

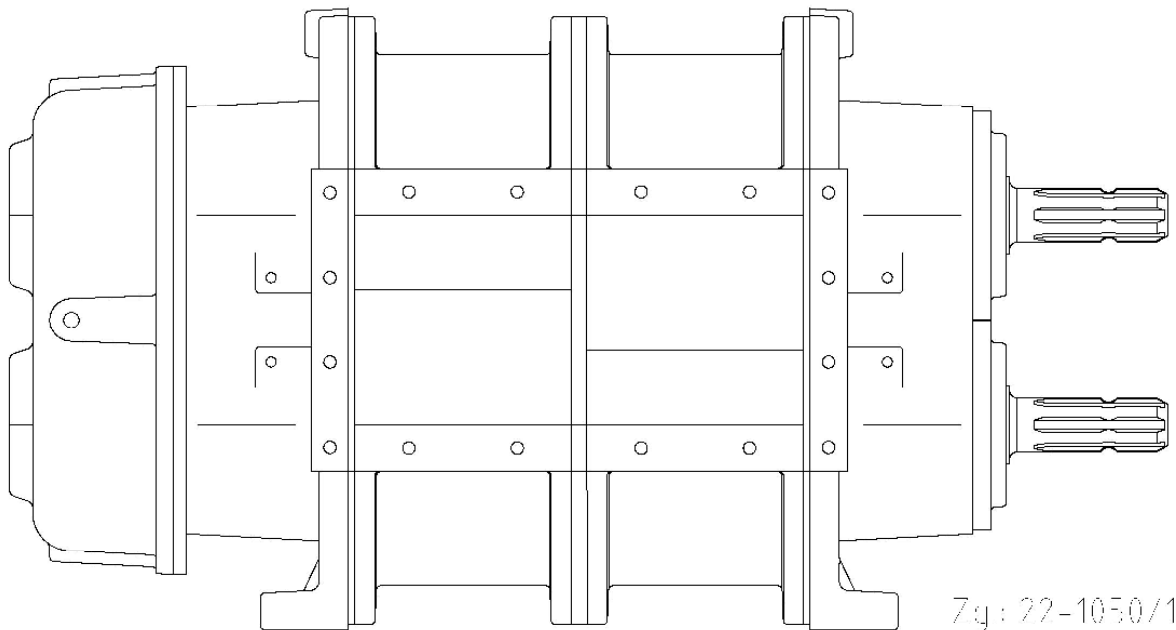
# **Stallkamp**

## **OPERATING MANUAL**

### **Rotary pump Mod.1997**

**D 60-300**

**D 70-420**



7g: 22-1050/1

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**Space for notes:**

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## General information

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

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## **2 DECLARATION OF CONFORMITY PURSUANT TO MACHINERY DIRECTIVE 2006/42/EC (ORIGINAL, GERMAN VERSION)**

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**Product name:** Rotary pump DKP model 1997

**Type:** DKP- D60; D120; D180; D240; D300 and DKP- D70; D140; D210; D280; D350;  
D420

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

**Machinery Directive 2006/42/EC**

including all amendments and conform to the pertinent regulations of the Directive on electromagnetic compatibility:

**EMC Directive 2004/108/EC.**

The following harmonised standards have been applied:

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

EN ISO 12100-2:2003, Safety of machinery - Basic concepts, general principles for design - Part 2: Technical principles

EN 60204-1:2007-06, Safety of machinery - Electrical equipment of machines; Part 1: General requirements

EN 61000-6-1:2007, Electromagnetic compatibility (EMC) Part 6-1: Generic standards — Immunity for commercial environments

EN 61000-6-2:2005, Electromagnetic compatibility (EMC) Part 6-2: Generic standards — Immunity for industrial environments

Dinklage, dated 4. February 2014

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

Erich Stallkamp, Managing Director

This declaration is not an assurance of characteristics in the sense of the German law on product liability. The safety instructions 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 devices are developed according to the current state of technology, manufactured with great care and subject to a continual quality control. This operating manual should help you to get to know the device and to employ its proper operational possibilities.

The operating manual contains important notices in order to operate the device safely, appropriately and cost-effectively. It is necessary to observe the operating manual to ensure the reliability and long service life of the device and to avoid hazards.

The operating manual does not take local, on-site requirements into consideration; the operator is solely responsible for ensuring that these are observed, including by external installers.

#### 3.1 Designation of notices in the operating manual



In the operating manual, safety references warning of dangers to persons are identified with the general hazard symbol according to DIN 4844-W9.



