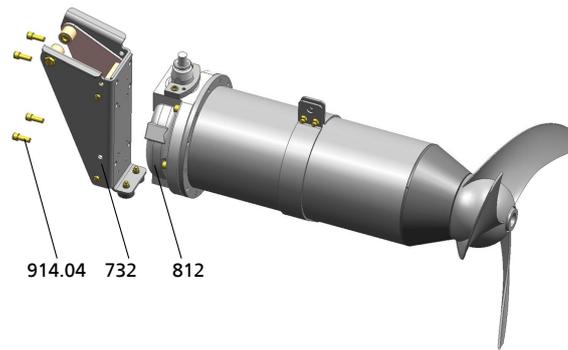


Fig. 14: Fitting the guide bracket to the submersible mixer

✓ Guide bracket 732 has not yet been fitted to the submersible mixer.

1. Fit guide bracket 732 to motor housing cover 812 with four hexagon socket head cap crews 914.04.

5.5.2 Fitting the pitch adapter (optional)

Usually, the submersible mixer comes with guide bracket 732 and pitch adapter 82-5 already fitted at the factory.

Amamix 600 G comes with a wedge-shaped cast component (15° or 30° angle piece) fitted between the guide bracket and the motor housing cover and coated together with the mixer.

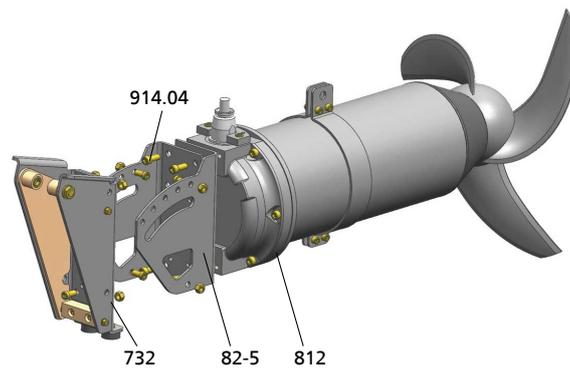


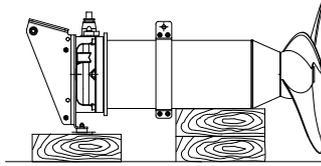
Fig. 15: Fitting the pitch adapter and guide bracket to the submersible mixer

✓ Guide bracket 732 and pitch adapter 82-5 have not yet been fitted to the submersible mixer.

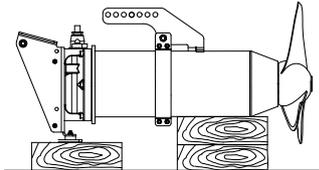
1. Fasten pitch adapter 82-5 to motor housing cover 812 with four hexagon socket head cap screws 914.04.
The version shown has an upward pitch. For a downward pitch the two angle pieces of the pitch adapter must be turned through 180°.
2. Using the hexagon socket head cap screws, fit guide bracket 732 to pitch adapter 82-5 in such a way that the required upward or downward pitch is achieved.

5.5.3 Fitting the supporting clamp, supporting strap or lifting bail

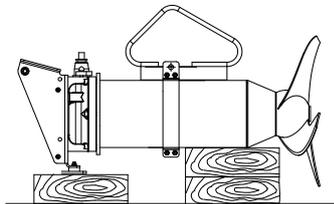
a) Amamix with supporting clamp



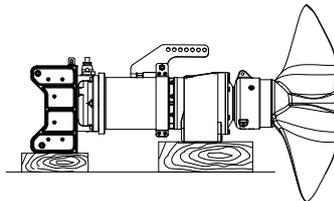
b) Amamix with supporting strap



c) Amamix with lifting bail



d) AmaProp 802 / 1002 (Ø 800 / Ø 1000) with supporting strap



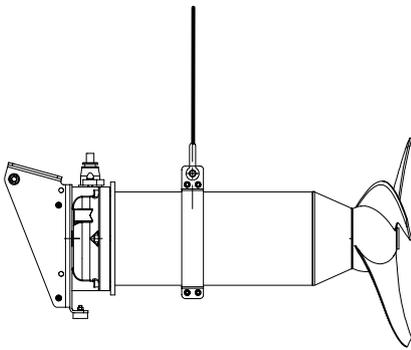
The submersible mixer usually comes with the supporting clamp, supporting strap or lifting bail already fitted in center of gravity position.

1. Position the submersible mixer as shown.
2. Fit the supporting clamp, supporting strap or lifting bail using hexagon head bolts.
Observe the tightening torques.

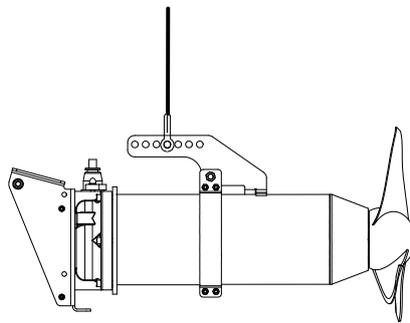
5.5.4 Transporting the submersible mixer

	<p>⚠ DANGER</p>
	<p>Improper transport Danger to life from falling parts! Damage to the submersible mixer!</p> <ul style="list-style-type: none"> ▷ Use the attachment point provided (lifting lug or bail) for attaching lifting accessories. ▷ Never suspend the submersible mixer by its power cable. ▷ Never use the lifting ropes included in KSB's scope of supply for lifting loads other than the KSB product supplied. ▷ Safely attach lifting ropes to the submersible mixer and crane. ▷ Protect the power cable against damage. ▷ Maintain adequate safety distance during lifting operations.

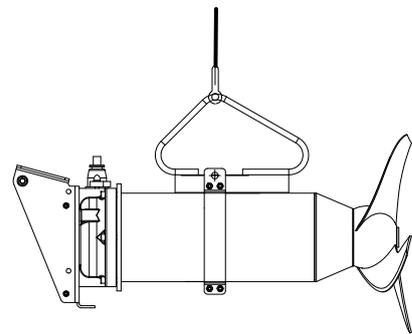
Transport the submersible mixer as shown.



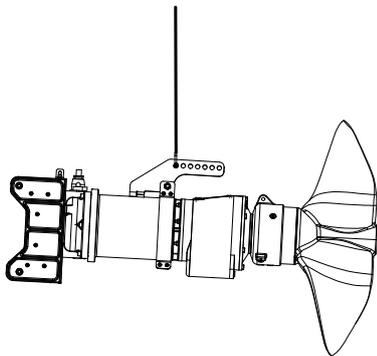
Transport with supporting clamp



Transport with supporting strap



Transport with lifting bail



Transport with supporting strap

5.5.5 Adjusting the attachment point

The correct attachment point must be selected in order to ensure reliable installation and problem-free lifting and lowering of the submersible mixer on the submersible mixer stand.

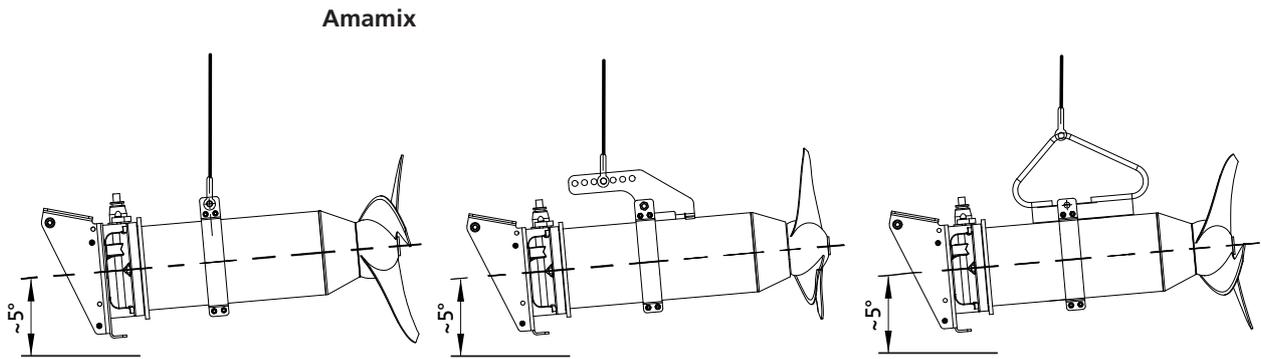


Fig. 16: Amamix attachment point

For trouble-free lifting and lowering of the mixer, an inclination angle of approx. 5°²⁾ must be maintained (higher end = propeller end) for Amamix. If the angle deviates from the requirements, the attachment point must be adjusted.

Adjusting the attachment point:

1. Slightly loosen the bolts on supporting clamp 59-31.
2. Shift supporting clamp 59-31 depending on the inclination angle.

	CAUTION
	<p>Loose or insufficiently tightened screwed connections Damage to the installation parts during operation!</p> <p>▷ Observe the tightening torques.</p>

3. Re-tighten all bolts.
 Observe the tightening torques. (⇒ Section 7.3, Page 35)
4. Repeat the attachment procedure.

⇒ If the angle of inclination is approx. 5°²⁾, the correct center of gravity position has been found.

AmaProp, propeller diameters 800 and 1000 mm

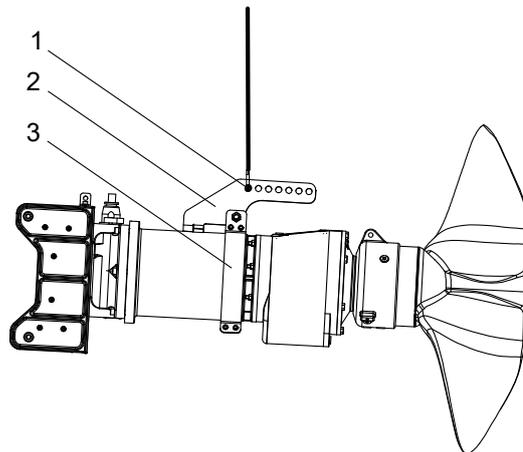


Fig. 17: Adjusting the attachment point

1	Attachment point	2	Supporting strap
3	Supporting clamp		

To ensure problem-free lifting and lowering, the mixer must be suspended in a slightly inclined position (lower end = propeller end). If the angle deviates from this requirement when the mixer is suspended from the supporting strap, adjust the attachment point as required.

²⁾ If a pitch adapter is used the inclination angle will change accordingly.

Adjusting the attachment point:

The supporting clamp is mounted at the factory as shown; its position must not be changed. The correct attachment point is set by selecting the correct hole in the supporting strap (first hole of the supporting strap counted from the guide rail side).

5.5.6 Lifting rope

For lifting/lowering with lifting equipment, the lifting rope can also be attached directly at the attachment point. It can remain attached during operation.

