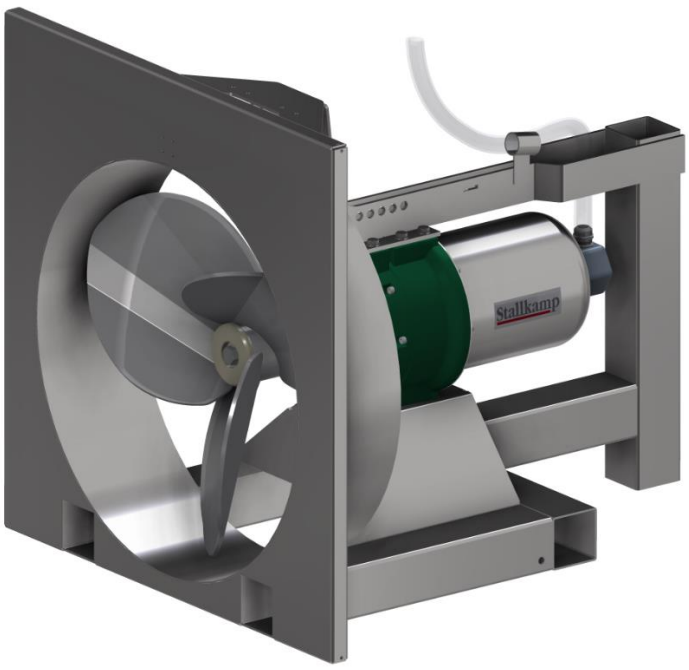
Stallkamp

OPERATION & ASSEMBLY INSTRUCTIONS

Circulation Frame M2007 for Submersible Motor Agitator

BG132 7.5 kW
BG160 11.0 kW; 17.0 kW; 22.0 kW



Document no.: 8160200 Version: December 2018

Space for notes:

General Notices

- **The technical specifications, weights and measures are to be considered approximate and not binding.**
- **Pictures are for illustration purposes and may deviate from the actual product.**

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1. TABLE OF CONTENTS

2. MANUFACTURER'S DECLARATION

Manufacturer: Erich Stallkamp ESTA GmbH

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Product name: Circulation frame for submersible motor agitator

TMRZ BG132 7.5 kW,

TMRZ Bg160 11.0, 17.0 & 22.0 kW

We hereby declare that the above designated circulation frame was produced by Erich Stallkamp ESTA GmbH.

Erich Stallkamp ESTA GmbH, Dipl.-Ing. (FH) H. Ansorge (AL-TPR, authorised management board representative)

Dinklage, dated 27 February 2019

This declaration is not an assurance of properties pursuant to the German Product Liability Act.

The safety notices provided in the product documentation must be observed.

3. GENERAL INFORMATION

Our systems are developed according to the current state of technology, manufactured with great care and subject to a continual quality control. This assembly, operation and maintenance manual should help you to get to know the system and employ its operational possibilities as intended.

The assembly, operation and maintenance manual contains important notices in order to operate the system safely, appropriately and cost-effectively. It is necessary to observe the assembly, operation and maintenance manual to ensure the reliability and a long lifespan of the system and to mitigate dangers.

The assembly, operation and maintenance manual does not take local, on-site requirements into consideration; the owner is solely responsible for ensuring that these are observed, even by external installers.

3.1. Designation of notices in the assembly, operation and maintenance manual

In the assembly, operation and maintenance manual, safety notices warning of dangers to people are identified with the general hazard symbol according to DIN 4844-W9.

In the assembly, operation and maintenance manual, warnings about electrical voltage are identified with the safety sign according to DIN 4844-W8.

All other notices, which might restrict the functional reliability of the system or represent a danger to machines and systems if not observed, are marked with the word:

ATTENTION!

This machine unit may not be operated beyond the values defined in the technical documentation with respect to pumped liquid, delivery flow rate, rotational speed, density, pressure, temperature and motor power, or outside the scope of any other instructions contained in the operating manual or contract documentation. If you have any queries, please consult the manufacturer.

The type plate designates the most important operating data and the machine serial number. We request that this always be specified in the event of enquiries, subsequent orders and when ordering spare parts.

