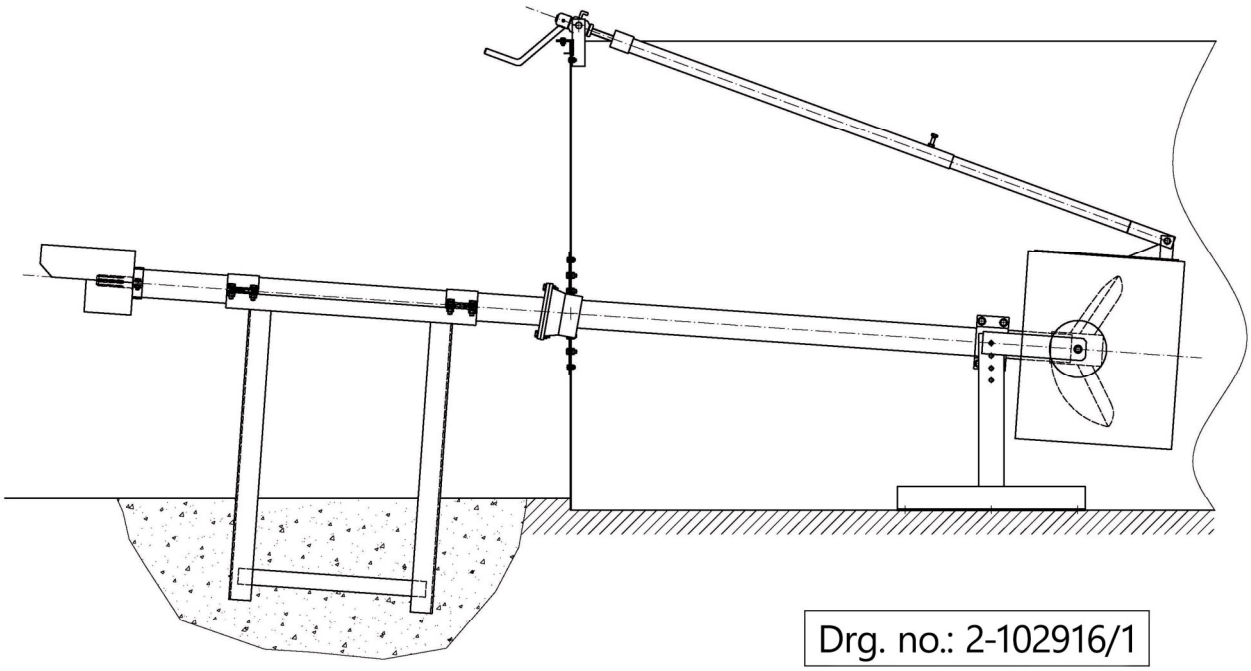
Stallkamp

OPERATING MANUAL

Silo mixer HSO/HSM
Model 1985

HSO high-bay silo mixer without casing nozzle
HSM high-bay silo mixer with casing nozzle



Subject to technical modifications without notice

Part no.: 8090283 Version: January 2010

Space for notes:

General Notices

- **The technical specifications, weights and dimensions are to be considered approximate and non-binding.**
- **The illustrations are for the purpose of explanation and may deviate from the actual product.**

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1 Table of Contents

2 DECLARATION OF CONFORMITY PURSUANT TO MACHINERY DIRECTIVE 2006/42/EC (TRANSLATION OF THE ORIGINAL GERMAN VERSION)

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Authorised representative for compiling the technical documentation:

Dipl.-Ing. (FH) Heiko Ansorge

In der Bahler Heide 4
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Germany

Product name: High-bay silo mixer without casing nozzle, high-bay silo mixer with casing nozzle model 1985

Type: Silo mixer HSO, silo mixer HSM

We hereby declare that the products listed above conform to the pertinent provisions of the EC Directive:

Machinery Directive 2006/42/EC

The following harmonised standards have been applied:

EN ISO 12100-1:2003, Safety of machinery – General principles for design – Part 1: Basic terminology, methodology

EN ISO 12100-2:2003, Safety of machinery – General principles for design – Part 2: Technical principles

Dinklage, dated 7. September 2023

Stallkamp
Erich Stallkamp ESTA GmbH
D-49413 Dinklage-Germany
In der Bahler Heide 4, Industriegeb. West

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

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. If any conversions or modifications are made to the product, this declaration shall lose its validity with immediate effect.

3 GENERAL INFORMATION

Our state-of-the-art equipment is developed and manufactured with great care and undergoes continuous quality control. This operating manual should help you to become familiar with the device and to make use of its intended applications.

The operating manual contains important notices on how to operate the device safely, appropriately and cost-effectively. The operating manual must be observed in order to ensure the reliability and long lifespan of the device and to avoid hazards.

The operating manual does not take local regulations into consideration; the owner is solely responsible for complying with those regulations and ensuring that they are also complied with by any assembly personnel.

3.1 Marking of notices in the operating manual

In the operating manual, safety notices indicating dangers to people are identified with the general hazard symbol as per DIN 4844-W9.

In the operating manual, warnings about electrical voltage are identified with the safety signs as per DIN 4844-W8.

All other notices whose disregard might restrict the functional reliability of the device or represent a danger for the machine are highlighted with the word:

ATTENTION!

Do not operate this machine unit beyond the values defined in the technical documentation with regard 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 the contract documentation. If you have any queries, please consult the manufacturer.

The rating plate displays the most important operating data and the machine serial number. Please specify this in the event of enquiries, subsequent orders or when ordering spare parts.

If additional information or notices are required or in case of damage, please contact your local field agent 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 operating manual contains fundamental notices which must be observed during installation and operation as well as when performing maintenance work on the device.

It is therefore imperative that the installer as well as the responsible specialist personnel and owner read this manual before assembly and commissioning, and that it is permanently available at the location where the machine is operated.

In addition to the safety notices in this operating manual, observe all warning signs and the provisions of the respective professional association in the latest version.

4.1 Personnel qualifications

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

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

Furthermore, the owner must ensure that personnel fully understand the contents of the operating 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 and the machine. 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

Observe all information and warning signs. Dangerous gases can escape when the liquid manure is stirred.

DANGER OF POISONING!

If the liquid manure is stored below slatted floors, the presence of people in buildings during agitation is only permissible if sufficient ventilation is provided. Windows and doors should therefore be opened and fans set to full power.

4.3 Safety-conscious working

Observe the safety notices listed in this operating manual, the existing national regulations for accident prevention as well as any internal occupational work, operation and safety regulations 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.
- ✓ Never remove contact protection for moving parts while the machine is in operation.
- ✓ Any leakage of dangerous materials must be led away to prevent endangerment to people and the environment. Observe the statutory provisions.

4.4 Safety notices for maintenance, inspection and installation work

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

Work must only be carried out on the machine if it is at a standstill.

Reattach or reactivate all safety and protection devices immediately after completion of the work.

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 business terms and conditions. Agreements deviating from this must be specified in writing in the order confirmation.