5.5.7 Fitting the submersible mixer to the submersible mixer stand

Accessories 6

- ✓ The submersible mixer stand has been installed. (⇒ Section 5.4, Page 20)
 1. Place the submersible mixer onto the submersible mixer stand.
 2. Bolt the submersible mixer to the submersible mixer stand.

Accessories 7 and accessories 22

- ✓ The submersible mixer stand has been installed. (⇒ Section 5.4, Page 20)
- ✓ The supporting clamp, supporting strap or lifting bail have been fitted to the submersible mixer.
- ✓ The center of gravity position has been ensured.
 1. Suspend the submersible mixer from the lifting gear and position it over the square guide rail.
 2. Lower the submersible mixer onto the square guide rail.
 3. Lower the submersible mixer down the square guide rail into the tank until the rubber buffer on the guide bracket rests on the retaining bracket and the submersible mixer has assumed its operating position.

	NOTE
	<p>To make it easier to locate the position of the submersible mixer at a later point, the rope should be marked at the railing level.</p>

5.5.8 Fastening and tensioning the power cable

	! DANGER
	<p>Power cable not properly routed Risk of injury! Risk of falling!</p> <ul style="list-style-type: none"> ▷ Route the power cable in such a way that it cannot pull down any persons if the pump set falls down or is lowered down.

	CAUTION
	<p>Power cable routed with too much slack Damage to power cable by axial propeller!</p> <ul style="list-style-type: none"> ▷ Pull the power cable taut before fastening it at the tank edge.

1592.8216/04-EN-US

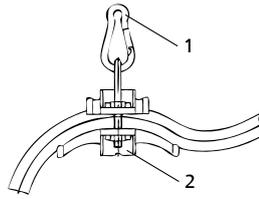


Fig. 18: Fastening and tensioning the power cable

1	Carabine hook	2	Cable support
---	---------------	---	---------------

If possible, the power cable should be fastened to the tank edge at a distance of approx. 0.8 m from the side of the guide rail to prevent chafing on the guide rail, which would damage the power cable.

1. Fit the cable support to the power cable at the tank edge and use a carabine hook to attach it to an appropriate point (e.g. railing or eyebolt).
2. Pull the power cable taut up to the tank edge before tightening the cable support bolts.
Prevent chafing of the power cable; use appropriate pads at the tank edge if necessary.

5.5.9 Fastening the lifting rope

	CAUTION
	<p>Slack lifting ropes Damage to lifting ropes by propeller blades!</p> <p>▷ When using a stationary crane mounted at the mixer's installation position, ensure that the rope is routed up to the winch with a minimum of slack during mixer operation.</p>

5.5.10 Installing/handling the lifting equipment (crane)

If a crane is included in the scope of supply, the crane manufacturer's operating manual supplied with the crane must be observed when installing and handling the crane.

5.5.11 Fitting the rope winder/bollard

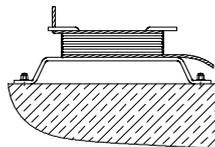


Fig. 19: Fitting the rope winder/bollard

When using transportable cranes, the lifting rope is removed from the winch of the lifting equipment after the submersible mixer has been lowered into the tank. The lifting rope is then securely tied around the rope winder/bollard.

	CAUTION
	<p>Loose or slack lifting rope Damage to the lifting rope!</p> <ul style="list-style-type: none">▷ With the system in its normal operating position, the lifting rope must be unstressed yet without excessive slack.▷ Securely fasten the lifting rope. Use a rope winder/bollard or other rope fastening equipment if necessary.

1. Position the rope winder/bollard at the edge of the tank, e.g. beneath the railing, and fasten it with M10 x 130 chemical anchors or M10 bolts.
2. Run the end of the lifting rope through a stirrup bolt on the rope winder and pull it through completely.
3. Secure the lifting rope with the M5 stirrup bolt.
Observe the tightening torques.
4. Wind the rope around the two sheet metal brackets.
5. Secure the lifting rope against unintentional unwinding with the second M5 stirrup bolt.
Observe the tightening torques.

Alternatively, the rope winder/bollard can also be fastened to the railing.

6 Commissioning/Start-up/Shutdown

6.1 Commissioning/start-up

Before start-up, the following requirements must be met:

- The submersible mixer stand has been installed as specified in this manual.
- All screws and bolts have been tightened as specified in this manual.
- Compliance with all items of the operating manual of the submersible mixer has been verified.

6.2 Shutdown

	 WARNING
	<p>Fluids posing a health hazard Hazardous to persons and the environment!</p> <ul style="list-style-type: none"> ▷ Submersible mixer stands used in fluids posing a health hazard must be decontaminated. ▷ Wear safety clothing and a protective mask, if required. ▷ Observe all legal regulations on the disposal of harmful substances.

Submersible mixer stand is taken out of service

- ✓ All safety regulations are observed.
1. Clean the submersible mixer stand.
 2. Carry out maintenance work.

7 Servicing/Maintenance

7.1 Safety regulations

The operator ensures that all maintenance, all inspections and all installation work is performed by authorized, qualified specialist personnel who are thoroughly familiar with the manual.

	<p style="background-color: #e67e22; color: white; padding: 5px;">⚠ DANGER</p> <p>Sparks produced during maintenance work Explosion hazard!</p> <ul style="list-style-type: none"> ▷ Always perform maintenance work on explosion-proof submersible mixers outside potentially explosive atmospheres only.
	<p style="background-color: #e67e22; color: white; padding: 5px;">⚠ DANGER</p> <p>Improper transport Danger to life from falling parts! Damage to the submersible mixer!</p> <ul style="list-style-type: none"> ▷ Use the attachment point provided (lifting lug or bail) for attaching lifting accessories. ▷ Never suspend the submersible mixer by its power cable. ▷ Never use the lifting ropes included in KSB's scope of supply for lifting loads other than the KSB product supplied. ▷ Safely attach lifting ropes to the submersible mixer and crane. ▷ Protect the power cable against damage. ▷ Maintain adequate safety distance during lifting operations.
	<p style="background-color: #f1c40f; padding: 5px;">⚠ WARNING</p> <p>Submersible mixer started up unintentionally Risk of injury by moving parts!</p> <ul style="list-style-type: none"> ▷ Always make sure the electrical connections are disconnected before carrying out work on the submersible mixer. ▷ Make sure that the submersible mixer cannot be started up unintentionally.
	<p style="background-color: #f1c40f; padding: 5px;">⚠ WARNING</p> <p>Fluids handled and supplies posing a health hazard or hot fluids handled and supplies Risk of injury!</p> <ul style="list-style-type: none"> ▷ Observe all relevant laws. ▷ Take appropriate measures to protect persons and the environment. ▷ Decontaminate submersible mixers used in fluids posing a health hazard.
	<p style="background-color: #2980b9; color: white; padding: 5px;">NOTE</p> <p>Special regulations apply to repair work on explosion-proof submersible mixers. Modification or alteration of the submersible mixers can affect explosion protection and is only permitted after consulting the manufacturer.</p>

1592.8216/04-EN-US

	NOTE
	A regular maintenance schedule will help avoid expensive repairs and contribute to trouble-free, reliable operation with a minimum of maintenance expenditure and work.

	NOTE
	All maintenance work, service work and installation work can be carried out by KSB Service or authorized workshops. Find your contact in the attached "Addresses" booklet or on the Internet at " www.ksb.com/contact ".

Never use force when dismantling and reassembling the submersible mixer.

7.2 Servicing/inspection

Visual inspection Visual inspection of submersible mixer stand and secure floor mounting (chemical anchors).

When the tank is filled:

- Check the condition of the upper holder.
- Check the supporting strap and/or lifting bail and the connected parts for wear.
- Verify that the bolt of the shackle (if any) is firmly tightened.
- Check the condition of the flexible element between the upper holder and the guide rail.
- Verify that all screws/bolts and the chemical anchors are firmly seated.

When the tank is empty:

- Visual inspection of the submersible mixer stand and (if applicable) the middle support.
- Check the floor mounting fastened with chemical anchors.
- Check the condition of the square guide rail and the mixer's contact faces.
- Check the seating and load-carrying capacity of the retaining bracket.

Checking the tightening torques Verify that all screwed/bolted connections have been tightened to the torques specified in the manual.

7.3 Tightening torques

Table 6: Tightening torques [Nm] for the anchor bolts

Thread	[ft lbs]	[Nm]
M12	44	60

Table 7: Tightening torques [Nm] for the metric screws/bolts

Thread	[ft lbs]	[Nm]
0.2" [M5]	3	4
0.31" [M8]	13	17
0.39" [M10]	18	35
0.47" [M12]	44	60
0.63" [M16]	110	150

8 Trouble-shooting

	 WARNING
	<p>Improper remedial work Risk of personal injury!</p> <p>▷ For any work performed in order to remedy faults observe the relevant information given in this operating manual and/or the product literature provided by the accessories manufacturers.</p>

If problems occur that are not described in the following table, consultation with KSB Service is required.

- A Submersible mixer does not generate flow
- B Insufficient flow
- C Submersible mixer is hard to install or remove
- D Vibrations and noise during mixer operation

Table 8: Trouble-shooting

A	B	C	D	Possible cause	Remedy
X	-	-	-	Slack power cable has been destroyed by propeller.	Replace power cable and install it without slack as per operating manual.
-	-	X	-	Guide rail not vertical	Check and correct; tank needs to be drained.
-	-	-	X	Submersible mixer stand incorrectly fastened	Check and correct; tank needs to be drained.
-	-	-	X	Submersible mixer incorrectly fastened to submersible mixer stand	Check and correct; tank needs to be drained.