If additional information or notices are required or in case of damage, please contact your local field sales employee or contact us directly.

3.2. Unauthorised conversion and manufacture of spare parts

Conversions and modifications to the devices and their machine units are only permissible with the explicit approval of the manufacturer. The use of non-"genuine spare parts" voids any liability.

4. SAFETY

This assembly, operation and maintenance manual contains fundamental notices which must be observed during set-up and operation as well as when performing maintenance work on the system.

It is therefore absolutely necessary that the installer as well as the responsible specialist personnel and owner read this manual before assembly and commissioning and it must always be available at the location where the system is assembled.

Not only the safety notices in this assembly, operation and maintenance manual must be observed, but also the warning signs and provisions of the respective professional association.

4.1. Qualifications of the personnel

The personnel responsible for operation, maintenance, inspection and assembly must be appropriately qualified for this work.

The area of responsibility, competence and monitoring of personnel must be closely regulated by the owner. If the personnel do not possess the necessary knowledge, they should be trained and instructed accordingly.

Furthermore, the owner must ensure that the personnel fully understand the contents of this assembly, operation and maintenance manual.

4.2. Danger if the safety notices are not observed

Failure to observe the safety notices can endanger people as well as the environment, systems and machines. Failure to observe the safety notices results in the forfeiture of all claims for damages.

Non-observance may, for example, result in the following specific dangers:

- ✓Failure of important functions of the device or system.
- ✓Endangerment of people due to electrical, mechanical, chemical and other exposure.
- ✓Endangerment of the environment due to leakage of hazardous materials.

WARNING SIGNS

All notice and warning signs must be observed. Dangerous gases can escape when stirring and pumping manure.

DANGER OF POISONING!

If the manure is stored below slatted floors, the presence of people in buildings during agitation is only permissible with sufficient ventilation. Therefore, windows and doors must be open and the fan set to full power.

4.3. Safety-conscious work

Observe all safety notices presented in this assembly, operation and maintenance manual, the existing national regulations for accident prevention as well as possible internal work, operation and safety regulations of the company at all times.

Safety notices for the owner and operator:

- If hot or cold machine parts are potentially dangerous, these parts must be protected on site to prevent contact.
- Contact protection for moving parts may not be removed while the machine is in operation.
- Any leakage of dangerous materials must be conducted away so that there is no endangerment to people and the environment. Observe statutory provisions.

4.4. Safety notices for maintenance, inspection and assembly work

The owner must ensure that all maintenance, inspection and assembly work is carried out by authorised and qualified specialist personnel.

Work on the machine must strictly only be carried out when the machine is at a standstill.

Directly after completion of the work, all safety and protection equipment must be reattached or put back into operation.

5. Warranty

This section contains the general specifications for the warranty. Contractual agreements shall always take precedence and are not nullified by it. The warranty period is a component of Stallkamp's general terms and conditions. Agreements deviating from this must be specified in writing in the order confirmation.

5.1. General

Stallkamp undertakes to rectify any defect in products sold by Stallkamp on the condition that:

- it is a quality-related defect of the material, manufacture or design;
- the defect is reported to Stallkamp or the Stallkamp representative within the period of the warranty;
- the product is employed exclusively in the specified operating conditions described in the assembly, operation and maintenance manual and employed for the intended purpose;
- the monitoring devices integrated in the product are correctly installed and connected;
- genuine Stallkamp parts are used.

5.2. Exclusion of liability

No warranty is honoured nor liability assumed for damage to the device if one or several of the following points are applicable:

- A faulty configuration of the device on our part because of inadequate or incorrect information from the ordering party or owner.
- Failure to observe the safety notices, regulations or the necessary requirements in this operating manual which apply according to German law.
- Assembly, disassembly or repair of the device not in keeping with the regulations.
- Inadequate maintenance.
- Possible chemical, electrical or electrochemical influences.
- Wear.

Since maintenance has an influence on the safety and functional capability of the device, it is an integral component of the warranty. The operator of the device undertakes to carry out maintenance work according to the regulations of the manufacturer, including the repair and replacement of wearing parts.