5.1 General information

Stallkamp undertakes to repair every defect to products sold by Stallkamp under the condition that:

- ✓ it is a quality-related defect of the material, manufacture or design,
- ✓ the defect is reported in writing to Stallkamp or the Stallkamp representative within the warranty period,
- ✓ the product is used exclusively in accordance with the operating conditions specified in the operating manual, and only used for its intended purpose,
- ✓ the monitoring device built into the product is correctly connected (temperature protection),
- ✓ genuine Stallkamp parts are used.

5.2 Exclusion of liability

No warranty or liability shall be accepted for damage to the device if one or more of the following points are applicable:

- A faulty configuration of the device on our part because of inadequate or incorrect information from the customer or owner.

- Failure to observe the safety notices, regulations or the necessary requirements in this operating manual which apply in accordance with German law.
- Assembly, disassembly or repair of the device that does no comply with the regulations.
- Inadequate maintenance.
- Chemical, electrical or electrochemical influences, if applicable,
- Wear and tear.

Since maintenance has an impact on the safety and functional capability of the device, it is an integral constituent of the warranty. The owner of the device undertakes to have the manufacturer itself or a service provider approved by the manufacturer carry out maintenance work in accordance with the manufacturer's regulations, including the necessary oil changes and the repair and replacement of wear parts. The owner is therefore obliged to maintain a maintenance and revision list, which helps to monitor the mandatory inspection and maintenance work (see Item 14, Maintenance and revision list).

We would like to expressly emphasise that this device is a fluid flow machine in which the protective coating is subjected to constant wear from the abrasive contents of the pumped medium, and should consequently be regarded as a wear part. Wear, damage and secondary damage resulting from external influences on the protective coating are expressly excluded from the warranty. The use of the device and/or the field of application and reliability for the application must be checked by the owner and is not covered by the warranty.

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

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

6 PRODUCT DESCRIPTION

6.1 General description

This operating manual applies to the standard version of the Stallkamp high-bay silo mixer.

The high-bay silo mixer may not be operated in explosive atmospheres. The mixers have the following characteristics:

- mixer shaft positioned in an oil-filled shaft protection tube,
- agitator blades with different diameters and blade angles
- adjustable casing nozzle only with silo mixer HSM
- flexible wall sealing of the mixer tube in the high-bay silo
- PTO shaft connection

Submersion depth:	max. fill level in the high-bay silo 6m
Liquid temperature:	medium to max. 70°C
	-> unrestricted stirring while the tractor is not operating in the overload range and the torque safeguard on the articulated shaft has not triggered!

6.2 Intended use

The high-bay silo mixer is intended for the following applications:

- stirring and/or homogenisation of liquid manure in final storage sites,

The high-bay silo mixer has been designed exclusively for use in high-bay liquid manure tanks requiring a high stirring output in relation to their power consumption. (intended use)

The stirring effect depends on the density, viscosity and solid fraction of the medium being stirred, as well as on the contents and shape of the tank. The medium being agitated must be capable of flowing. When the high-bay silo mixer is used in liquids forming floating and settling layers, it is important to ensure that the agitator blades are always operated in the liquid zone, since this is the only way to guarantee that optimum mixing takes place.

More than one high-bay silo mixer may be required for bigger tanks.

ATTENTION!

The agitator blades may only be operated if they are fully immersed.

6.3 Specifications

High-bay silo mixer HSO/HSM model 1985, consisting of:

- Mixer type: HSO/HSM model 1985
- Req. drive output: min. 50HP
- Shaft seal: 2 radial shaft seal rings
- Shaft protection tube: steel, hot-dip galvanized/stainless steel V2A
- Impeller: coated steel/stainless steel V2A

6.4 Type plate of high-bay silo mixer model 1985

The type plate shows the most important performance and specification data:

Fig. 1

Classification: (e.g., Mixer HSO 30)

Motor/serial number: (e.g., 0701/000009)

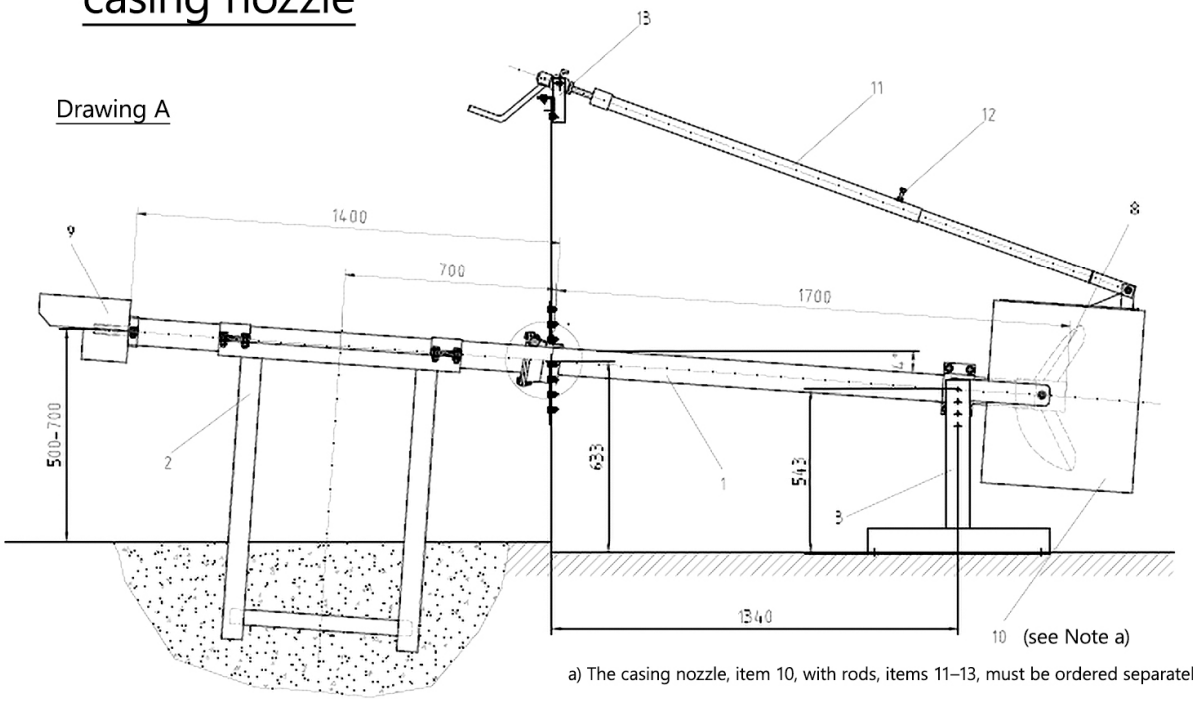
Year of manufacture: (e.g., 2014)

In the event of technical queries about the device, be sure to have the above type plate information available!