9 Related Documents

9.1 General arrangement drawings

9.1.1 Installation with accessories 6 - Amamix 200 / 300

For permanent mounting on the tank floor
(sizes 400 and 600 on request)

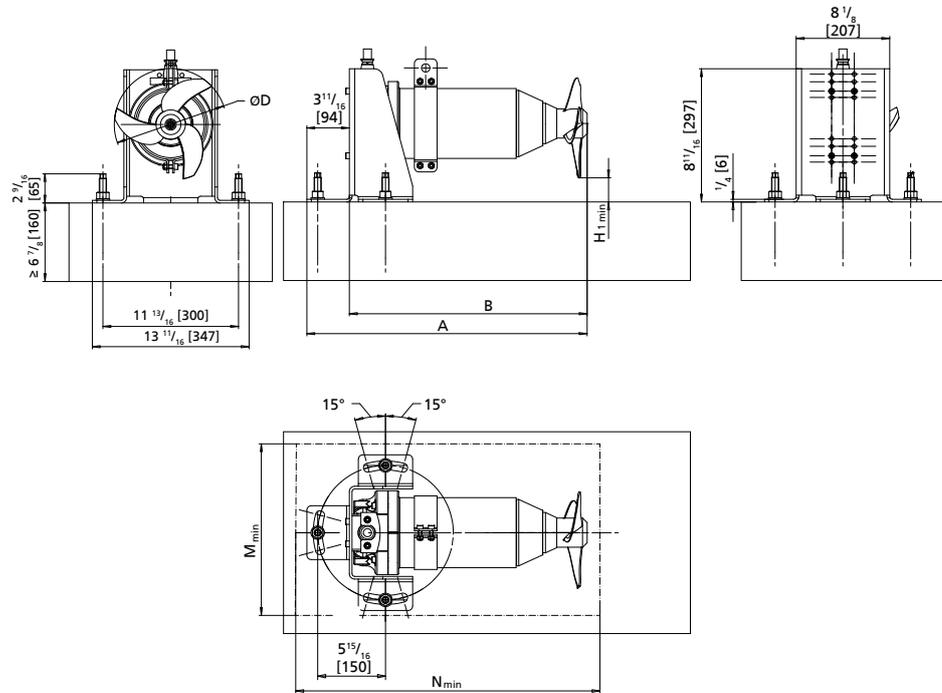


Fig. 20: Installation of accessories 6 – Amamix 200 / 300 ["/mm]

Table 9: Dimensions

Ø D		H _{1 min} [mm]		A [mm]		B [mm]		M _{min} [mm]		N _{min} [mm]	
[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
7 ⁷ / ₈	200	1 ¹⁵ / ₁₆	48.5	22 ¹ / ₁₆	560	18 ³ / ₈	466	15 ³ / ₄	400	24	610
11 ¹³ / ₁₆	300	1 ¹⁵ / ₁₆	50	27 ⁵ / ₁₆	694	23 ⁵ / ₈	600	15 ³ / ₄	400	29 ¹ / ₂	750

9.1.2 Installation of accessories 7 – Amamix 200 / 300

NOTE! Not intended for the US market!

For mounting at the top and bottom of the tank wall,
level-adjustable

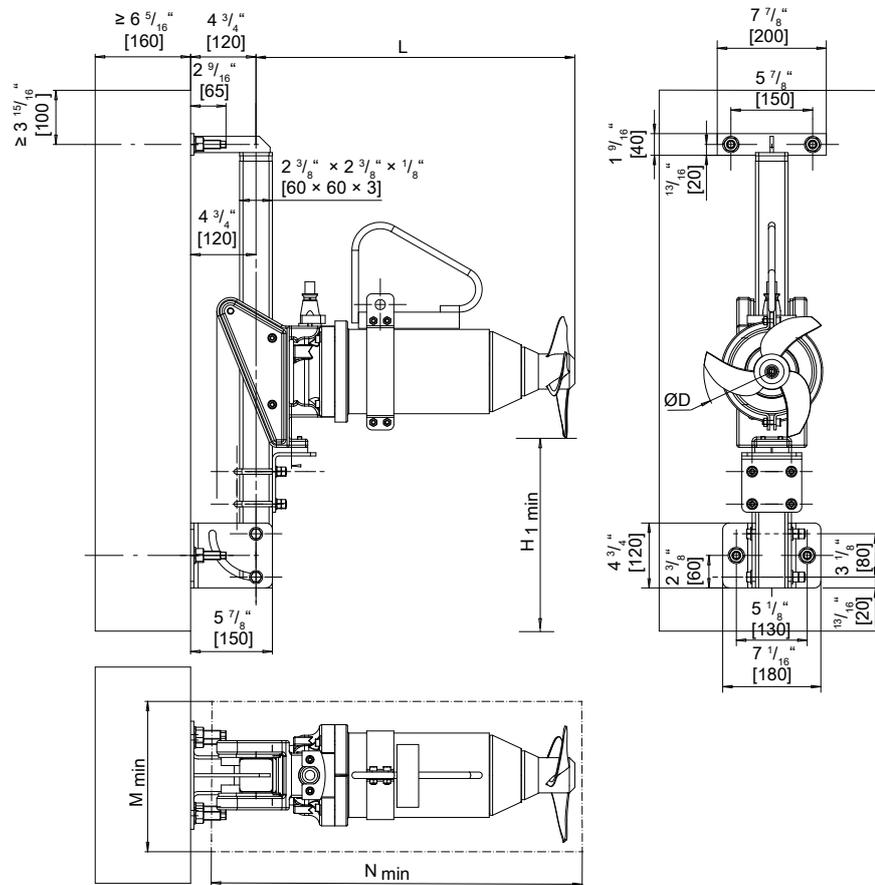


Fig. 21: Installation of accessories 7 – Amamix 200 / 300

Table 10: Dimensions

Ø D		Motor housing material	H ₁		L		M _{min}		N _{min}	
[inch]	[mm]		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
7 ⁷ / ₈	200	G	4 ³ / ₄	120	20 ⁵ / ₈	524	10 ¹³ / ₁₆	275	27 ⁹ / ₁₆	700
7 ⁷ / ₈	200	C	4 ³ / ₄	120	20 ¹ / ₂	520	10 ¹³ / ₁₆	275	27 ⁹ / ₁₆	700
11 ¹³ / ₁₆	300	G	5 ⁷ / ₈	150	25 ¹⁵ / ₁₆	659	14 ³ / ₄	375	32 ¹¹ / ₁₆	830
11 ¹³ / ₁₆	300	C	5 ⁷ / ₈	150	25 ¹³ / ₁₆	655	14 ³ / ₄	375	32 ¹¹ / ₁₆	830

9.1.3 Installation of accessories 7 – Amamix 200 / 300

NOTE! Not intended for the US market!

For mounting at the top of the tank wall and on the benching, level-adjustable

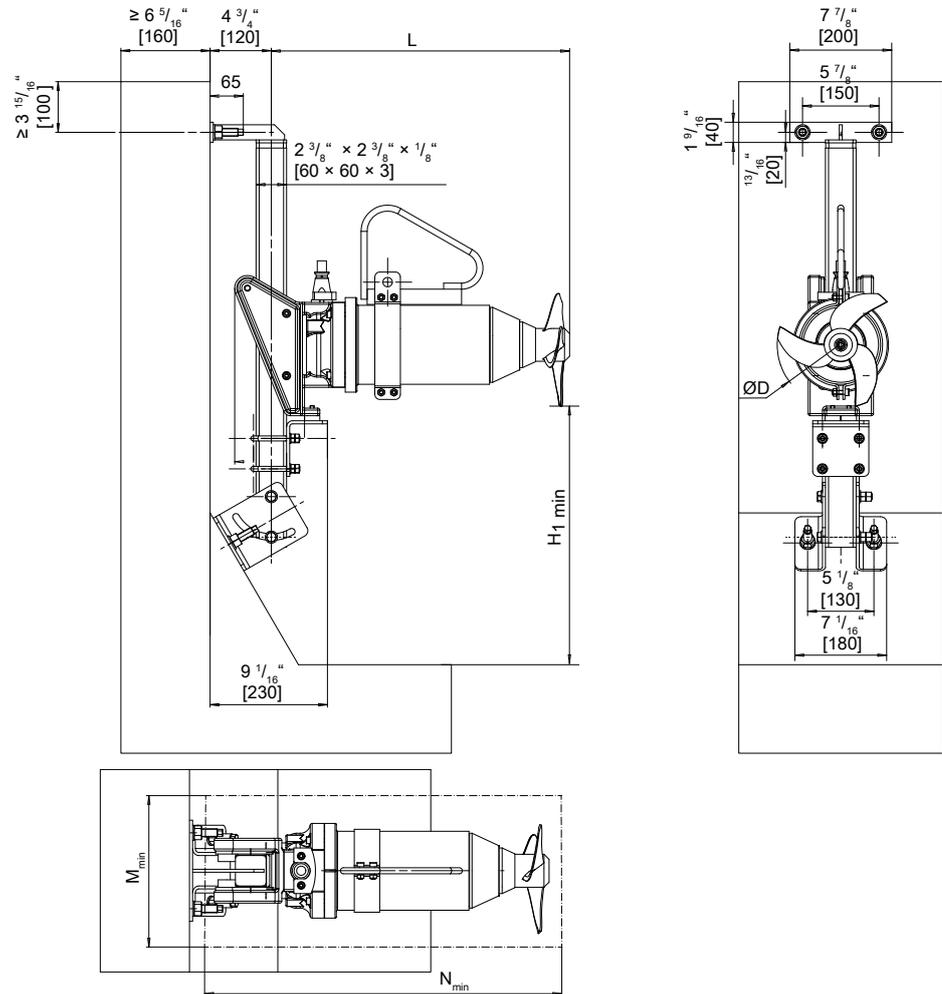


Fig. 22: Installation of accessories 7 – Amamix 200 / 300

Table 11: Dimensions

Ø D		Motor housing material	H ₁		L		M _{min}		N _{min}	
[inch]	[mm]		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
7 ⁷ / ₈	200	G	4 ³ / ₄	120	20 ⁵ / ₈	524	10 ¹³ / ₁₆	275	27 ⁹ / ₁₆	700
7 ⁷ / ₈	200	C	4 ³ / ₄	120	20 ¹ / ₂	520	10 ¹³ / ₁₆	275	27 ⁹ / ₁₆	700
11 ¹³ / ₁₆	300	G	5 ⁷ / ₈	150	25 ¹⁵ / ₁₆	659	14 ³ / ₄	375	32 ¹¹ / ₁₆	830
11 ¹³ / ₁₆	300	C	5 ⁷ / ₈	150	25 ¹³ / ₁₆	655	14 ³ / ₄	375	32 ¹¹ / ₁₆	830

9.1.4 Installation of accessories 22 – Amamix 200 / 300 / 400 (except size 4135)

NOTE! Not intended for the US market!