The use of the system and/or the field of application and reliability for the application must be verified by the owner and does not form part of the warranty.

The liability of Stallkamp thereby excludes any liability for personal injury, property damage or financial losses.

The manufacturer reserves the right to modify the performance, specification or configuration data without prior notice.

6. PRODUCT DESCRIPTION

The circulation frame for the submersible motor agitator is equipped as follows:

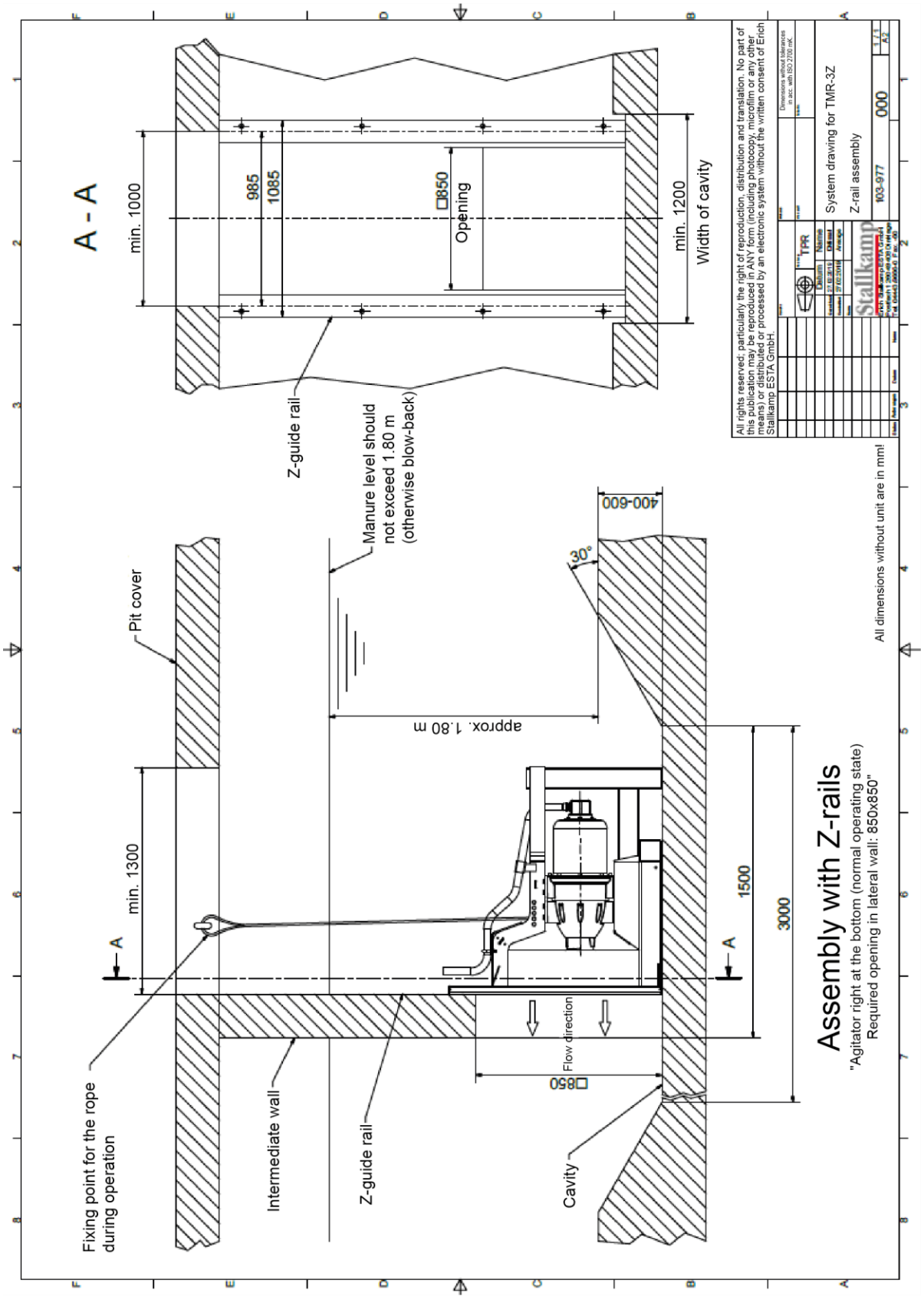
- Circulation frame for the attachment of a submersible motor agitator;
- U-guide rails for assembly in the manure canal;
- Alternatively, double U-guide rails for assembly in the manure canal;
- Alternatively, Z-guide rails for assembly in the manure canal;
- Top plate for blocking above of the circulation frame;
- Wire cable for lifting and lowering the agitating plant.