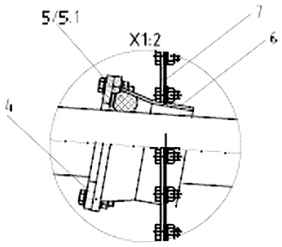
7 INSTALLATION DIMENSIONS AND NOTES FOR HIGH-BAY SILO MIXERS

Silo mixer with and without casing nozzle

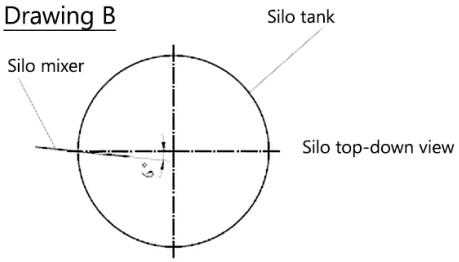
Drawing A



a) The casing nozzle, item 10, with rods, items 11–13, must be ordered separately



Drawing B



Installation instructions

Screw on sealing plate, item 6, with silo plate, item 7, with opening angle facing upwards.
Dismantle the hub with the agitator blades, item 8
Move flange, item 4, distance ring, item 5.1, and O-ring, item, 5, onto the shaft protection tube.
Insert the shaft protection tube, item 1, from the outside. (The shaft protection tube projects about 1400mm out of the silo)
Support the shaft protection tube temporarily.
Connect the inner bracket, item 3, and outer bracket, item 2, to the shaft protection tube with an angle of inclination of 4°.
In addition to this, the mixer does not point directly to the silo centre but must be skewed by 5–6° towards the mid-point (drawing B)
When the mixer has been aligned in accordance with the above-mentioned instructions, the inner and outer brackets are fixed
(i.e. the outer bracket is concreted in and the inner bracket is bolted to the silo floor).
The O-ring, item 5, must be inserted (see detail X), the flange, item 4, must be screwed to the sealing plate,
item 6 and the hub with the agitator blades, item 8, must be attached
The casing nozzle (to be ordered separately), item 9, must be screwed to the inner bracket, item 3, and the rods with the hand crank,
item 13, must be screwed to the upper silo profile.
Adjust the length of the telescopic rods, item 11, and secure them using the screw, item 12

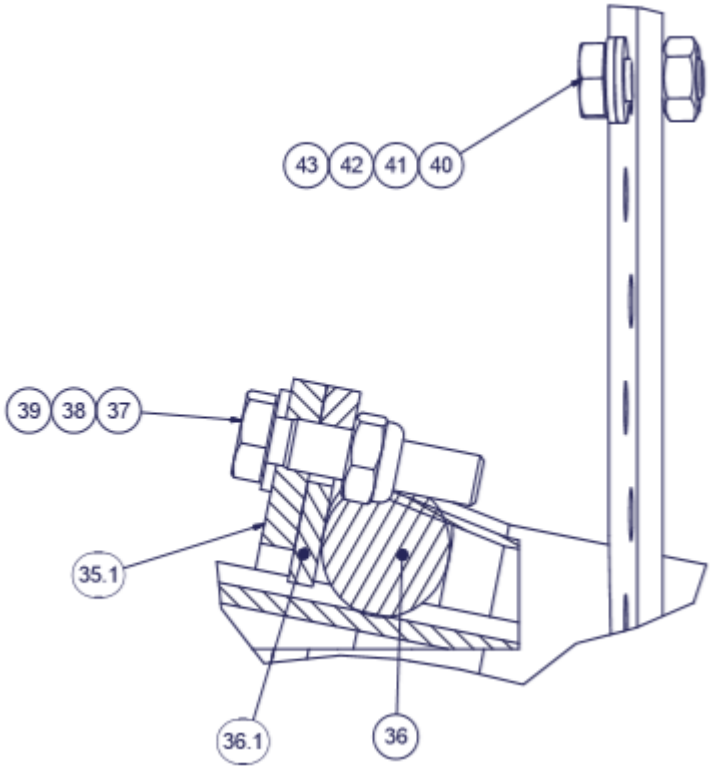
Subject to technical modifications without notice

Drg. no.: 2-102916

110797

7.1 Installation via wall bushing

A wall bushing provides the seal between the mixer and the wall of the tank. Only the wall bushings that are suitable for the tank type may be used. The wall bushing consists of a flange plate with tube and flange, counter-flange (35.1), distance ring (36.1) and O-ring (36). The distance ring is used to pre-tension the O-ring seal. To ensure leak-tightness, the mixer must be installed in the centre of the wall bushing.



8 TRANSPORT AND STORAGE REGULATIONS

The device must be transported in a horizontal position. Ensure that the machine is prevented from rolling.

If the device is not used for a long period of time, it must be protected against moisture and heat. The agitator blades should be fully rotated from time to time (approx. every two months) to ensure that the sealing surfaces do not stick to each other. This is absolutely essential when the device is not in use.

Following a long period of standstill, be sure to check the device before starting it up. It is particularly important to ensure that the seals are not damaged in any way.

Te instructions in **Item "10"** must be observed.

9 STARTUP

9.1 Prior to startup: Safety notices

The following rules should always be followed to prevent accidents during service and assembly work:

(1) Never work alone. Do not underestimate the risk of drowning and suffocation.

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

(3) Before carrying out welding work or using electrical tools, check whether there is a risk of explosion.

(4) Be aware of the risk of electrical accidents.

(5) Examine the brackets to ensure that they are in a fully satisfactory condition.

(6) Ensure that adequate cordoning is provided at the place of work, e.g. using a cordoning trellis

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

(8) Keep a first-aid kit ready.

The health and safety regulations and the applicable regulatory requirements must also be observed.

9.2 Commissioning the high-bay silo mixer

(1) The device can only be used with a suitable tractor (min. 50HP). The silo mixer is driven by the tractor via a PTO shaft, and is equipped with a pushing agitator blade. The direction of rotation of the agitator blade, as viewed from the PTO shaft (from the exterior of the silo looking at the agitator blade), is counter-clockwise. Only PTO shafts with an overload coupling or with a shearing pin (M6 8.8 = 90 DaNm) may be used. (e.g., Walterscheid W2300 with overload coupling KB 61/20). The maximum PTO shaft speed is 540 rpm.

(2) Remove the ventilation plugs from the top end of the shaft protection tube to prevent overpressure build-up in the mixer tube during operation and avoid damage to the mixer seal.

(3) Check the oil fill level.

(4) Check whether the agitator blade can rotate freely (manually rotate it at the PTO shaft connection).

(5) Connect the articulated shaft and use the tractor to drive the silo mixer with a max. of 540 rpm.

9.3 Removal and cleaning of the high-bay silo mixer

Prior to removing the silo mixer, ensure that the liquid manure silo is completely empty. Observe the safety regulations.

Insert the ventilation plugs into the oil filler neck of the shaft protection tube. Remove the agitator blade, casing nozzle, inner bracket, outer bracket and clamping flange from the wall bushing. Then pull the silo mixer out of the wall bushing.

Do not use a pressure washer to clean the device.

9.4 Winter operation

If the silo mixer is used when there is a danger of frost, ensure that the agitator blades can run freely before starting up. Ice build-up in the medium being agitated will damage the agitator blades and the casing nozzle.

If there is a risk of the silo mixer freezing over when it is not being used, take suitable measures to protect it from freezing over.

10 MAINTENANCE OF THE HIGH-BAY SILO MIXER

The prescribed maintenance and inspection work must be carried out at regular intervals. Only trained, qualified and authorised personnel are allowed to carry out this work. The owner of the device undertakes to have the manufacturer itself or a service provider approved by the manufacturer carry out maintenance work in accordance with the manufacturer's regulations, including the necessary oil changes and the repair and replacement of wear parts. The owner is therefore obliged to keep a maintenance and revision list, which helps to monitor the prescribed inspection and maintenance work (see Item 14, Maintenance and revision list).