For mounting at the top of the tank wall and on the tank floor, level-adjustable and with horizontal swiveling option

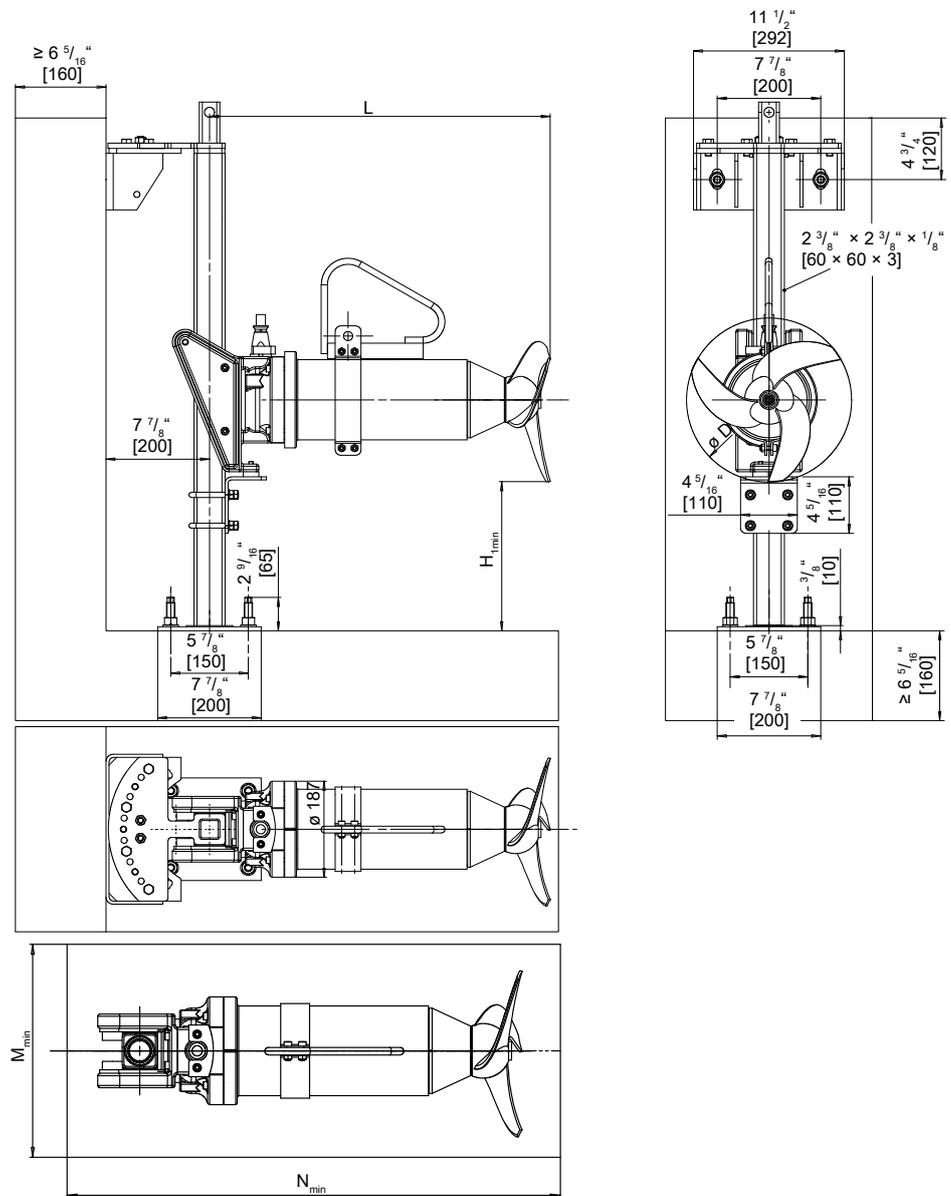


Fig. 23: Installation of accessories 22 – Amamix 200 / 300 / 400 (except size 4135)

Table 12: Dimensions

Ø D		Motor housing material	H _{1 min}		L		M _{min}		N _{min}	
[inch]	[mm]		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
7 ⁷ / ₈	200	G	4 ³ / ₄	120	20 ⁵ / ₈	524	10 ¹³ / ₁₆	275	30 ¹¹ / ₁₆	780
7 ⁷ / ₈	200	C	4 ³ / ₄	120	20 ¹ / ₂	520	10 ¹³ / ₁₆	275	30 ¹¹ / ₁₆	780
11 ¹³ / ₁₆	300	G	5 ⁷ / ₈	150	25 ¹⁵ / ₁₆	659	14 ³ / ₄	375	35 ¹³ / ₁₆	910
11 ¹³ / ₁₆	300	C	5 ⁷ / ₈	150	25 ¹³ / ₁₆	655	14 ³ / ₄	375	35 ¹³ / ₁₆	910
15 ³ / ₄	400	G	7 ⁷ / ₈	200	33 ¹ / ₄	844	18 ¹ / ₈	460	41 ⁵ / ₁₆	1050
15 ³ / ₄	400	C	7 ⁷ / ₈	200	33 ¹ / ₄	844	18 ¹ / ₈	460	41 ⁵ / ₁₆	1050

1592.8216/04-EN-US

9.1.5 Installation of accessories 22 – Amamix 200 / 300 / 400 (except size 4135)

NOTE! Not intended for the US market!

For mounting at the top of the tank wall and at the bottom of the tank wall or on an inclined floor (10° - 90°), level-adjustable and with horizontal swiveling option.

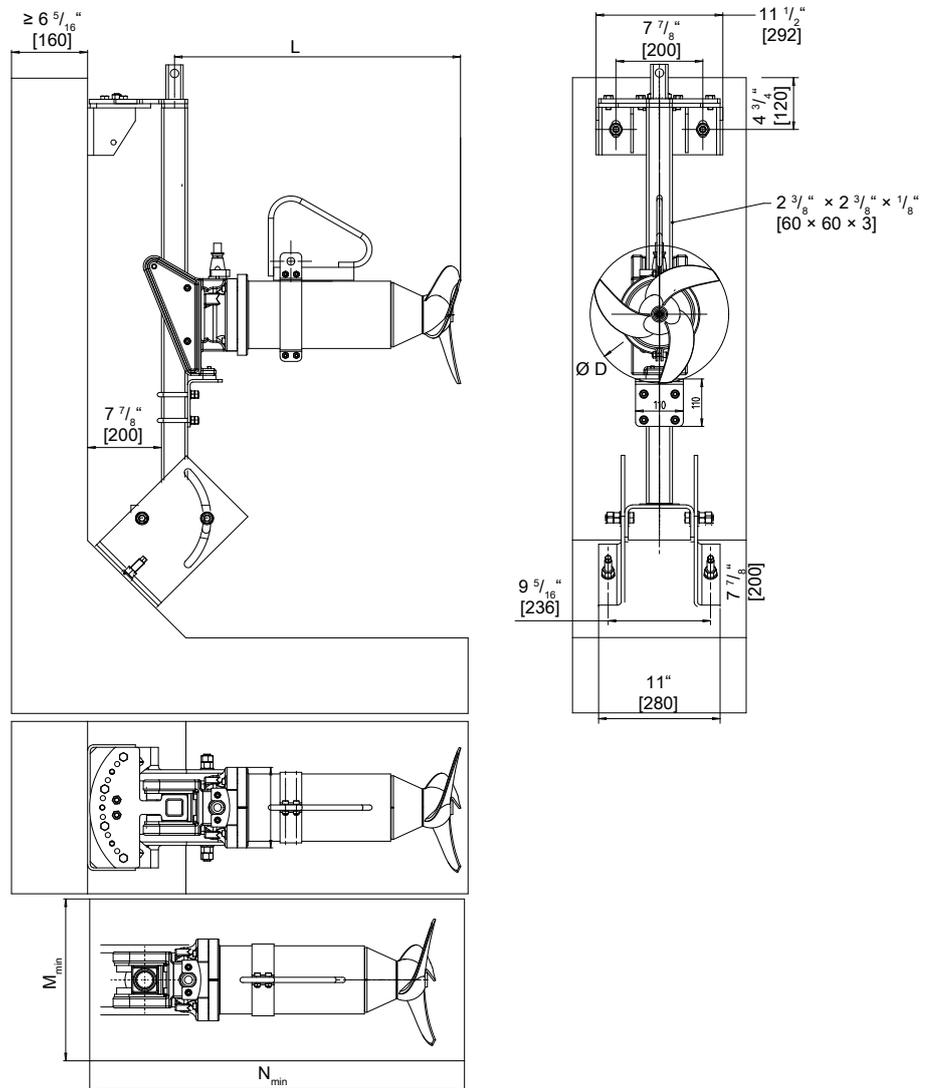


Fig. 24: Installation of accessories 22 – Amamix 200 / 300 / 400 (except size 4135)

Table 13: Dimensions [mm]

Ø D		Motor housing material	L		M _{min}		N _{min}	
[inch]	[mm]		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
7 ⁷ / ₈	200	G	20 ⁵ / ₈	524	10 ¹³ / ₁₆	275	30 ¹¹ / ₁₆	780
7 ⁷ / ₈	200	C	20 ¹ / ₂	520	10 ¹³ / ₁₆	275	30 ¹¹ / ₁₆	780
11 ¹³ / ₁₆	300	G	25 ¹⁵ / ₁₆	659	14 ³ / ₄	375	35 ¹³ / ₁₆	910
11 ¹³ / ₁₆	300	C	25 ¹³ / ₁₆	655	14 ³ / ₄	375	35 ¹³ / ₁₆	910
15 ³ / ₄	400	G	33 ¹ / ₄	844	18 ¹ / ₈	460	41 ⁵ / ₁₆	1050
15 ³ / ₄	400	C	33 ¹ / ₄	844	18 ¹ / ₈	460	41 ⁵ / ₁₆	1050

1592.8216/04-EN-US

9.1.6 Installation of accessories 22 – Amamix 200 / 300 / 400 (except size 4135)

NOTE! Not intended for the US market!