6.1. Intended use

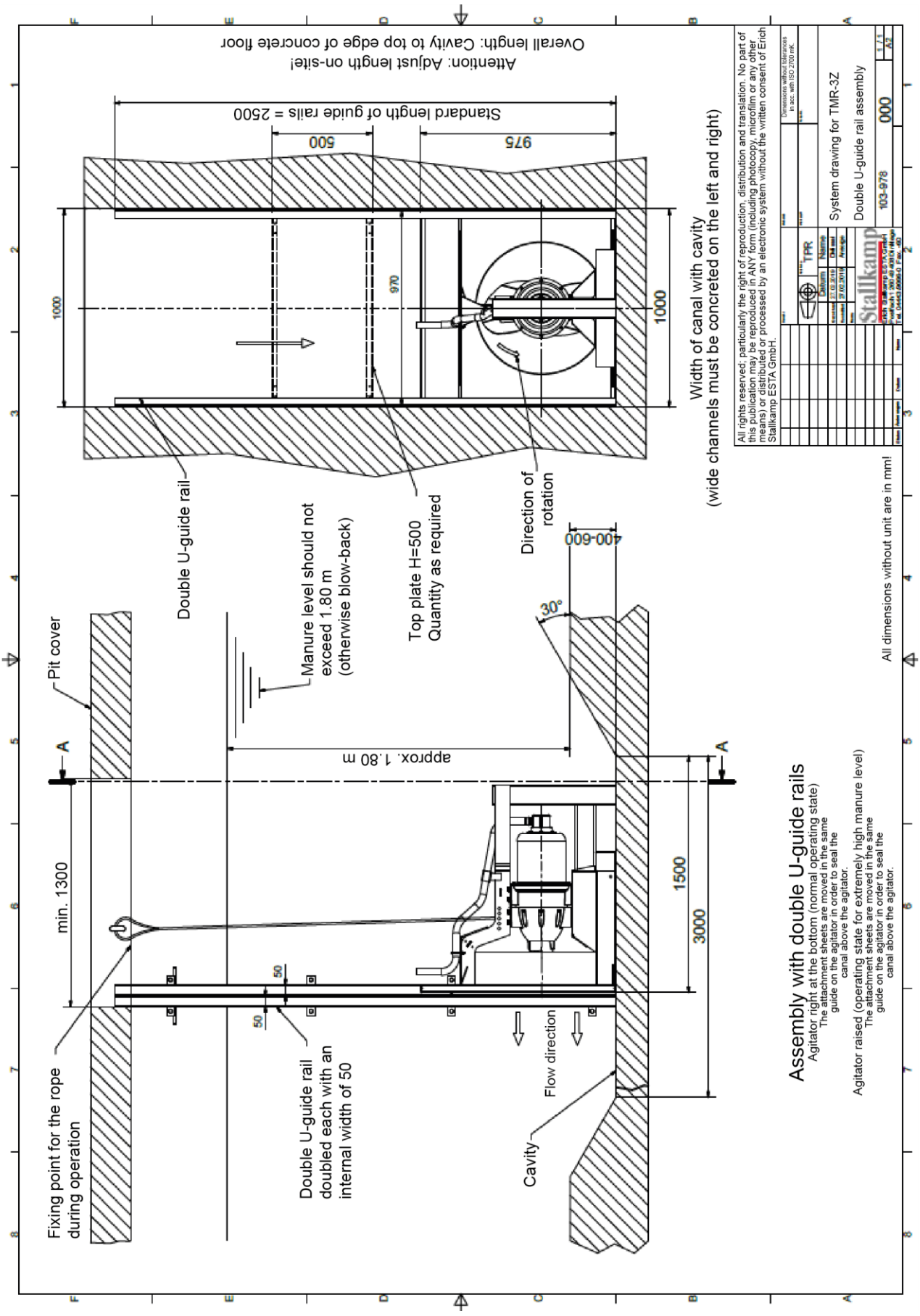
The circulation frame is constructed for the attachment of a Stallkamp submersible motor agitator (see operating manual of the submersible motor agitator). This circulation frame enables the assembly of a submersible motor agitator in a manure ring canal. For larger manure canals, more than one submersible motor agitator may prove necessary. Please contact our sales representative for the layout of the circulation frame.