10.1 Maintenance intervals

Before starting up the agitator, always carry out an inspection for damage. It is particularly important to ensure that the agitator blade, the PTO shaft protection, the wall seal and the articulated shaft have no visible damage. It is also important to check that all screws and other fastening devices are fitted securely.

10.1.1 Recommendation: monthly

10.1.1.1 Check the oil fill level

Check the oil fill level in the shaft protection tube at least once per month, prior to each use if only used occasionally, using a dipstick inserted into the oil filler neck. Remove the filling plug beforehand and reinstall it after the check.

ATTENTION!

The oil fill level must only be checked when the mixer shaft is at a standstill!

Only use biodegradable oil!
(e.g. Wibohyd EHF 46)

If large quantities of oil are being lost, please refer to section "Malfunctions". If the oil is low or contaminated with water or other media, shut down the device immediately. In this case, change the oil (7 litres) and replace the lower bearing immediately. This requires removing the mixer from the tank, **see Item "9.3"**. Please consult us or one of our sales representatives.

10.1.2 Recommendation: Every 12 months

10.1.2.1 Check the tightening torque of all screw connections

At least every 12 months, during maintenance we recommend checking that the screw connections are securely tightened. Please see below for the tightening torques for VA stainless steel screws in Nm for different thread sizes.

(M8 = 18Nm, M10 = 33Nm, M12 = 57Nm, M16 = 135Nm, M20 = 150Nm)

10.1.2.2 Visual inspection and cleaning

Every 12 months, during maintenance work we recommend checking the mixer blade, the wall bushing, the PTO shaft protection and the articulated shaft for damage and soiling. Deposits, blockages and adhering fibrous materials must be removed. Damaged components must be replaced immediately. Please consult our sales representative.

10.1.3 Recommendation: every 48 months

10.1.3.1 Change the drive oil

Change the oil in the gearbox every 48 months. The shaft seal in the lower bearing is a wearing part, and must be replaced after every 4,500 operating hours at the latest if the device is in continuous operation.

If the oil level is low or contaminated with water or other media, shut down the mixer immediately. In this case, replace the oil and the front shaft seal immediately. This requires removing the mixer from the tank, **see Item "9.3"**. Please consult us or one of our sales representatives.

10.1.4 Recommendation after the end of lifespan is reached

At the end of its lifespan, the high-bay silo mixer can be disposed of as regular scrap metal. Beforehand, carefully drain the oils and take them for waste oil disposal. The high-bay silo mixer consists of different metals such as steel, aluminium, copper and stainless steel. Dismantling it and sorting the components considerably increases the revenue.

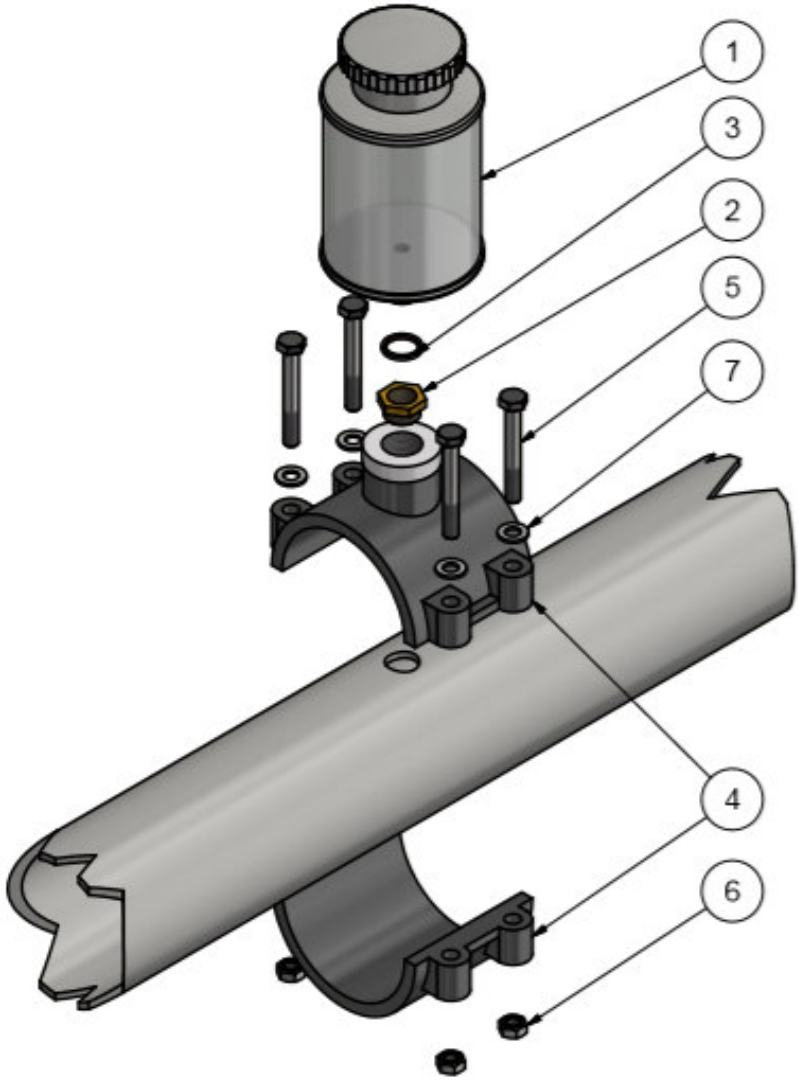
10.2 Checking the oil fill level via the oil tank (retrofit kit part no.: 6091044)

(1) Remove oil filler plug M18 x 1.5 from the mixer tube,

(2) Add oil until the mixer tube is full;

(3) Install the oil level indicator in accordance with drawing: 34-0841, ensuring that the O-ring is correctly positioned,

(4) After installation, add up to no more than 25% of the oil tank capacity to ensure that no oil can leak when the high-bay silo mixer is at the operating temperature.



Drawing: 34-0841

11 FAULTS

11.1 General faults on the high-bay silo mixer

Fault	Troubleshooting	Possible cause	Solution
Agitation output diminishes after several months	Check agitator blade for wear	Agitator blade worn or corroded	• Install new agitator blade.
Increasing oil loss in shaft protection tube	Check seals on the bearing	Seal defective	• Insert new seal
Tractor gets very hot	Check agitator blade and casing nozzle for foreign bodies	Wrong shearing pin inserted; may cause tractor to overload if there are foreign bodies in the agitator blade	• Remove foreign body • Insert correct shearing pin (see 9.2)
Shearing pin on the articulated shaft breaks	Check agitator blade and casing nozzle for foreign bodies	Foreign bodies in the agitator blades	• Remove foreign body • Insert shearing pin
			•
			•
			•

ATTENTION!

Turn off the tractor during all inspections and work on the silo mixer or accessory equipment.

Attention, switch off motor!