Middle support for guide rail $2\frac{3}{8} \times 2\frac{3}{8} \times \frac{1}{8}$ for larger installation depths

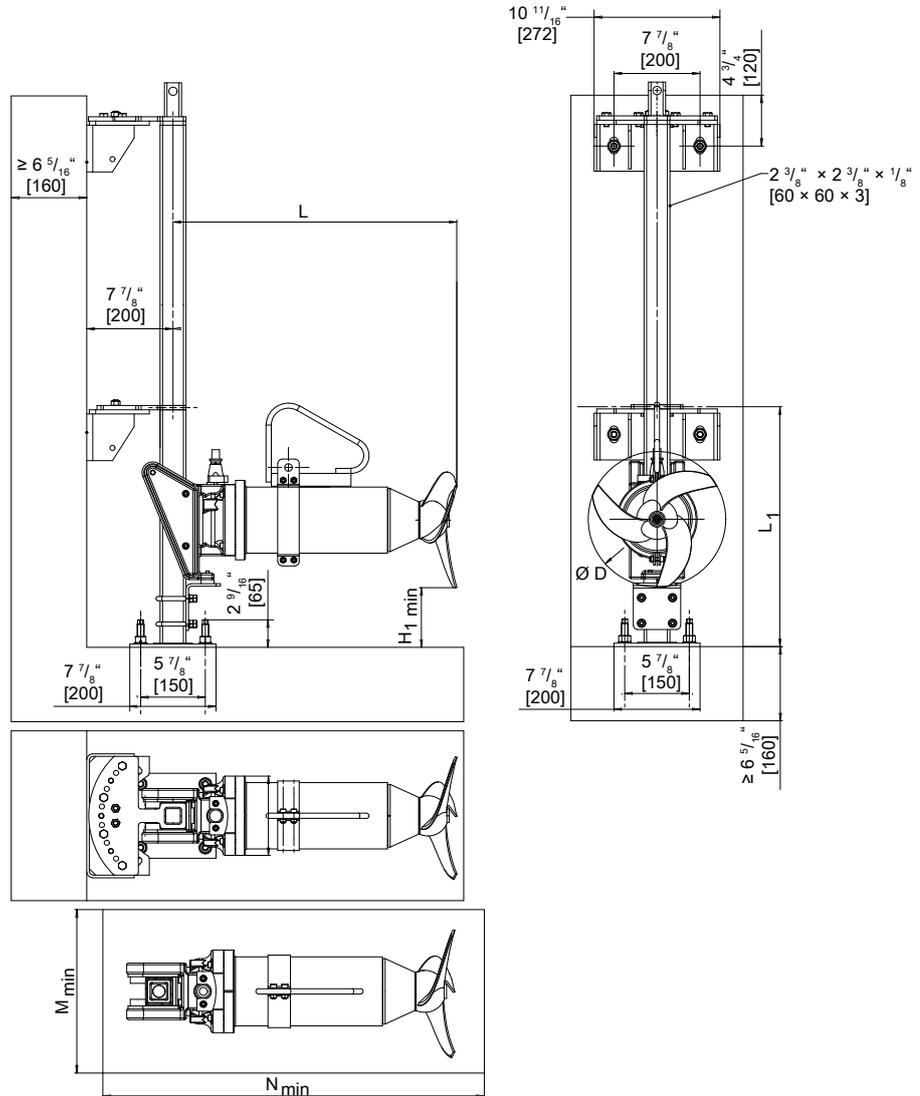


Fig. 25: Installation of accessories 22 – Amamix 200 / 300 / 400 (except size 4135)

Table 14: Dimensions

Ø D		Motor housing material	H _{1 min}		L		M _{min}		N _{min}	
[inch]	[mm]		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
7 ⁷ / ₈	200	G	4 ³ / ₄	120	20 ⁵ / ₈	524	10 ¹³ / ₁₆	275	30 ¹¹ / ₁₆	780
7 ⁷ / ₈	200	C	4 ³ / ₄	120	20 ¹ / ₂	520	10 ¹³ / ₁₆	275	30 ¹¹ / ₁₆	780
11 ¹³ / ₁₆	300	G	5 ⁷ / ₈	150	25 ¹⁵ / ₁₆	659	14 ³ / ₄	375	35 ¹³ / ₁₆	910
11 ¹³ / ₁₆	300	C	5 ⁷ / ₈	150	25 ¹³ / ₁₆	655	14 ³ / ₄	375	35 ¹³ / ₁₆	910
15 ³ / ₄	400	G	7 ⁷ / ₈	200	33 ¹ / ₄	844	18 ¹ / ₈	460	41 ⁵ / ₁₆	1050
15 ³ / ₄	400	C	7 ⁷ / ₈	200	33 ¹ / ₄	844	18 ¹ / ₈	460	41 ⁵ / ₁₆	1050

9.1.7 Installation of accessories 22 – Amamix 400 (size 4135 only) / 600

NOTE! Not intended for the US market!

For mounting at the top of the tank wall and on a horizontal tank floor, level-adjustable and with horizontal swiveling option

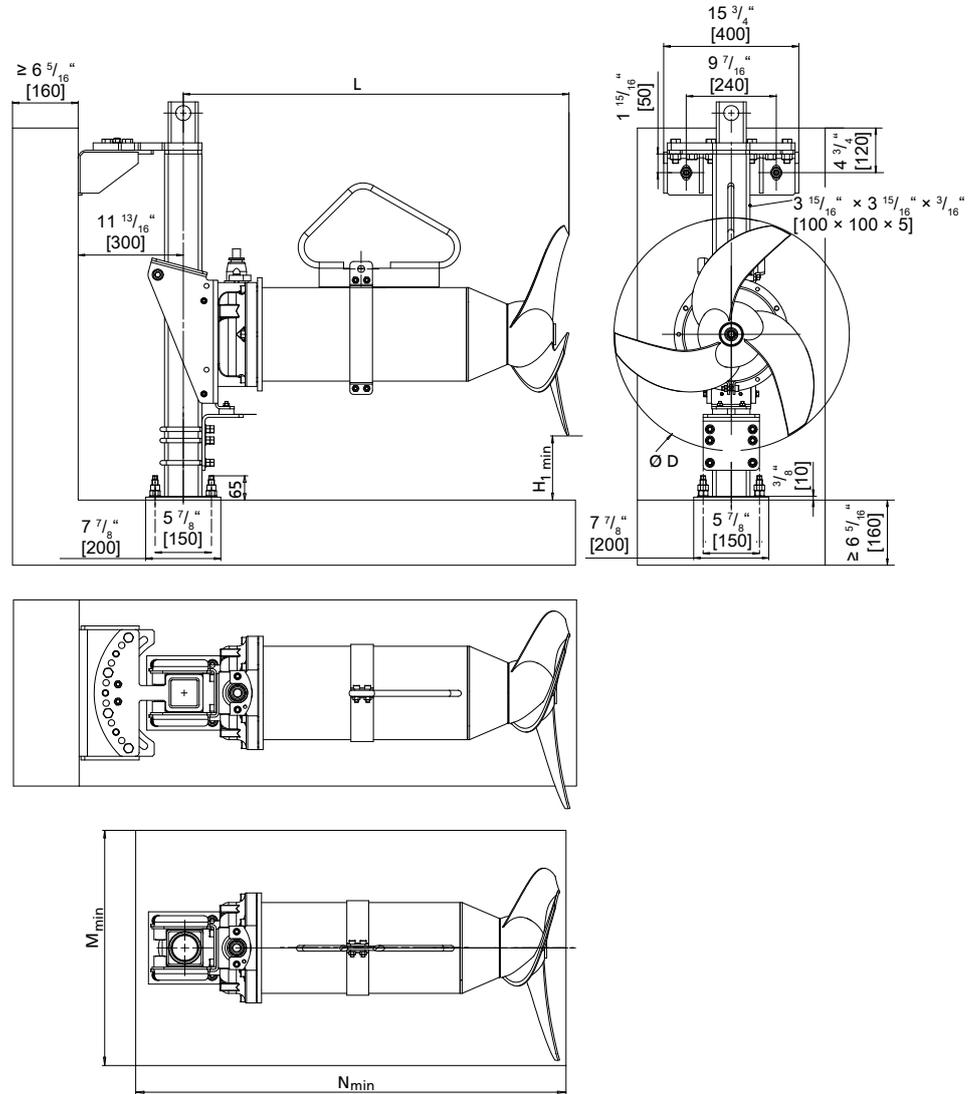


Fig. 26: Installation of accessories 22 – Amamix 400 (size 4135 only) / 600

Table 15: Dimensions

Ø D		Motor housing material		H _{1 min}		L _{max}		M _{min}		N _{min}	
[inch]	[mm]			[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
15 ³ / ₄	400	G		8 ¹ / ₁₆	205	30 ¹³ / ₁₆	783	18 ¹ / ₈	460	45 ¹ / ₄	1150
15 ³ / ₄	400	C		8 ¹ / ₁₆	205	30 ¹¹ / ₁₆	780	18 ¹ / ₈	460	45 ¹ / ₄	1150
23 ⁵ / ₄	600	G		12 ³ / ₈	315	37 ³ / ₈	949	27 ⁹ / ₁₆	700	51 ⁹ / ₁₆	1310
23 ⁵ / ₄	600	C		12 ³ / ₈	315	37 ³ / ₈	949	27 ⁹ / ₁₆	700	54 ³ / ₄	1390

1592.8216/04-EN-US

9.1.8 Installation of accessories 22 – Amamix 400 (size 4135 only) / 600

NOTE! Not intended for the US market!

For mounting at the top of the tank wall and on a sloping tank floor (0.5° - 10°), level-adjustable and with horizontal swiveling option

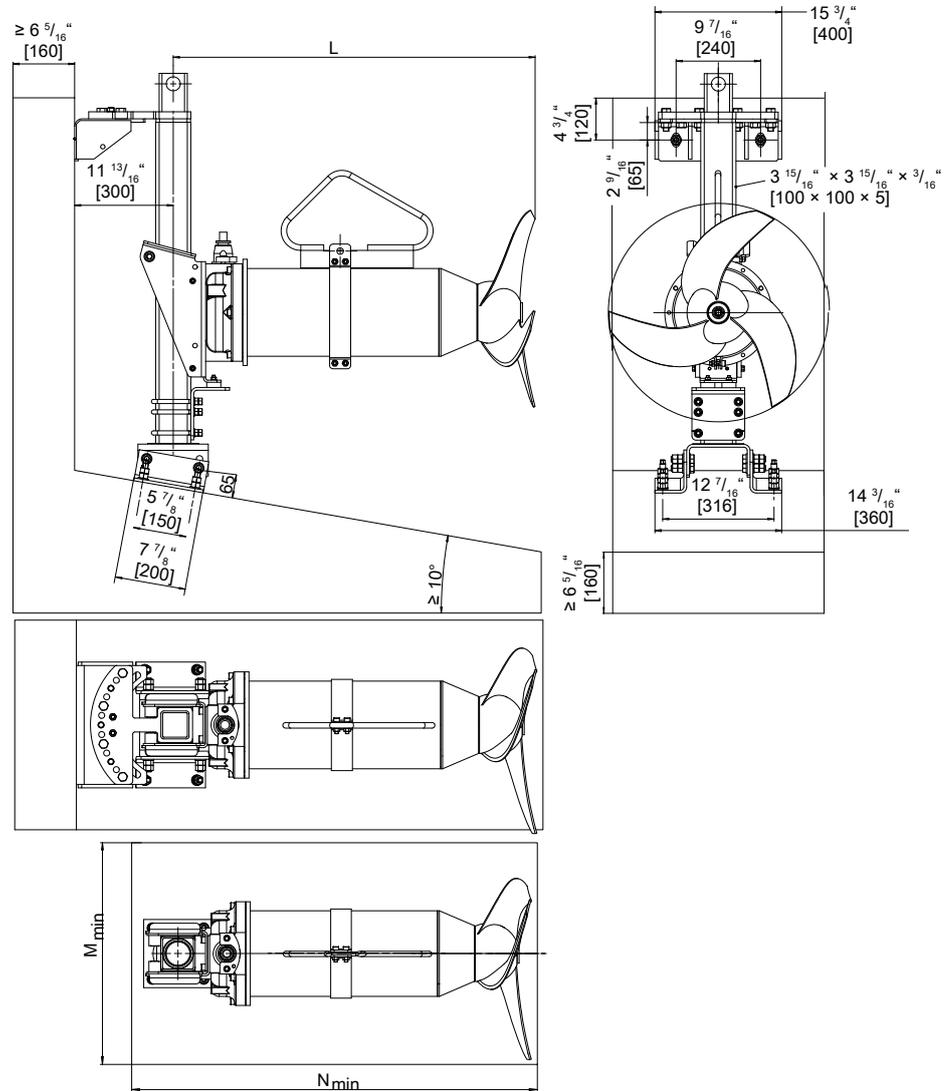


Fig. 27: Installation of accessories 22 – Amamix 400 (size 4135 only) / 600

Table 16: Dimensions

Ø D		Motor housing material	L		M _{min}		N _{min}	
[inch]	[mm]		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
15 ³ / ₄	400	G	30 ¹³ / ₁₆	783	18 ¹ / ₈	460	45 ¹ / ₄	1150
15 ³ / ₄	400	C	30 ¹¹ / ₁₆	780	18 ¹ / ₈	460	45 ¹ / ₄	1150
23 ⁵ / ₄	600	G	37 ³ / ₈	949	27 ⁹ / ₁₆	700	51 ⁹ / ₁₆	1310
23 ⁵ / ₄	600	C	37 ³ / ₈	949	27 ⁹ / ₁₆	700	54 ³ / ₄	1390