7. DIMENSIONS OF THE CIRCULATION FRAME FOR TMR

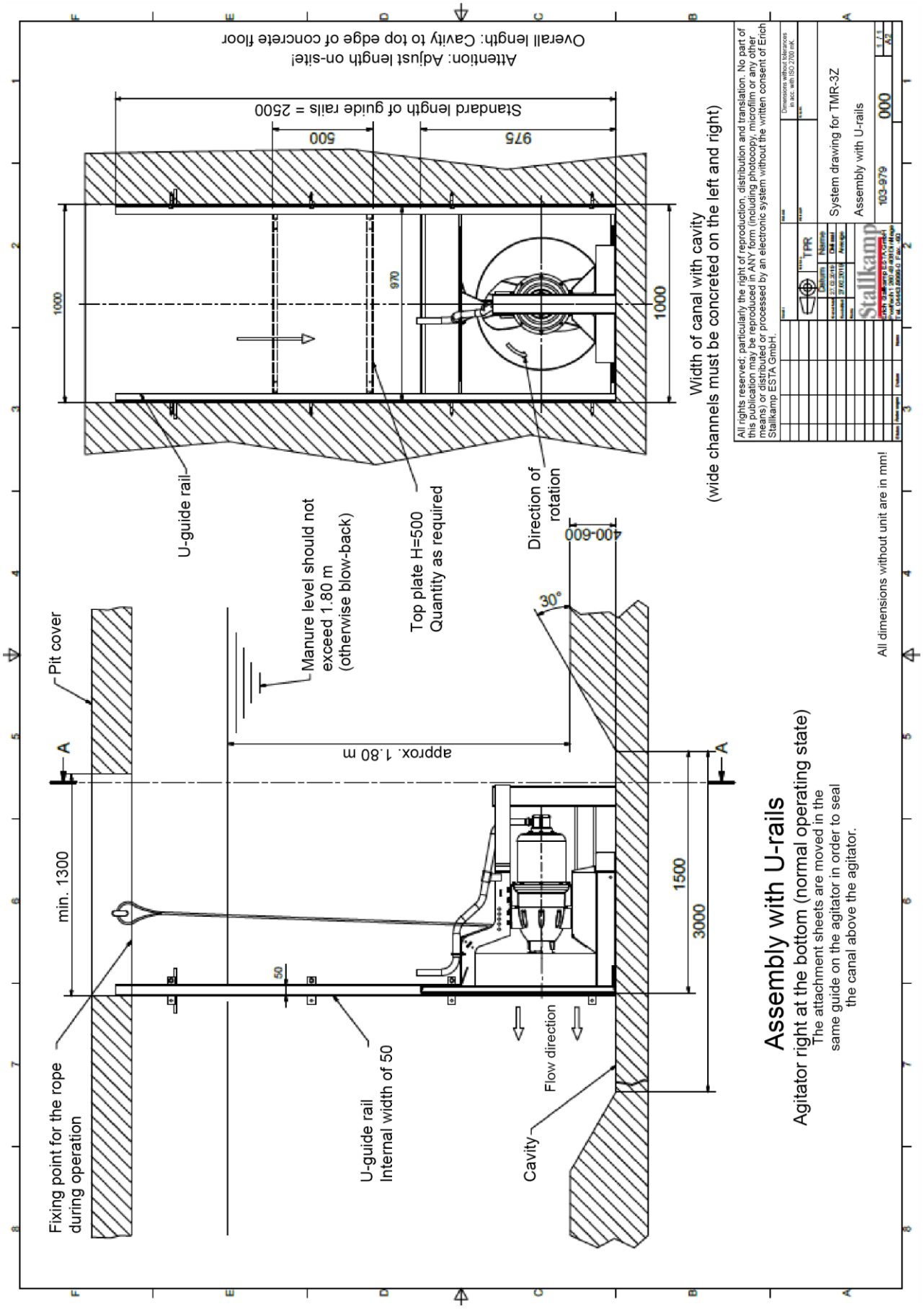
7.1. Assembly with Z-guide rails, Drawing 103-977