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

All other notices which might restrict the functional reliability of the device or represent a danger for the machine if not observed are marked with the word:

<b>ATTENTION!</b>
-------------------

This machine unit may not be operated beyond the values defined in the technical documentation with respect to conveying liquid, delivery flow rate, speed, density, pressure, temperature as well as motor power output or other instructions contained in the operating manual or 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. We request that this always be specified in the event of enquiries, subsequent orders and when purchasing spare parts.

Provided that additional information or notes are required or in case of damage, please contact our local field sales employee or contact us directly.

#### 3.2 Unauthorised conversion and spare part manufacture

Conversions and modifications to the devices and their machine units are only permissible with the explicit approval of the manufacturer. The use of non-“original spare parts” abrogates all liability.

## 4 SAFETY

This operating manual contains fundamental information which must be observed during installation and operation as well as when performing maintenance work on the device.

It is therefore absolutely necessary that the installer as well as the responsible qualified personnel and operator read these instructions before installation and commissioning, and that they are continually available at the location where the machine is operated.

Not only the safety instructions in this operating manual must be observed, but also the warning signs and regulations of the respective professional association in the latest version.

### 4.1 Qualification of the personnel



The personnel performing the operation, maintenance, inspection and installation must be appropriately qualified for this work.

Area of responsibility, competence, and the monitoring of the personnel must be precisely regulated by the operator. If the necessary skills are not available to the personnel, then they should be appropriately trained and instructed.

Furthermore the operator must ensure that the operating staff fully understands the contents of the operating manual.

### 4.2 Dangers if the safety instructions are not observed

Failure to observe the safety instructions can endanger persons as well as the environment and the machine. Failure to observe the safety instructions results in the loss of all claims for damages.

Specifically, failure to observe instructions can, for example, result in the following dangers:

- Failure of important functions of the device or plant.
- Endangerment of persons due to electrical, mechanical, chemical or other exposure.
- Endangerment of the environment due to leakage of hazardous materials.

**WARNING SIGNS**

Observe all notices and warning signs. Dangerous gases can escape when agitating the liquid manure.



#### **DANGER OF POISONING!**

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

### **4.3 Safety-conscious work**

Observe all safety instructions presented in this operating 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 instructions for the operator and attendant:

- ✓ If hot or cold machine parts can pose a hazard, then these parts must be protected on site against 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 persons and environment. Observe statutory provisions.

### **4.4 Safety instructions for maintenance, inspection and assembly work**



The operator has to ensure that all maintenance, inspection and installation work is carried out by authorised and qualified personnel.

Fundamentally, all work on the machine can 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 made functional.

## **5 GUARANTEE**

This section contains the general particulars for the guarantee. Contractual agreements are always treated with priority and are hereby not rescinded. The period of guarantee 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 is obligated to repair every defect to products sold by Stallkamp under the condition:

- ✓ that it is a quality defect of the material, manufacture or design;
- ✓ that the defect is reported in writing to Stallkamp or the Stallkamp representative within the period of the guarantee;
- ✓ that the product is employed exclusively in the specified operating conditions described in the operating manual and employed for the intended purpose;
- ✓ that the monitoring device integrated in the product is correctly connected (temperature protection);
- ✓ that genuine Stallkamp parts are used.

## **5.2 Exclusion of liability**

No guarantee or liability is 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 operator;
- Failure to observe the safety instructions, regulations or the necessary requirements in this operating manual which apply according to German law;
- Installation, disassembly or repair of the device not in keeping with the regulations;
- Inadequate maintenance;
- Possible chemical, electrical or electrochemical influences;
- Wear and tear.

Since maintenance has an influence on the safety and functional capability of the device, it is an integral component of the guarantee. The operator of the device is obligated to have the manufacturer himself or a service approved by the manufacturer perform maintenance work according to the regulations of the manufacturer, including the necessary changing of oil and the repair and replacement of wearing parts. The operator is thus obligated to maintain a maintenance and revision list, which facilitates monitoring of the mandatory inspection and maintenance work (see Point 16 Maintenance and revision list).

We expressly emphasise that this device is a fluid flow engine in which the protective coating is exposed to constant wear from the abrasive contents of the medium being pumped and should consequently be classed as a wearing part. Wear, damage and secondary damages which result from external influences on the protective coating are expressly excluded from the guarantee. The use of devices and/or the field of application and reliability for the application must be verified by the operator and does not form part of the guarantee.

The liability of Stallkamp thereby excludes any liability for personal damages, material damages or financial losses.

The manufacturer reserves the right to modify the performance, specifications or configuration data without prior information.

## 6 PRODUCT DESCRIPTION

### 6.1 General description

The pumps are generally powered by tractors or electrical motors. Of course, however, operation with petrol or diesel engines is also possible. If you are performing the installation, please ensure the flowing, precise connection of the output and drive, and avoid axial forces under all circumstances. The forces should be transferred via couplings, which should be able to transfer the calculable loads.