9.1.9 Installation of accessories 22 – Amamix 400 (size 4135 only) / 600

NOTE! Not intended for the US market!

For mounting at the top of the tank wall and at the bottom of the tank wall or on an inclined floor

(10° - 90°), level-adjustable and with horizontal swiveling option

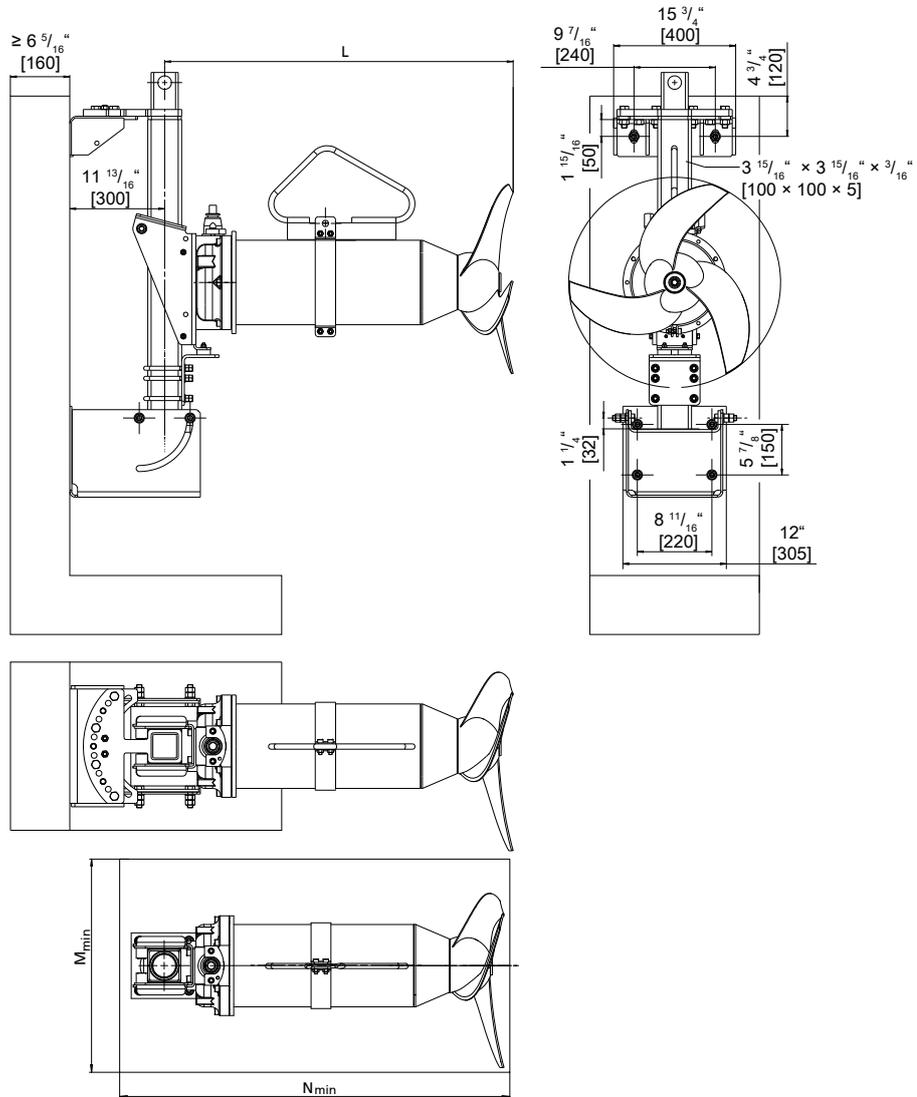


Fig. 28: Installation of accessories 22 – Amamix 400 (size 4135 only) / 600

Table 17: Dimensions

Ø D		Motor housing material	L		M _{min}		N _{min}	
[inch]	[mm]		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
15 ³ / ₄	400	G	30 ¹³ / ₁₆	783	18 ¹ / ₈	460	45 ¹ / ₄	1150
15 ³ / ₄	400	C	30 ¹¹ / ₁₆	780	18 ¹ / ₈	460	45 ¹ / ₄	1150
23 ⁵ / ₄	600	G	37 ³ / ₈	949	27 ⁹ / ₁₆	700	51 ⁹ / ₁₆	1310
23 ⁵ / ₄	600	C	37 ³ / ₈	949	27 ⁹ / ₁₆	700	54 ³ / ₄	1390

1592.8216/04-EN-US

9.1.10 Installation of accessories 22 – Amamix 400 (size 4135 only) / 600

NOTE! Not intended for the US market!

Middle support for guide rail $3^{15}/_{16} \times 3^{15}/_{16} \times 3^{3}/_{16}$ for larger installation depths

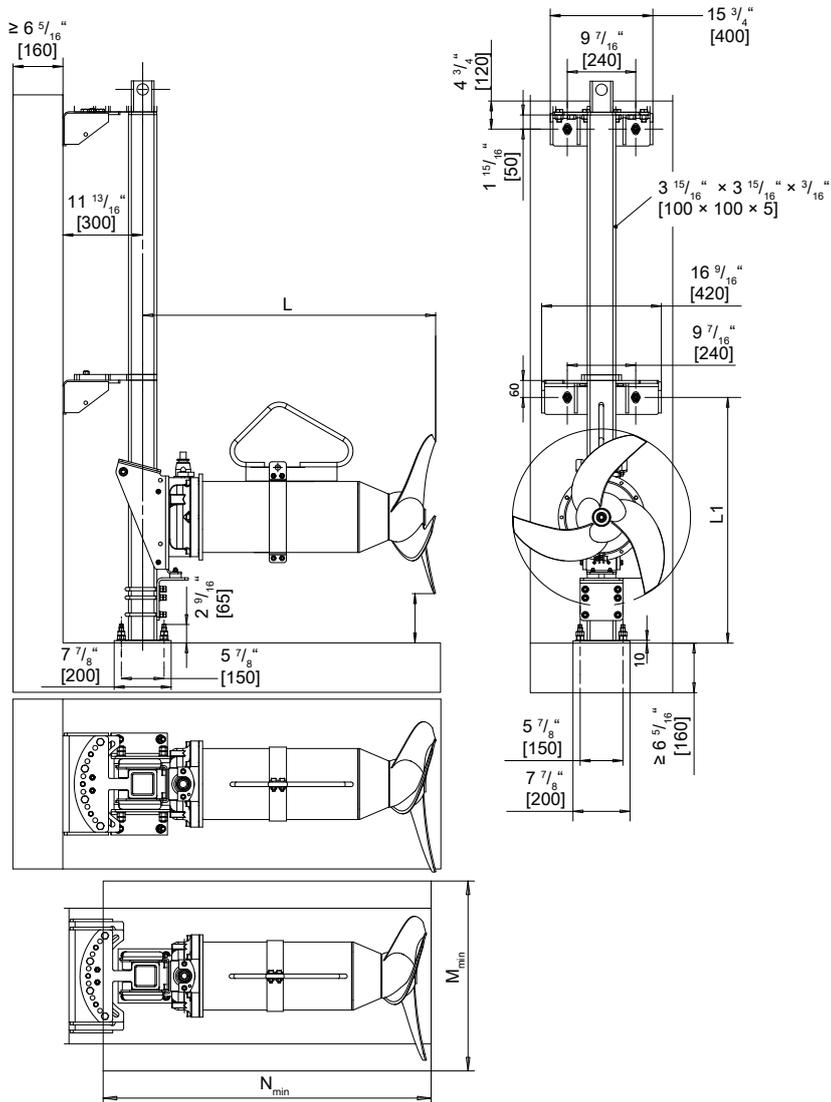


Fig. 29: Installation of accessories 22 – Amamix 400 (size 4135 only) / 600

Table 18: Dimensions

Ø D		Motor housing material	H _{1 min}		L _{max}		M _{min}		N _{min}	
[inch]	[mm]		[inch]	[mm]	[inch]	[mm]	[inch]	[mm]	[inch]	[mm]
15 ³ / ₄	400	G	8 ¹ / ₁₆	205	30 ¹³ / ₁₆	783	18 ¹ / ₈	460	45 ¹ / ₄	1150
15 ³ / ₄	400	C	8 ¹ / ₁₆	205	30 ¹¹ / ₁₆	780	18 ¹ / ₈	460	45 ¹ / ₄	1150
23 ⁵ / ₄	600	G	12 ³ / ₈	315	37 ³ / ₈	949	27 ⁹ / ₁₆	700	51 ⁹ / ₁₆	1310
23 ⁵ / ₄	600	C	12 ³ / ₈	315	37 ³ / ₈	949	27 ⁹ / ₁₆	700	54 ³ / ₄	1390

9.1.11 Installation of accessories 22 - AmaProp 802 and 1002 (Ø 800 mm / Ø 1000 mm)

For mounting at the top of the tank wall and on a horizontal tank floor (0° - 0.5°), level-adjustable and with horizontal swiveling option.