7.2. Assembly with double U-guide rails, Drawing 103-978



7.3. Assembly with U-guide rails, Drawing 103-979



8. ASSEMBLY AND COMMISSIONING

8.1. Before the assembly and commissioning: Safety notices

The following rules should always be observed to prevent accidents during servicing and assembly work:

(1) Never work alone. The danger of drowning and suffocation must not be underestimated.

(2) Check whether sufficient oxygen is available and that no poisonous gases exist.

(3) Before performing welding work or using electrical tools, check whether there is a danger of explosion.

(4) Take care to avoid danger of electrical accidents.

(5) Examine lifting equipment to ensure their fully satisfactory condition.

(6) Ensure an adequate fencing off at the place of work, e.g. by means of a cordoning trellis.

(7) Wear a hardhat, safety glasses and safety footwear.

(8) Keep a first-aid kit ready.

In addition, the health and safety regulations and the applicable regulatory requirements must be observed.

8.2. Assembly notices for a circulation frame with a submersible motor agitator

The following assembly notices must be taken into account for positioning the circulation frame:

(1) The required opening in the pit cover can be determined from the drawings in Position 7. under the dimensions of the circulation frame for TMR.

(2) A cavity of at least 40 cm (ideally 60 cm) in the manure canal angled at 30° in the suction and flow direction is required for the circulation frame (see drawing in Position 7. under to dimensions of the circulation frame for TMR).

(3) The minimum distance of the circulation frame to a canal redirection must be 1.5 metres on the suction and delivery side.

(4) For different canal widths, the agitator must always first flow into the narrower canal.

(5) The canal redirection must always have the same width as the canals themselves.

8.3. Assembly of a circulation frame with a submersible motor agitator

Examine the required installation dimensions from the Installation Drawing 103-977, 103-978 or 103-979. Examine the entire ring canal and determine the flow direction (see point 8.2.).

Fig. 1

The circulation system assembled with a submersible motor agitator and lifting chain as supplied.

(Illustration without switch panel)

Fig. 2

Assembly of the guide rails

Position the U-guide rails, align them vertically, adjust the length to the canal depth if necessary and dowel them to the concrete walls using the supplied hexagonal wood screws with dowels (for Z-rails with bolt anchors). Make sure that the circulation frame can be inserted cleanly from above into the assembled guide rails. The required installation dimensions are included in the Drawings 103-977, 103-978 and 103-979.

Attention, bolt anchors must be tightened with the appropriate "torque during anchoring" according to the enclosed assembly sheet, and the nut must not seize in the process. Afterwards, it is also necessary to assemble the enclosed safety nut.

Fig. 3

Circulation frame installed

The circulation frame is pushed in with a front end loader or similar lifting gear into the assembled guide rails up to the canal ground. Subsequently secure the lifting cable or the lifting chain and the cable. To prevent backflow, block the canal above the circulation frame with attachment sheets or stable wooden boards.

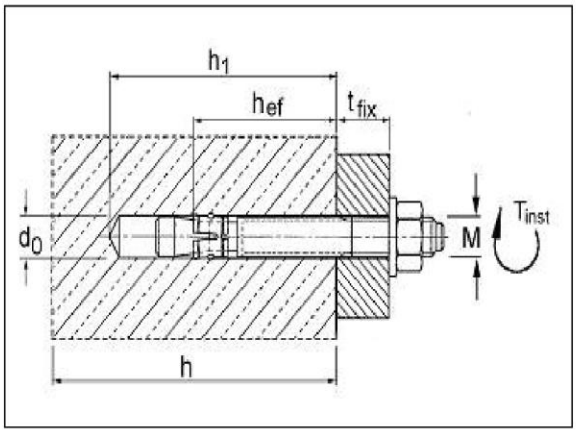
Attention, the lifting cable or lifting chain must be secured to the pit cover without slack and along the shortest possible route. The electric cable is secured to the lifting cable or lifting chain. The lifting cable or lifting chain and electric cable must not be allowed to come into contact with the agitator blade.