This operating manual applies to the standard model of the Stallkamp rotary pump.

The rotary pumps are available in the following versions:

- Rotary pump type S with standard equipment for tractor drive
- Rotary pump type E with standard equipment for electrical drive
- Rotary pump type S with coupler head for tractor drive
- Rotary pump type E on console with electrical drive motor

### 6.2 Applications

The rotary pumps are intended for the conveying of liquid manure and must not be operated in explosive atmospheres. The rotary pumps are equipped in such a way that a high flow rate at high flow pressure is achieved proportional to the power consumption.

The pump output is dependent on the density and viscosity of the liquid as well as on the size of the flow rates.

### 6.3 Type plate DKP model 1997

The type plate displays the most important power and specification data:



Image 1

Type plate on the DKP model 1997

Classification

Serial no.

Year of manufacture

## 7 PERFORMANCE DATA AND DIMENSIONS OF THE ROTARY PUMPS

Technical data:

Maximum drive speed: 540 rpm for type S for tractor version

For rotary pumps type E with electrical drive motors, the speeds may differ slightly due to the different drive transmissions.

Maximum operating pressure: 5 bar

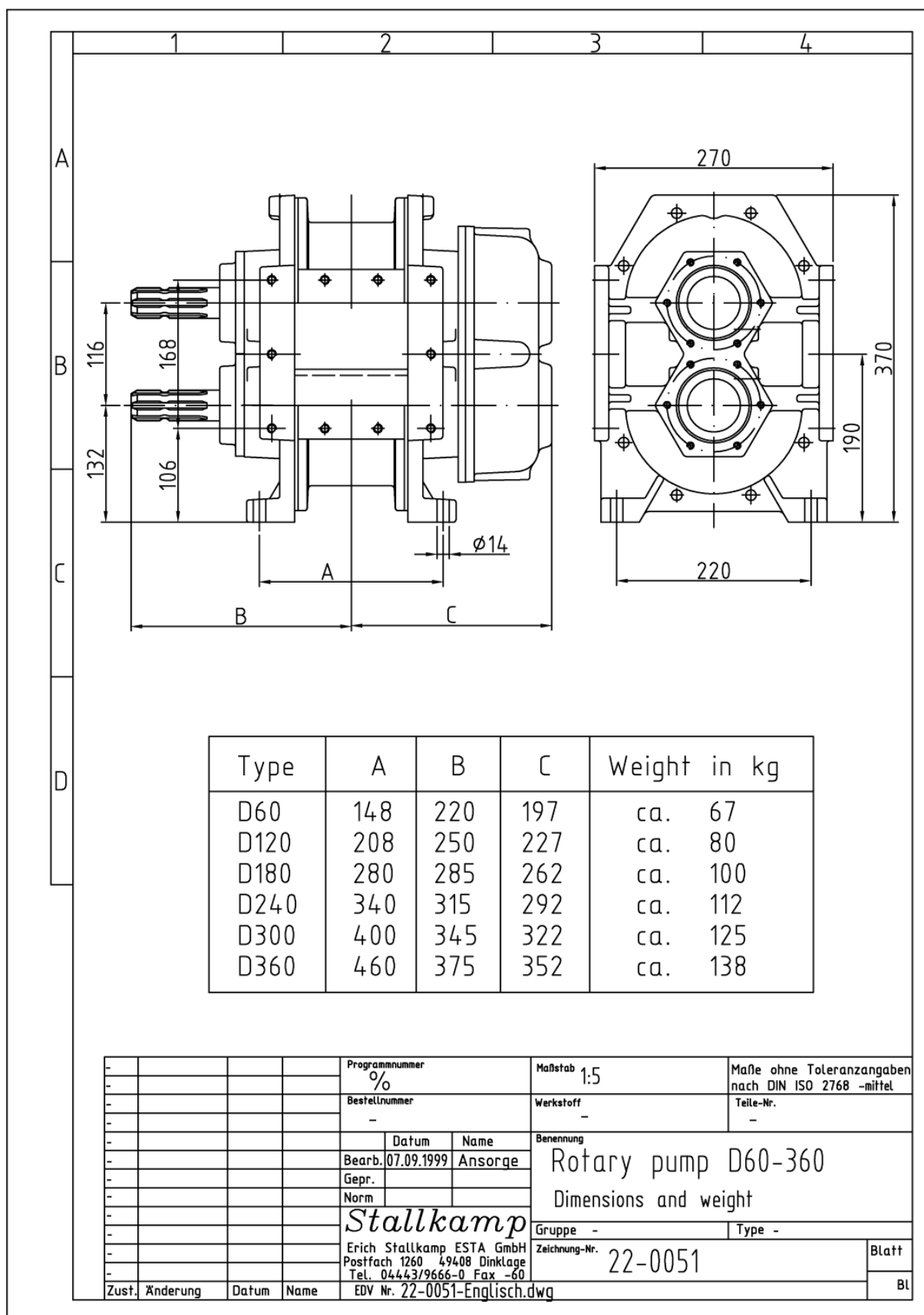
### 7.1 Performance data for DKP type E with drive motor