12 NOTICES

12.1 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 channels":

Paragraph 2.8

Sect. 1 Protection against falling in

(1) Pits, ditches, channels, wells and other similar cavities in indoor and outdoor areas must be secured using fences or coverings to prevent people from falling in. If they are not deeper than 100cm, other safety precautions are sufficient.

Sect. 2 Openings

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

(2) Pits and canals which are normally entered must have facilities which permit allow them to be entered without the risk of accidents. The openings of these pits and canals must be dimensioned in such a way that any casualties can be rescued.

Sect. 3 Entry

(1) Before entry and during the presence in pits and channels, ensure that sufficient breathing air is present and that the operating equipment is reliably protected against being switched on. The handling of naked flames is not permitted.

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

Sect. 4 Tanks and channels for animal faeces

(1) For tanks and channels in the open air, suitable measures must be taken to ensure that fermentation gas cannot enter the building.

(2) Ensure that sealed tanks in the open air have vent openings on opposite sides.

(3) If tanks and channels 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 channels in buildings are fitted with agitators and pumping/flushing equipment, it must be ensured that facilities are present for discharging fermentation gases, which automatically switch on when the agitators and pumping/flushing equipment are started up. They may only be able to be switched off when the work is complete. Ensure that the extracted gases do not put any persons at risk.

(5) Channels must be designed so as to avoid any unnecessary whirling up of the faeces.

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

(7) Ensure that closed rooms containing operating stations have no openings to the tanks and channels.

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

Sect. 5 Removal of animal faeces from tanks and channels

(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 buildings containing open tanks and channels, people and animals may only be present during agitation and removal if sufficient ventilation is available.

Sect. 6 Warning signs

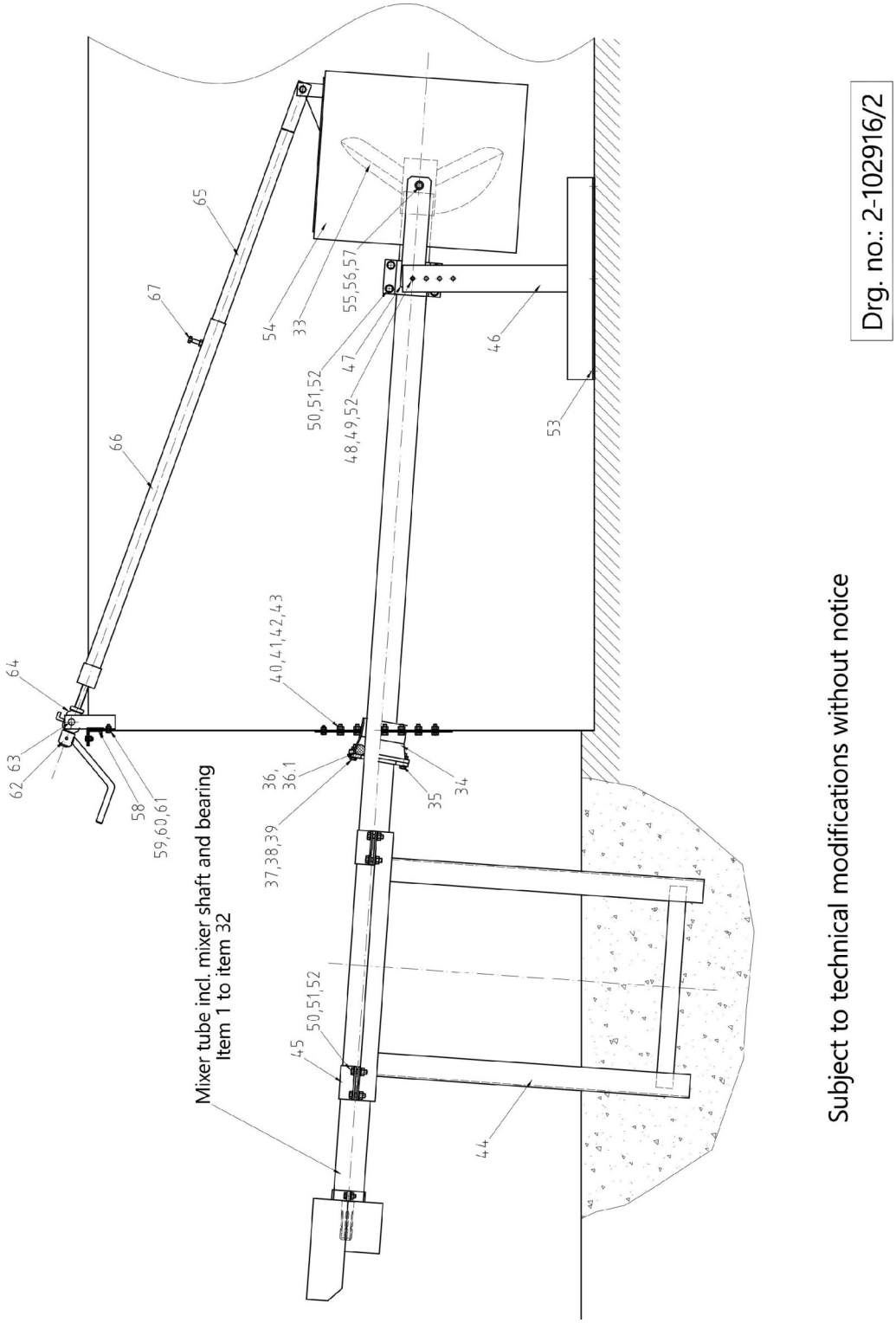
(1) Warning signs indicating the gas hazards must be attached in a clearly visible position at the openings of tanks and channels.