After successful assembly, it is necessary to perform the electrical connection work, conduct the trial run and a direction test (see operating manual of the submersible motor agitator Mod.07), and commission the system.

8.4. Detail drawing – assembly of bolt anchor

Assembly data

			M 6		M 8		M 10		M 12		M 16		M 20	
Standard anchorage depth	hef	[mm]	40		44		48		65		80		100	
Red. anchorage depth	hef,red	[mm]		30		35		42		50		64		78
Drill hole diameter	do	[mm]	6	6	8	8	10	10	12	12	16	16	20	20
Hole in part to be connected	df	[mm]	7	7	9	9	12	12	14	14	18	18	22	22
Drill hole depth	h1	[mm]	55	45	65	55	70	65	90	75	110	95	130	110
Torque during anchoring	Tinst	[Nm]	6	6	15	15	25	25	50	50	100	100	160	160
Wrench size	SW	[mm]	10	10	13	13	17	17	19	19	24	24	30	30



Assembly

Program

Bolt anchor B A4, stainless steel A4

http://www.mkt-duebel.de/Produkt_Seiten/Bolzenanker_B_A4/site_Ba4_deu.php 12 February 2009

Attention, the assembly instructions enclosed in the packaging of the bolt anchors must be observed!

Assembly work must only be performed by trained specialist personnel. These assembly diagrams are not intended to replace the requisite training.

8.5. Commissioning a circulation frame with a submersible motor agitator

Take the following notices into account when commissioning the circulation frame:

(1) The circulation system with the submersible motor agitator may be only taken into operation if the device is completely flooded with manure. The device is assembled in the cavity so that it can be stirred even with small amounts of manure. Check the direction of rotation (see section "Direction test" in the operating manual of the submersible motor agitator).

(2) Attention! Poisonous gases may arise while stirring the manure. Sufficient ventilation must be provided (see point 10.1. Excerpt from the provisions of the professional association).

(3) The circulation system is ideally operated with an automatic star-delta circuit with timer switch and fault lamp. The manure must be stirred once daily in order to avoid the formation of floating layers. The agitating time depends on the canal dimensions and the fluidity of the manure. The manure reserve in the entire canal must be completely circulated once.

(4) When operating automatically using a timer switch, it is imperative to check the fault lamp on the switch box on a daily basis. If the fault lamp is on, an insufficient agitating process can be assumed. A new supervised agitating process must be initiated immediately in order to determine the possible causes of the fault.

(5) If several agitators are employed, a time-delayed automatic switch-on should take place for the mains load reduction.

(6) To prevent backflow losses, the canal above the circulation system should be blocked with attached metal sheets (see Drawing 103-978 and 103-979).

(7) For a manure level of about 1.8 m and higher, floating layers can be underwashed.

(8) To avoid flooding to the canal redirection path, the maximum fill level in the canals must always be below the joists or the slatted floors.

(9) If the submersible motor agitator is to work continually in the overload range, an agitator blade with lower power consumption is required (see operating manual of the submersible motor agitator Mod.07).

(10) Observe the country-specific and latest regulations of the trade associations (e.g. see under point 10. Notices, sources of supply: Internet, Trade associations, etc.).

9. MAINTENANCE

At regular intervals (about every 6 months), examine the circulation frame for damage and also check that all fastening screws are firmly fastened – even the ones on the guide rails. In particular, check the lifting chain or lifting cable for wear and tear. Slack in the lifting side and lifting chains must be eliminated, and lifting chains with worn chain links or damaged lifting cables must be replaced immediately to prevent them from coming into contact with the agitator propeller.

Maintenance work on the submersible motor agitator as well as the spare parts list can be found in the Operating Manual "Submersible Motor Agitator".