Type	Max. flow rate at "X" rpm		Gear motor speed	Max. pressure	Input rating	Current consumption	Fuse (time delay)
					at 3,5 bar		
	l/min.	m³/h	rpm	bar	kW	A	A
D60	551	33	491	3,5	5,5	11,4	16
D120	990	59	446	3,5	11,0	22,1	25
D180	1503	90	446	3,5	15,0	30,0	35
D240	2004	119	446	3,5	22,0	43,0	50
D300	2291	137	408	3,5	30,0	55,0	63
D70	536	32	446	3,5	7,5	16,0	16
D140	1040	61	446	3,5	11,0	22,1	25
D210	1618	96	446	3,5	15,0	30,0	35
D280	2163	129	446	3,5	22,0	43,0	50
D350	2470	148	408	3,5	30,0	55,0	63
D420	2961	177	408	3,5	30,0	55,0	63

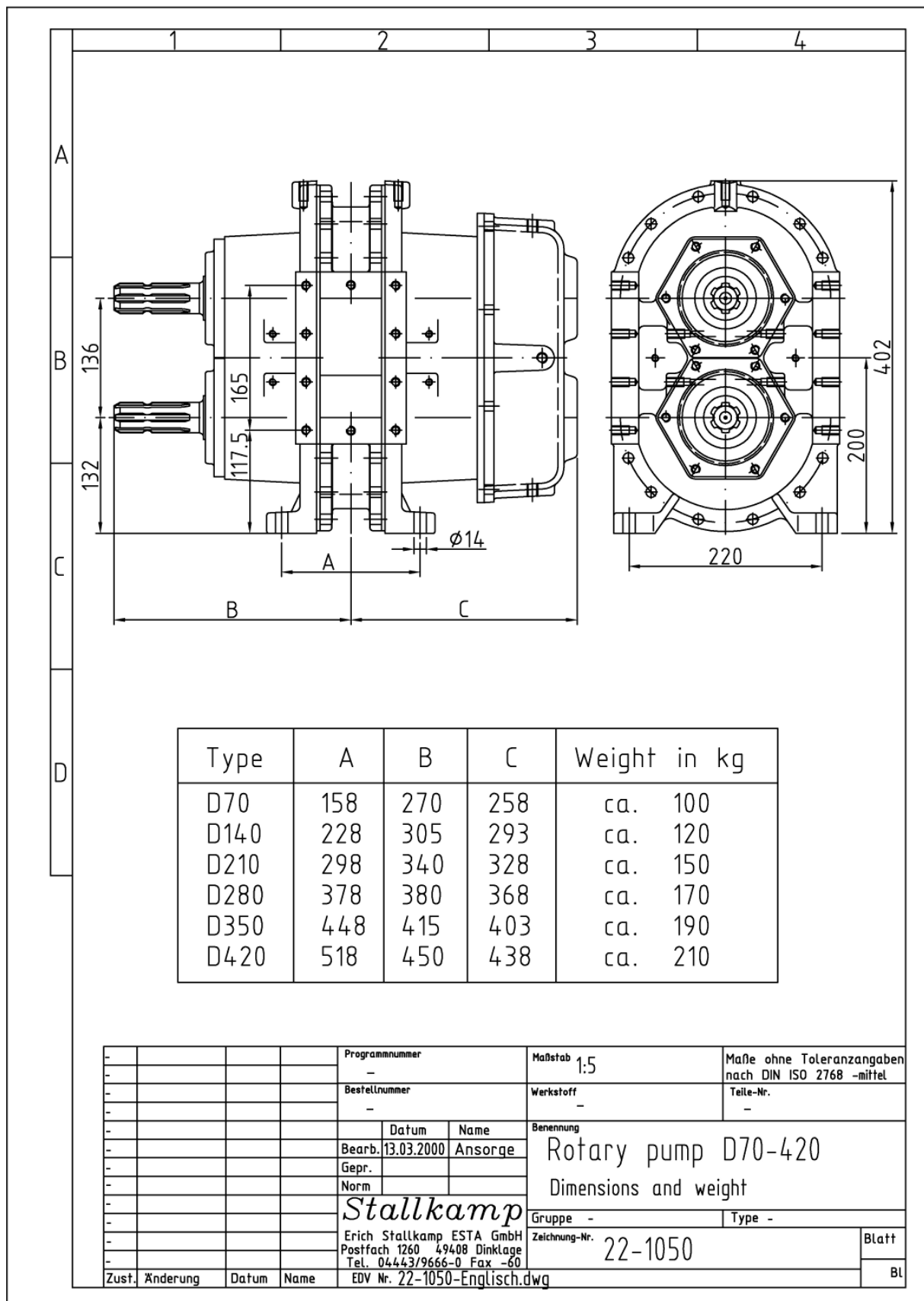
### 7.2 Performance data for DKP type S with drive motor