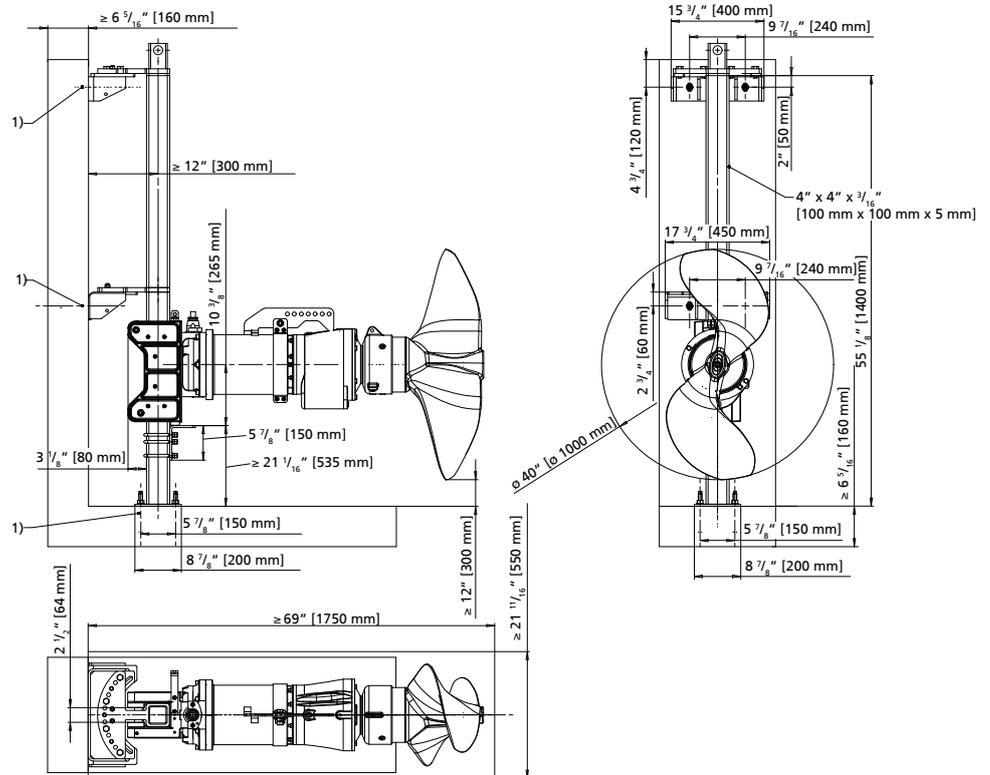


Fig. 30: Installation of accessories 22 - AmaProp 802 and 1002 (Ø 800 mm / Ø 1000 mm)

1)	Hole diameter = $\frac{3}{4}$ " [18 mm], hole depth = $4 \frac{15}{16}$ " [125 mm], max. tightening torque = 44.3 lbf ft [60 Nm]
----	--

9.1.12 Installation of accessories 22 - AmaProp 802 and 1002 (Ø 800 mm / Ø 1000 mm)

For mounting at the top of the tank wall and on a sloping tank floor(0.5° - 10°), level-adjustable and with horizontal swiveling option.

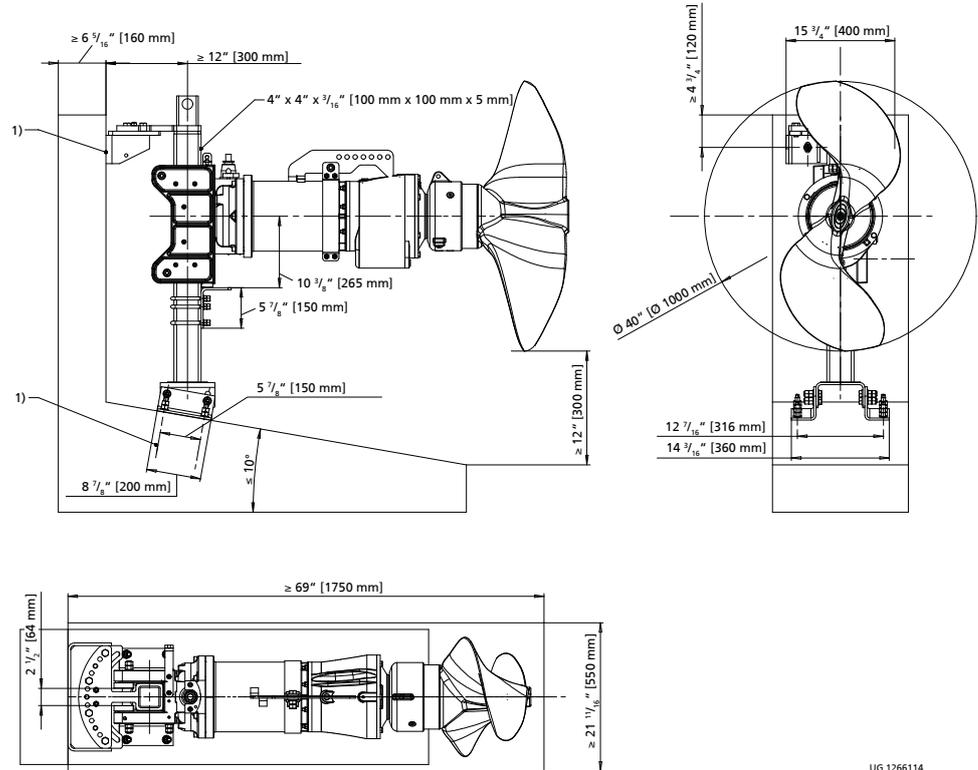


Fig. 31: Installation of accessories 22 - AmaProp 802 and 1002 (Ø 800 mm / Ø 1000 mm)

- | | |
|----|--|
| 1) | Hole diameter = $\frac{3}{4}$ " [18 mm], hole depth = $4 \frac{15}{16}$ " [125 mm], max. tightening torque = 44.3 lbf ft [60 Nm] |
|----|--|

UG 1266114

9.1.13 Installation with upward pitch

For accessories 22 – Amamix 200 - 600

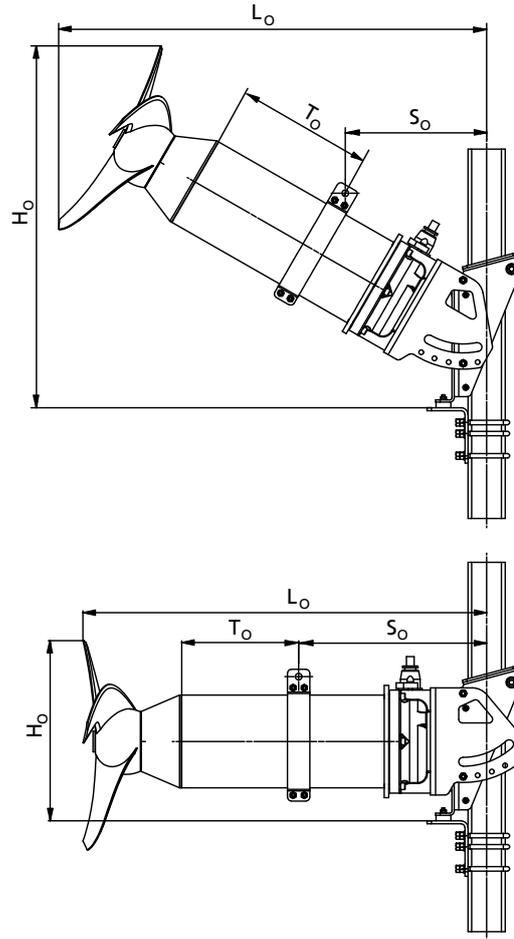


Fig. 32: Upward pitch

Table 19: Upward pitch adjustment by 0°, 10°, 20°, 30°, 40° [inch]

Size		Pitch = 0°				Pitch = 10°				Pitch = 20°				Pitch = 30°				Pitch = 40°			
		H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o
C2...	/ 1 4...	10 ⁵ / ₈	22 ¹ / ₁₆	9 ¹ / ₁₆	9 ¹ / ₁₆	14 ³ / ₁₆	23 ¹ / ₁₆	9 ¹³ / ₁₆	8 ¹ / ₄	17 ¹¹ / ₁₆	23 ⁷ / ₈	10 ¹ / ₁₆	7 ¹ / ₂	20 ⁷ / ₈	23 ¹ / ₄	10 ¹ / ₄	6 ¹ / ₂	23 ⁵ / ₈	22 ¹ / ₄	10 ¹ / ₄	5 ⁵ / ₁₆
	/ 2 4...			9 ¹ / ₄	8 ⁷ / ₈			10 ¹ / ₁₆	8 ¹ / ₁₆			10 ¹ / ₄	7 ⁹ / ₁₆			10 ⁷ / ₁₆	6 ¹⁵ / ₁₆				5 ¹ / ₈
C29.../ C32...	/ 0 6...	12 ⁵ / ₁₆	27 ¹⁵ / ₁₆	10 ¹³ / ₁₆	10 ¹ / ₁₆	18 ¹ / ₂	29 ⁵ / ₁₆	11 ⁵ / ₈	9 ¹ / ₁₆	22 ⁷ / ₁₆	29 ⁷ / ₈	12 ³ / ₈	8 ¹ / ₄	25 ¹³ / ₁₆	29 ¹¹ / ₁₆	12 ³ / ₈	6 ¹ / ₁₆	28 ¹⁵ / ₁₆	28 ¹¹ / ₁₆	12	5 ¹ / ₂
	/ 2 6...																				
C37.../ C41...	/ 3 8...	15 ³ / ₁₆	33 ³ / ₄	13 ³ / ₈	12 ² / ₁₆	24 ¹³ / ₁₆	35 ³ / ₈	14 ³ / ₁₆	11 ¹ / ₄	29 ¹ / ₈	36 ¹ / ₈	14 ¹⁵ / ₁₆	9 ¹³ / ₁₆	33 ³ / ₄	35 ¹⁵ / ₁₆	11 ⁷ / ₁₆	8 ¹ / ₄	36 ¹³ / ₁₆	34 ³ / ₄	15 ³ / ₈	6 ⁵ / ₁₆
	/ 4 8...																				
C57.../ C63...	/ 4 12...	20 ⁷ / ₈	39 ¹ / ₂	15 ³ / ₄	11 ⁷ / ₁₆	30 ¹ / ₈	42 ⁵ / ₁₆	16 ³ / ₄	10 ¹ / ₄	35 ¹ / ₁₆	43 ⁷ / ₈	17 ⁵ / ₁₆	8 ⁷ / ₈	39 ⁵ / ₈	44 ⁷ / ₁₆	17 ¹ / ₂	7 ⁵ / ₁₆	Max. permissible pitch: 30°			
	/ 8 12...		44 ⁷ / ₁₆	18 ¹ / ₈	13 ³ / ₄	30 ⁷ / ₈	47	19 ¹ / ₈	12 ⁵ / ₈	36 ⁵ / ₈	48 ³ / ₈	19 ¹¹ / ₁₆	11	41 ³ / ₄	48 ³ / ₁₆	19 ⁷ / ₈	9 ¹ / ₄				