10. NOTICES

10.1. Excerpt from the provisions of the professional association

The accident prevention regulations of the German Agricultural Professional Association stipulate the following in Paragraph 2.8 under "Special provisions for pits and canals":

Paragraph 2.8

§ 1 Protection against falling in

(1) Pits, ditches, canals, wells and other similar cavities in indoor and outdoor areas must be made safe with fences or coverings to prevent people from falling in. If these are not deeper than 100 cm, other safety precautions will suffice.

§ 2 Openings

(1) If removal and entry openings and the like are opened, it must be ensured that people and objects cannot fall in.

(2) Pits and canals that are regularly entered must have facilities which permit entry without danger of accidents. The openings of these pits and canals must be dimensioned in such a way to allow the rescue of any casualties.

§ 3 Entry

(1) Before entering and while in pits and canals, ensure that sufficient breathing air is present and that operational equipment is reliably protected against being switched on unintentionally. The handling of naked flames is not permitted.

(2) Climbing in to rescue casualties is only admissible if the person climbing in is held by two additional people using a rope that is firmly anchored outside the tank.

§ 4 Tanks and canals for animal faeces

(1) For tanks and canals in the open air, suitable measures must be implemented to ensure that fermentation gas cannot flow into the building.

(2) Sealed tanks in the open air must have vent openings on opposite sides.

(3) If tanks and canals are located in buildings – also under slatted floors – it must be ensured that fermentation gas is discharged out of the buildings.

(4) If tanks and canals in buildings are fitted with agitators and pumping/flushing equipment, there must be facilities for the discharge of fermentation gases, which automatically switch on when the agitators and pumping/flushing equipment are started up. They may only be switched off when the work process is concluded. The extracted gases must not endanger people.

(5) Canals are designed in such way as to avoid any unnecessary whirling up of the faeces.

(6) However, operating stations for agitators, pumping and flushing equipment etc. must be positioned above the ground.

(7) Closed rooms in which there are operating stations must not have openings to the tanks and canals.

(8) Operating instructions must be permanently attached to the operating stations.

§ 5 Removal of animal faeces from tanks and canals

(1) No smoking and no naked flames are allowed in the immediate proximity of removal openings during the agitation and removal of faeces.

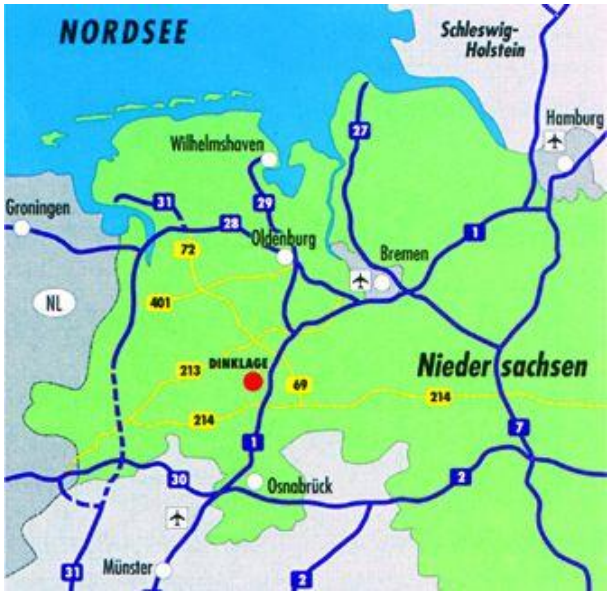
(2) In the buildings in which there are open tanks and canals, the presence of people and animals during agitation and removal is only permissible if there is sufficient ventilation.

§ 6 Warning signs

(1) Warning signs indicating gas hazards must be placed in a clearly visible position at openings in tanks and canals.

(2) Refer to the "Information Sheet with Notice, Warning, Mandatory, Prohibition and Rescue Signs" of the German Federal Association of Agricultural Professional Associations.

You can find us here



Stallkamp

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Dinklage is in the heart of Germany's Oldenburg Münsterland.

From the A1 exit no. 65, Lohne Dinklage, towards Dinklage, once in Dinklage, head towards Vechta, then into Industriegebiet West.

- Pump technology

- Agitating technology

- Stainless steel tanks

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