Type	Max. flow rate at 540 rpm		Max. pressure	Safety clutch setting
	l/min.	m³/h		
			bar	Nm
D60	606	36	5,0	200
D120	1200	72	5,0	400
D180	1820	109	5,0	600
D240	2427	145	5,0	800
D300	3033	182	5,0	1000
D70	650	39	5,0	200
D140	1260	75	5,0	400
D210	1960	117	5,0	600
D280	2620	157	5,0	800
D350	3270	196	5,0	1000
D420	3920	235	5,0	1200

## 7.3 Dimensions of rotary pump D 60-300 type "S"



## 7.4 Dimensions of rotary pump D 70-420 type "S"



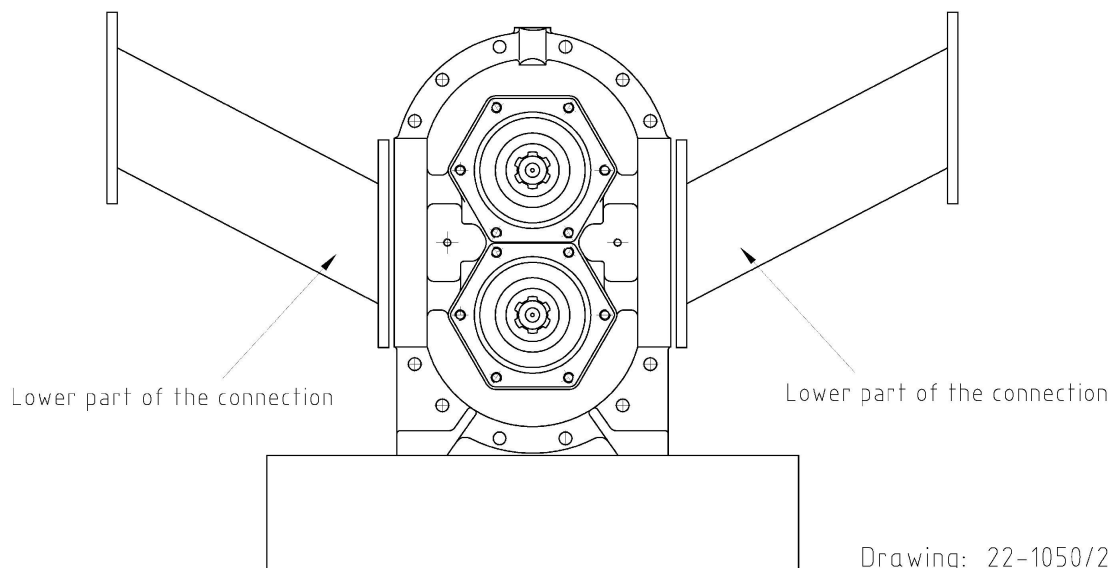
## 8 ROTARY PUMPS IN SUCTION-PRESSURE REPLACEMENT

### 8.1 Rotary pump

In optimal application conditions, the rotary pump you have purchased achieves the physically possible vacuum and sets a maximum suction height of 8 m. The highest and lowest point of the suction line are taken as the height difference. An important feature for optimal suction are suction lines with a sufficient cross-section which should not be less than 150 internal diameter and, where applicable, having a larger suction housing equipped on the lower suction head. Stationary suction lines laid in accordance with the specifications have an interior width of approx. 200 mm. This minimises the flow pressure losses. The physically logical structure in suction-pressure operation is still the shorter suction path and the consequently longer pressure line. An additionally fundamental and important optimisation is achieved by the fact that the respective suction and pressure connection on the pump is superordinate to the level of the pump input and output openings.

**Important:**

**The suction and pressure connections to the pumps must be routed sloping upwards so that when the system is turned off fluid remains in the pump, avoiding it running dry. In addition, long suction lines in the flow direction must include drops of at least 2x tube diameters to ensure the tubes never run dry.**



## 8.2 Initial commissioning

The suction intake should be primed with water prior to the first use. This measure is also recommended if you experience any suction difficulties.

## 8.3 Winter use

To avoid the rotors' freezing solid, the medium remaining in the pump should be removed in both directions by suctioning air and pumps. Avoid extended periods of dry running.