Table 20: Upward pitch adjustment by 0°, 10°, 20°, 30°, 40° [mm]

Size		Pitch = 0°				Pitch = 10°				Pitch = 20°				Pitch = 30°				Pitch = 40°			
		H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o
C2...	/ 1 4...	270	560	230	230	360	585	250	210	450	595	255	190	530	590	260	165	600	565	260	135
	/ 2 4...			235	225			255	205			260	185			265	160				130
C29.../ C32...	/ 0 6...	313	709	275	255	470	744	295	230	570	759	315	200	655	754	315	170	735	729	305	140
	/ 2 6...																				
C37.../ C41...	/ 3 8...	385	858	340	310	630	898	360	285	740	918	380	250	845	913	290	210	935	883	390	160
	/ 4 8...																				
C57.../ C63...	/ 4 12...	530	1004	400	290	765	1074	425	260	890	1114	440	225	1000	1129	445	185	Max. permissible pitch: 30°			
	/ 8 12...		1129	460	350	785	1194	485	320	930	1229	500	280	1060	1234	505	235				

1592.8216/04-EN-US

Table 21: Upward pitch adjustment by 0°, 15°, 30° [inch]

Size		Pitch = 0°				Pitch = 15°				Pitch = 30°			
		H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o
C57.../ C63...	/ 6 12...	21 ⁷ / ₁₆	37 ¹ / ₄	15 ¹ / ₂	11	31 ¹ / ₂	42 ¹ / ₂	15 ³ / ₄	9 ¹³ / ₁₆	41 ⁵ / ₁₆	43 ¹⁵ / ₁₆	14 ³ / ₁₆	9 ¹ / ₁₆
	/ 10 12.												

Table 22: Upward pitch adjustment by 0°, 15°, 30° [mm]

Size		Pitch = 0°				Pitch = 15°				Pitch = 30°			
		H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o	H _o	L _o	S _o	T _o
C57.../ C63...	/ 6 12...	545	946	393	280	800	1079	400	250	1050	1116	360	230
	/ 10 12.												

9.1.14 Installation with downward pitch

For accessories 22 – Amamix 200 - 600

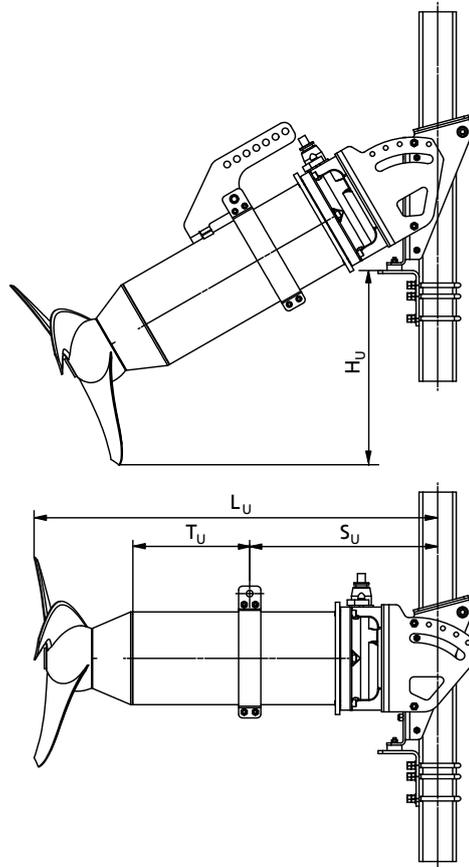


Fig. 33: Downward pitch adjustment

Table 23: Downward pitch adjustment by 0°, 10°, 20°, 30°, 40° [inch]

Size		Pitch = 0°				Pitch = 10°				Pitch = 20°				Pitch = 30°				Pitch = 40°			
		H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U
C2... C32...	/ 1 4...	< 0	22 ¹ / ₁₆	9 ⁷ / ₁₆	9 ¹ / ₁₆	1 ⁹ / ₁₆	23 ¹ / ₁₆	9 ¹³ / ₁₆	9 ⁵ / ₈	5 ¹ / ₈	23 ⁷ / ₈	9 ¹³ / ₁₆	2.L	8 ¹ / ₄	23 ³ / ₄	10 ¹ / ₄	3.L	11	22 ¹ / ₄	9 ⁵ / ₈	5.L
	/ 2 4...		9 ¹ / ₄	8 ⁷ / ₈																	
C29.../ C32...	/ 0 6...	1/2	27 ¹⁵ / ₁₆	10 ¹³ / ₁₆	10 ¹ / ₁₆	5 ⁷ / ₈	29 ⁵ / ₁₆	11 ¹ / ₄	11	9 ⁵ / ₈	29 ⁷ / ₈	11 ¹ / ₄	12	13 ³ / ₁₆	29 ¹¹ / ₁₆	11 ¹ / ₄	2.L	16 ⁵ / ₁₆	28 ¹¹ / ₁₆	10 ⁵ / ₈	4.L
	/ 2 6...																				
C37.../ C41...	/ 3 8...	1	33 ³ / ₄	13 ³ / ₈	12 ⁹ / ₁₆	6 ¹ / ₂	35 ³ / ₈	13 ⁹ / ₁₆	13 ³ / ₈	10 ¹³ / ₁₆	36 ¹ / ₈	14	1.L	14 ¹⁵ / ₁₆	35 ¹⁵ / ₁₆	13 ³ / ₈	3.L	18 ¹ / ₂	34 ³ / ₄	13	5.L
	/ 4 8...																				
C57.../ C63...	/ 4 12...	3 ¹⁵ / ₁₆	39 ¹ / ₂	15 ³ / ₄	11 ⁷ / ₁₆	12	42 ⁵ / ₁₆	16 ⁵ / ₁₆	12 ¹³ / ₁₆	16 ¹⁵ / ₁₆	43 ⁷ / ₈	16 ⁹ / ₁₆	14 ³ / ₁₆	21 ¹ / ₄	44 ⁷ / ₁₆	16 ⁹ / ₁₆	15 ³ / ₈	Max. permissible pitch: 30°			
	/ 8 12...		44 ⁷ / ₁₆	18 ¹ / ₈	13 ³ / ₄	12 ¹³ / ₁₆	47	18 ¹¹ / ₁₆	15 ³ / ₁₆	18 ¹ / ₂	48 ³ / ₈	18 ¹¹ / ₁₆	16 ⁹ / ₁₆	23 ³ / ₈	48 ⁹ / ₁₆	18 ¹ / ₂	17 ¹⁵ / ₁₆				

Table 24: Downward pitch adjustment by 0°, 10°, 20°, 30°, 40° [mm]

Size		Pitch = 0°				Pitch = 10°				Pitch = 20°				Pitch = 30°				Pitch = 40°			
		H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U
C2... C32...	/ 1 4...	< 0	560	230	230	40	585	250	245	130	595	250	2.L	210	590	260	3.L	280	565	245	5.L
	/ 2 4...			235	225																
C29.../ C32...	/ 0 6...	13	709	275	255	150	744	285	280	245	759	285	305	335	754	285	2.L	415	729	270	4.L
	/ 2 6...																				
C37.../ C41...	/ 3 8...	25	858	340	310	165	898	345	340	275	918	355	1.L	380	913	340	3.L	470	883	330	5.L
	/ 4 8...																				
C57.../ C63...	/ 4 12...	100	1004	400	290	305	1074	415	325	430	1114	420	360	540	1129	420	390	Max. permissible pitch: 30°			
	/ 8 12...		1129	460	350	325	1194	475	385	470	1229	475	420	600	1234	470	455				

Table 25: Upward pitch adjustment by 0°, 15°, 30° [inch]

Size		Pitch = 0°				Pitch = 15°				Pitch = 30°			
		H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U
C57.../ C63...	/ 6 12...	3 ³ / ₈	37 ¹ / ₄	15 ¹ / ₂	11	13 ³ / ₄	37 ³ / ₈	27 ⁹ / ₁₆	11 ¹³ / ₁₆	19 ¹ / ₈	41 ¹ / ₄	22 ¹³ / ₁₆	12 ⁵ / ₈
	/ 10 12.												

1592.8216/04-EN-US

Table 26: Downward pitch adjustment by 0°, 15°, 30° [mm]

Size		Pitch = 0°				Pitch = 15°				Pitch = 30°			
		H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U	H _U	L _U	S _U	T _U
C57.../ C63...	/ 6 12...	85	946	393	280	350	950	700	300	486	1048	579	320
	/ 10 12.												

10 Certificate of Decontamination

Type:

Order number/

Order item number³⁾:

Delivery date:

Field of application:

Fluid handled³⁾:

Please check where applicable³⁾:



Corrosive



Oxidizing



Flammable



Explosive



Hazardous to health



Seriously hazardous to health



Toxic



Radioactive



Hazardous to the environment



Safe

Reason for return³⁾:

Comments:

The product/accessories have been carefully drained, cleaned and decontaminated inside and outside prior to dispatch/ placing at your disposal.

We herewith declare that this product is free from hazardous chemicals, biological and radioactive substances.

For mag-drive pumps, the inner rotor unit (impeller, casing cover, bearing ring carrier, plain bearing, inner rotor) has been removed from the pump and cleaned. In cases of leakage at the stator can, the stator space has been examined for fluid leakage; if fluid handled has penetrated the stator space, it has been removed.

For canned motor pumps, the rotor and plain bearing have been removed from the pump for cleaning. In cases of leakage at the stator can, the stator space has been examined for fluid leakage; if fluid handled has penetrated the stator space, it has been removed.

- No special safety precautions are required for further handling.
- The following safety precautions are required for flushing fluids, fluid residues and disposal:

.....

.....

We confirm that the above data and information are correct and complete and that shipping is effected in accordance with the relevant legal provisions.

.....
Place, date and signature

.....
Address

.....
Company stamp

³ Required field

Index

C

Certificate of decontamination 53

D

Design 14

Disposal 11

E

Explosion protection 19, 34

F

Fastening 14

I

Installation types 14

K

Key to safety symbols/markings 6

M

Maintenance 35

O

Other applicable documents 6

P

Preservation 10

R

Return to supplier 11

S

Safety 8

Safety awareness 9

Scope of supply 15

Storage 10

T

Tightening torques 35

Transport 10

Trouble-shooting

Causes and remedies 36

W

Warnings 6



KSB SE & Co. KGaA

Johann-Klein-Straße 9 • 67227 Frankenthal (Germany)

Tel. +49 6233 86-0

www.ksb.com

1592.82.16/04-EN-US (01316143)