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

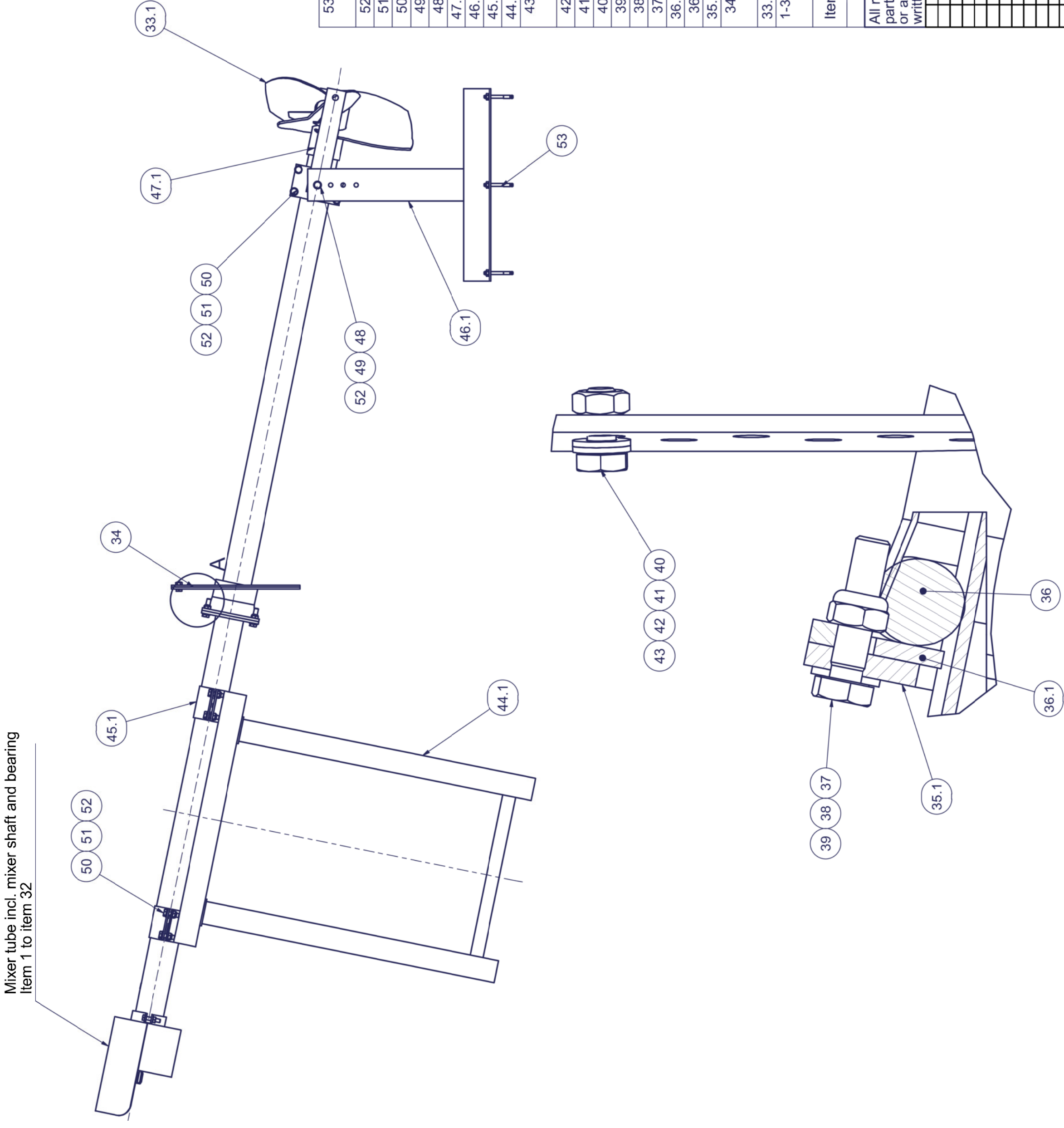
13 SPARE PARTS LIST AND DRAWINGS FOR THE HIGH-BAY SILO MIXER

Stallkamp equipment must only be repaired by specialists that have been trained by the manufacturer of this device (Erich Stallkamp ESTA GmbH). To access our spare parts price lists, please contact your sales representative.

13.1 Assembly drawing for high-bay silo mixer 2-102916/2



13.2 Assembly drawing for high-bay silo mixer HSO 8090037



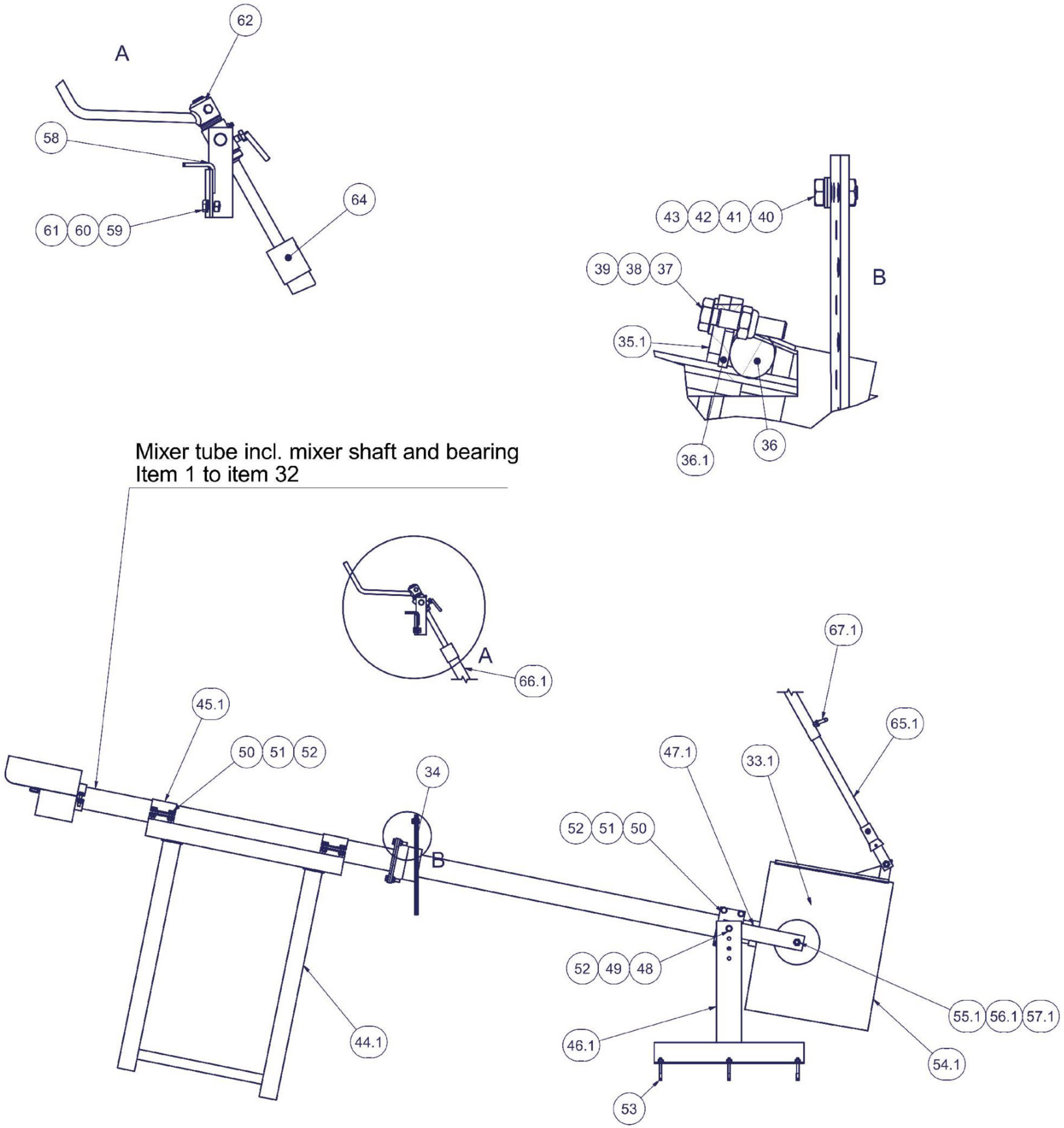
Item	Pcs.	Part no.	Description	Description 2	Drawing
53	6	5260077	Bolt anchor BZ Plus 10-10/90	With washer and nut	
52	14	5200101	Washer 13.0	DIN 125 A2	
51	12	5200091	Hex. nut M12	DIN 985 A2	
50	12	5200032	Hex. screw M12x40	DIN 933 A2	
49	2	5200047	Spring ring M12 mm	DIN 127 A2	
48	2	5200030	Hex. screw M12x30	DIN 933 A2	
47.1	2	6090254	Supporting arm V2A for silo mixer	one half	3-102178/1
46.1	1	6090253	Internal strut for mixer HSM/	HSO V2A	3-102178/2
45.1	2	7100340	Clamp for Ø88.9	ohne Ausschnitt	3-102089
44.1	1	6090252	Bracket for silo mixer		103-730
43	1	5480011	Sikaflex TS Plus	a 600ml, colour: concrete grey	
42	40	5200087	Hex. nut M10	DIN 934 F80 A2	
41	80	5200100	Washer 10.5	DIN 125 A2	
40	40	5200011	Hex. screw M10x22	F80 A2	
39	4	5200101	Washer 13.0	DIN 125 A2	
38	4	5200091	Hex. nut M12	DIN 985 A2	
37	4	5200034	Hex. screw M12x50	DIN 933 A2	
36.1	1	7180510	Distance ring for HSO/HSM mixer	1.4301 t=6mm	103-551/5-T
36	1	5190091	O-ring 88.0x148.0x30.0	NBR / 40 Shore	34-0442
35.1	1	5500471	Square-shaft DIN flange 4"	1.4301	3-103019
34	1	6090000	Wall leadthrough 400x400x6 mod. 96 M14 HSM/HSO		21-1191-08
33.1	1	6090250	Blade cmpl. V2A for mixer HSM		2-102084
1-32	1	6090249	Mixer shaft 54TM30 type 3.0m V2A	without blade	6090249