## 8.4 Suction and pressure lines

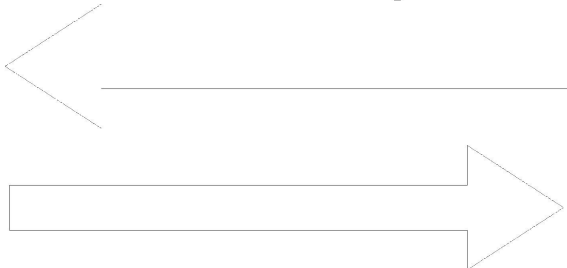
As a fundamental rule, it must be ensured that only high-quality materials are used on the suction and pressure sides, especially in the area of the tubes. This is an important contribution to the perfect functioning of your pump. Only use high-pressure lines (ND 10/16) on the print side. If you have any planning problems, please feel free to contact us.

## 8.5 Reversing the direction of flow

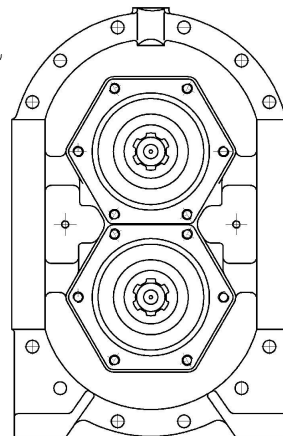
You control the direction of flow of the rotary pump by either selecting the upper or lower shaft stub as the drive shaft. (Tractor drive)

View of the drive side of the rotary pump

When the articulated shaft is connected above,  
the direction of flow is from right to left



When the articulated shaft is connected below,  
the direction of flow is from left to right



Drawing: 22-1050/3

**Important:**

**On pumps with a hydraulic balancing device, the direction of flow is set in one direction for operation depending on your order.**

Pumps which, for example, are driven by an electrical motor, oil motor or similar generally only have one drive shaft. The direction of flow (left or right) is set by the direction in which drive assembly turns. However, generally speaking, the direction of flow is set during the planning of the system in which the pump functions as the centrepiece.

The operator should only route the flow from the actual pressure side to the actual suction side by switching over the articulate shaft or changing the direction of flow of the drives in cases of malfunctions or particularities.

**8.6 Media which are difficult to pump****Important:**

**Thick and viscous media follow the generated vacuum correspondingly slowly. For this reason, it is essential to ensure that the rotation speed is maintained correspondingly low. This procedure guarantees continuity in the intake flow. The suction flow will break in the case of unnecessarily caused acceleration.**

## 9 ELECTRICAL CONNECTION OF ROTARY PUMPS TYPE E WITH MOTOR

### 9.1 Electrical connection and protection of the electrical motor

The electrical connection may only be carried out by a certified electrician. The VDE regulations (German Association for Electrical, Electronic & Information Technologies) must be observed. Compare the existing voltage with the specifications on the motor's manufacturer's plate and select the appropriate circuit.

The manual switch box and the plastic housing of the automatic delta-wye start-up are splash-proof according to IP54.

The technical connection conditions of the local energy authorities must be observed during connection.

A motor protection device is a prerequisite.

The electrical motor of the rotary pump must be properly connected to the mains supply (pay attention to serviceable protective conductors) and check whether the feed cable is properly protected. The respective power consumption of the motor in amperes is shown on the motor's type plate. See "Point 7. Performance data and dimensions "

**ATTENTION!**

**The switch box must be protected from moistures at all times!**

### 9.2 Direction test

For the direction of rotation, see Reversing the direction of flow.

The direction can be tested by turning the device on and off again rapidly.



If the direction is incorrect, swap any two of the phases L1, L2 and L3 of the feeder in the switch box!

**The electrical installation may only be carried out by a certified electrician.**

**(As per VDE regulation.)**

#### **IMPORTANT!!**

The electrical cable must **never** be subjected to tensile loads, as this can cause damage to the unit.

## 10 COMMISSIONING

### 10.1 Prior to commissioning: Safety instructions

The following rules should fundamentally be observed to prevent accidents during maintenance and installation 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 welding work or using electrical tools, check whether there is a danger of explosion.
- (4) Pay attention to the danger of electrical accidents.
- (5) Examine lifting gear to ensure its fully satisfactory condition.
- (6) Ensure an adequate shutoff at the place of work, e.g., cordoning trellis
- (7) Wear a hardhat, safety glasses and safety footwear.
- (8) Keep a first-aid kit ready.

Otherwise observe the health and safety regulations as well as the prevailing governmental regulations.

The rotary pumps can only be operated installed on suitable consoles or coupler heads.

### 10.2 Commissioning the rotary pump type S on a coupler head

- (1) The rotary pump is installed on a coupler head in the factory with connections on the suction and pressure side. (If necessary with a stone trap on the suction side.)
- (2) Couple the coupler head on to the tractor mount, insert the wave shaft on the plug on the tractor and the rotary pump as far as it will go.
- (3) To avoid running dry, prime the suction intake with water. This measure should be repeated if you experience any suction difficulties.
- (4) If you are using a stone trap on the suction side or an inspection glass in the connection part on the suction side, the rotary pump may only be operated in one direction.
- (5) Protect pit openings with covers or barriers to prevent persons from falling in.
- (6) Connect the suction and pressure lines **CAUTION:** Direction test, see Point 9.2
- (7) The secure positioning of all screws and connections must be verified.

### 10.3 Commissioning the rotary pump type E on console with drive motor

- (1) The rotary pump is installed on a console with a drive motor in the factory with connections on the suction and pressure side. (If necessary with a stone trap on the suction side.)
- (2) Install the console as close to the suction point as possible on a suitable concrete foundation, connect up the suction and pressure lines, connect the motor up electrically.
- (3) To avoid running dry, prime the suction intake with water. This measure should be repeated if you experience any suction difficulties.
- (4) If you are using a stone trap on the suction side or an inspection glass in the connection part on the suction side, the rotary pump may only be operated in one direction.
- (5) Protect pit openings with covers or barriers to prevent persons from falling in.
- (6) Commission the rotary pump with the delta-wye motor protection switch. Attention: turn through to "Delta"! **ATTENTION:** Direction test, see Point 9.2.
- (7) As standard, the electrical motor is protected by an overload protection in the switch box.

In case of an overload, the pump is switched off by a motor protection switch. If the motor of the pump was switched off as a result of overloading, under no circumstances should you try to restart the motor by pressing the switch repeatedly. The cause of the error must be identified (foreign bodies, etc.).

- (8) The secure positioning of all screws and connections must be verified.

## 11 TRANSPORT AND STORAGE REGULATIONS

Pressure cleaners must not be used to clean the rotary pump. The rotary pump should be transported in a vertical position. Ensure that the machine is not able to topple over. If the rotary pump is not used for a long period of time, it must be protected against moisture and frost. The rotary pump must be inspected before being recommissioned after not being used for a long period of time.

The directions under Point ***"Fehler! Verweisquelle konnte nicht gefunden werden.. Fehler! Verweisquelle konnte nicht gefunden werden."*** must be observed.

## 12 MAINTENANCE

The specified maintenance and inspection work must be performed regularly. These tasks may only be carried out by trained, qualified and authorised personnel. The operator of the device is obligated to have the manufacturer himself or a service approved by the manufacturer perform maintenance work according to the regulations of the manufacturer, including the necessary changing of oil and the repair and replacement of wearing parts. The operator is thus obligated to maintain a maintenance and revision list, which facilitates monitoring of the mandatory inspection and maintenance work (see Point 16 Maintenance and revision list).

### 12.1 Maintenance intervals

The rotary pump must be inspected for damage before every commissioning. In particular the rotary pump and the cable must be proven to be free of damage. In addition, the secure positioning of all screws and other fastening devices must be verified.

#### 12.1.1 Recommendation: Every 14 days

##### 12.1.1.1 Lubricate the sealing elements

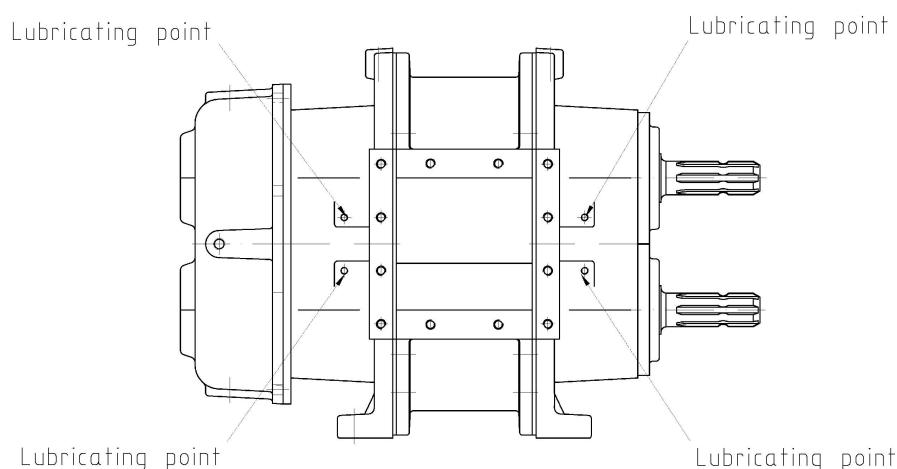
The pump has four lubricating points (grease nipples), the outlet opening of each of which is controlled by the seal packages respectively. The pump should be lubricated with waterproof, high-performance grease.