Parts list

Weight: -	Dimensions without tolerances in acc. with ISO 2768 mK	Part no. 8090037
Signed: 01.04.2020 KWillert	Manure mixer HSO 30 cmpl. V2A	
Checked: 23.04.2020 Ansorge	for VA tank mod. 96 M10	
Stallkamp Erich Stallkamp ESTA GmbH Postfach 1260 49408 Dinklage Tel. 04443/9666-0 Fax. -60	8090037	000 1 / 1 A2

Status | Amendments | Date | Name

13.3 Assembly drawing for high-bay silo mixer HSM 8090063



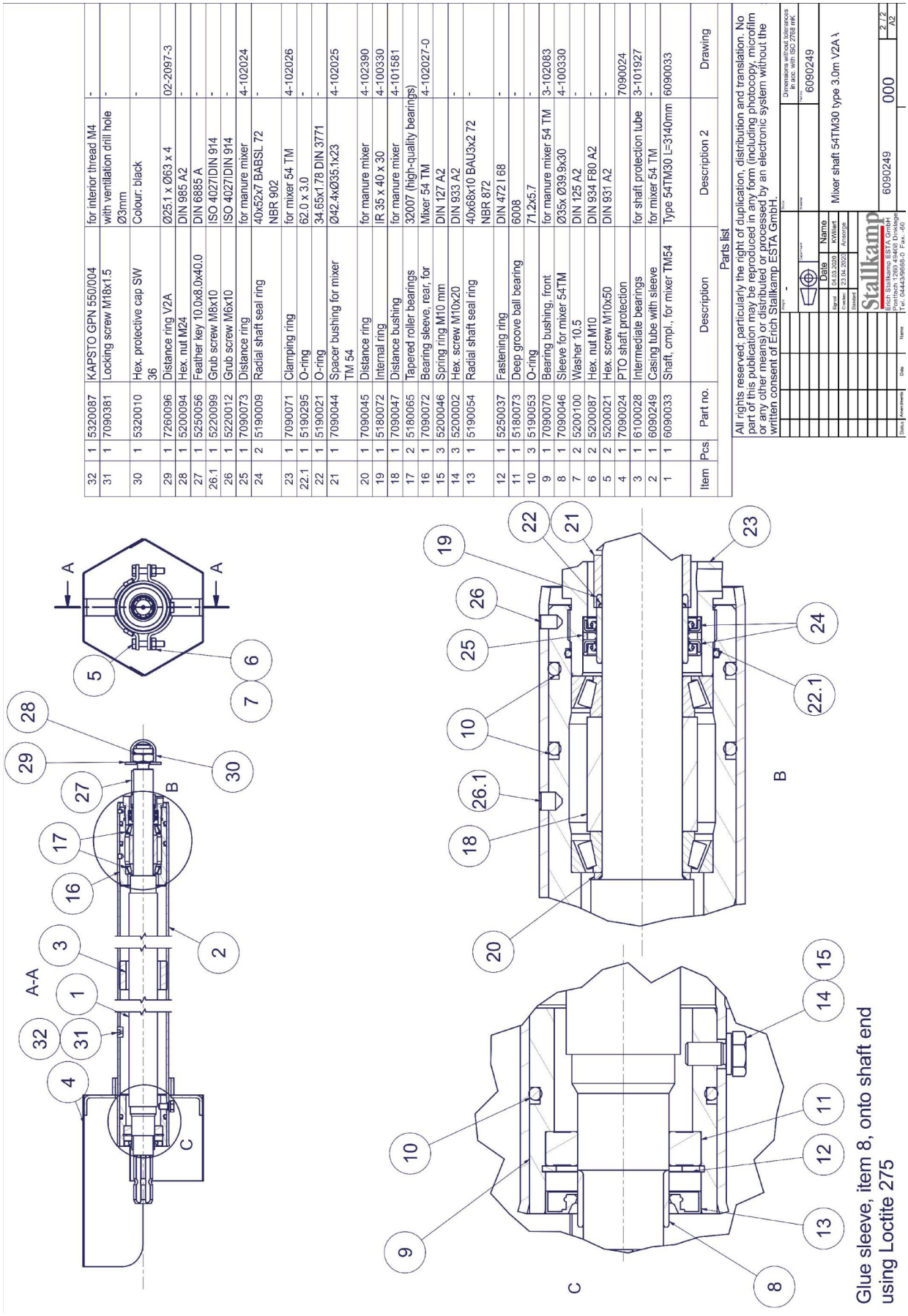
Item	Pcs	Part no.	Description	Description 2	Drawing
67.1	1	6100282	Clamping screw V2A	for rod guide	
66.1	1	6090391	Nozzle rod, top, for HSM	V2A	
65.1	1	6090390	Nozzle rod, bottom, for HSM	V2A	
64	1	7090639	Threaded bushing Tr.20x4	GG 20	
62	1	6090228	Threaded spindle with crank	without articulation piece	
61	6	5200087	Hex. nut M10	DIN 934 F80 A2	
60	6	5200100	Washer 10.5	DIN 125 A2	
59	6	5200001	Screw M10x22	F80 A2	
58	1	6090226	Wall fixing, galv, for	Nozzle adjustment HSM	
57.1	3	5200093	Hex. nut M16	DIN 985 A2	
56.1	3	5200321	Hex. screw M16x40	DIN 933 A4	
55.1	2	7090570	Sleeve V2A for mixer HSM	for storage mixer nozzle	4-102200
54.1	1	6090389	Casing nozzle for mixer HSM		4-102223
53	6	5260077	Bolt anchor BZ Plus 10-10/90	With washer and nut	
52	14	5200101	Washer 13.0	DIN 125 A2	
51	12	5200091	Hex. nut M12	DIN 985 A2	
50	12	5200032	Hex. screw M12x40	DIN 933 A2	
49	2	5200047	Spring ring M12 mm	DIN 127 A2	
48	2	5200030	Hex. screw M12x30	DIN 933 A2	
47.1	2	6090254	Supporting arm V2A for silo mixer	one half	3-102178/1
46.1	1	6090253	Internal strut for mixer HSM/	HSO V2A	3-102178/2
45.1	2	7100340	Clamp for Ø88.9	without cut-out	3-102089
44.1	1	6090252	Bracket for silo mixer		103-730
43	1	5480011	Sikaflex TS Plus	a 600ml, colour: concrete grey	
42	40	5200087	Hex. nut M10	DIN 934 F80 A2	
41	80	5200100	Washer 10.5	DIN 125 A2	
40	40	5200011	Hex. screw M10x22	F80 A2	
39	4	5200101	Washer 13.0	DIN 125 A2	
38	4	5200091	Hex. nut M12	DIN 985 A2	
37	4	5200034	Hex. screw M12x50	DIN 933 A2	
36.1	1	7180510	Distance ring for HSO/HSM mixer	1.4301 t=6mm	103-551/5
36	1	5190091	O-ring 88.0x148.0x30.0	NBR / 40 Shore	
35.1	1	5500471	Square-shaft DIN flange 4"	1.4301	3-103019
34	1	6090000	Wall leadthrough 400x400x6 mod. 96 M14 HSM/HSO		21-1191-08
33.1	1	6090250	Blade cmpl. V2A for mixer HSM		2-102084
1-32	1	6090249	Mixer shaft 54TM30 type 3.0m V2A	without blade	6090249

Parts list

Date	Name	Dimensions without tolerances in acc. with ISO 2768 mK	
Signed 15.04.2020	KWillert	8090063	
Checked 23.04.2020	Ansorge	Manure mixer HSM 30 cmpl. V2A	
Standard		for VA tank mod. 96 M10	
Stallkamp Erich Stallkamp ESTA GmbH Postfach 1260 49408 Dinklage Tel. 04443/9666-0 Fax. -60		8090063	000	1 / 1 A2

Status | Amendments | Date | Name

13.4 Assembly drawing for high-bay silo mixer 6090249



Item	Pcs.	Part no.	Description	Description 2	Drawing
Parts list					
1	1	6090033	Shaft, cmpl., for mixer TM54	Type 54TM30 L=3140mm	6090033
2	1	6090249	Casing tube with sleeve	for mixer 54 TM	-
3	1	6100028	Intermediate bearings	for shaft protection tube	3-101927
4	1	7090024	PTO shaft protection		7090024
5	2	5200021	Hex. screw M10x50	DIN 931 A2	-
6	2	5200087	Hex. nut M10	DIN 934 F80 A2	-
7	2	5200100	Washer 10.5	DIN 125 A2	-
8	1	7090046	Sleeve for mixer 54TM	Ø35x Ø39.9x30	4-100330
9	1	7090070	Bearing bushing, front	for manure mixer 54 TM	3-102083
10	3	5190053	O-ring	71.2x5.7	-
11	1	5180073	Deep groove ball bearing	6008	-
12	1	5250037	Fastening ring	DIN 472 I 68	-
13	1	5190054	Radial shaft seal ring	40x68x10 BAU3x2 72 NBR 872	-
14	3	5200002	Hex. screw M10x20	DIN 933 A2	-
15	3	5200046	Spring ring M10 mm	DIN 127 A2	4-102027-0
16	1	7090072	Bearing sleeve, rear, for	Mixer 54 TM	4-102027-0
17	2	5180065	Tapered roller bearings	32007 (high-quality bearings)	
18	1	7090047	Distance bushing	for manure mixer	4-101581
19	1	5180072	Internal ring	IR 35 x 40 x 30	4-100330
20	1	7090045	Distance ring	for manure mixer	4-102390
21	1	7090044	Spacer bushing for mixer TM 54	Ø42.4x Ø35.1x23	4-102025
22	1	5190021	O-ring	34.65x1.78 DIN 3771	-
22.1	1	5190295	O-ring	62.0 x 3.0	-
23	1	7090071	Clamping ring	for mixer 54 TM	4-102026
24	2	5190009	Radial shaft seal ring	40x52x7 BABSL 72 NBR 902	-
25	1	7090073	Distance ring	for manure mixer	4-102024
26	1	5220012	Grub screw M6x10	ISO 4027IDIN 914	-
26.1	1	5220099	Grub screw M8x10	ISO 4027IDIN 914	-
27	1	5250056	Feather key 10.0x8.0x40.0	DIN 6885 A	-
28	1	5200094	Hex. nut M24	DIN 985 A2	-
29	1	7260096	Distance ring V2A	Ø25.1 x Ø63 x 4	02-2097-3
30	1	5320010	Hex. protective cap SW 36	Colour: black	-
31	1	7090381	Locking screw M18x1.5	with ventilation drill hole Ø3mm	-
32	1	5320087	KAPSTO GPN 550/004	for interior thread M4	-

	Name	Date
Signal	KWillert	04.03.2020
Checked	Amorgis	23.04.2020
Standard		

Dimensions without tolerances in acc. with ISO 2768 mK

6090249

Mixer shaft 54TM30 type 3.0m V2A \

Stallkamp
Erich Stallkamp ESTA GmbH
Postfach 1260 49406 Drebberge
Tel.: 04443/9688-0 Fax.: -60

6090249 000 2 / 2 A2

14 MAINTENANCE AND REVISION LIST

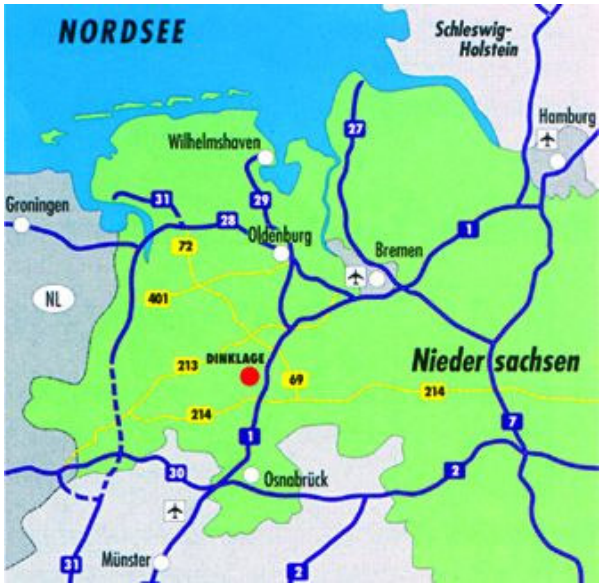
Each person must properly enter all maintenance and revision work in the list and confirm it with their own signature and the signature of their supervisors.

By request, this list must be presented to the supervisory bodies of the professional association, the TÜV and the manufacturer.

Maintenance/revision on the device with the machine number	Notes	Date	Installer signature	Supervisor signature

Maintenance/revision on the device with the machine number	Notes	Date	Installer signature	Supervisor signature

You can find us here



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- Pump technology

- Agitating technology

- Stainless steel tanks

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