**Important:**

**The lubrication must always be performed when the machine is running and to be specific:**

- 1.) after medium to long operational pauses (14 days to 4 weeks) when commissioning
- 2.) after every use

The quantity in terms of hand lever presses should not exceed 4-6 presses per nipple.



Drawing: 22-1050/4

### 12.1.1.2 Cleaning the stone trap

If you are using a stone trap on the suction side in the connection part on the suction side, the rotary pump may only be operated in one direction. The stone trap must be emptied regularly. **Attention:** Light foreign bodies (e.g., wood) are not caught in the stone trap. Depending on the flow speed and behaviour of the conveyed media, smaller stones may be carried along with the current.

### 12.1.2 Recommendation: Every 3 months

#### 12.1.2.1 Check the power consumption with an ammeter

Power consumption is constant during normal operation. Occasional current fluctuations are caused by the consistency of the medium being conveyed. If a constantly increased power consumption is measured, please contact our sales representative.

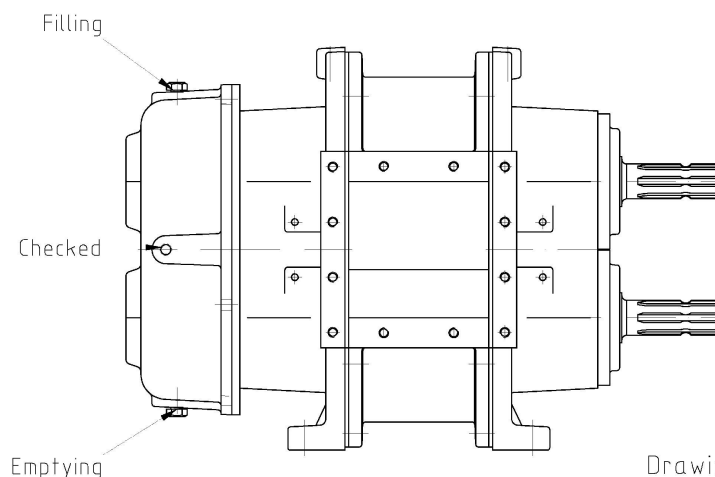
### 12.1.3 Recommendation: Every 12 months

#### 12.1.3.1 Check the gear oil in the rotary pump

The pump itself has synchronized gears. Types D 60 to D 300 require 08 litres of oil, whereas types D 70 to D 420 require 1.0 litre. Opening the control screw on the side allows you to perform the important oil check required every 40-60 operating hours. Of course, if you see that the levels are below the minimum, it is also possible to top them up. (High-pressure gear oil SAE 90). For safety reasons, perform the check every quarter if you do not operate the system for the specified number of hours in the same period.

#### Important:

**The annual oil change is indispensable; it should also be performed every 6 or 3 months in cases of higher use.**



Drawing: 22-1050/5

**12.1.3.2 Check the gear oil in the intermediate gear on the rotary pump type E with gear motor**

Insofar as the electrical motor pumps are equipped with intermediate gears (reduction gears), the maintenance concerning oil filling and quantity must also be performed. The annual oil change must also be performed here (see special operating instructions for gear motor).

**12.1.3.3 Check the functioning of the monitoring device**

We recommend checking the monitoring devices in the scope of maintenance work at least once a year. For these functional checks the device must be cooled down to ambient temperature. The electrical power cords of the monitoring devices must be disconnected in the switch box. If you identify any defects, please contact our sales representative.

**12.1.3.4 Check the tightening torque of all screw connections**

Every 9,000 operating hours or at least once annually we recommend checking the secure positioning of the screw connections in the scope of maintenance work. The tightening torques for stainless steel screws in Nm for different thread sizes are shown below:

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

For your own safety, please always ensure that the protective cover of the motor drive is correctly fastened and the protective equipment of the wave shaft is undamaged. The supplied wave shafts should be maintained in accordance with the separately included instructions.

## 13 NOTES

### 13.1 Regulation of the professional association

The following accident prevention regulations of the Agricultural Professional Association can be found 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 pits in the house and courtyard area must be protected with railings or coverings to prevent persons falling in. If these are not deeper than 100 cm, other safety precautions can suffice.

##### § 2 Openings

- (1) If removal and entries openings, etc., are opened, it must be guaranteed that persons and objects cannot fall in.
- (2) Pits and canals that are customarily entered must have facilities which permit risk-free entry. 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 entry and during the presence in pits and canals, ensure that sufficient respiratory air is present and that plant facilities are reliably protected against being switched on. The handling of naked flames is not permitted.
- (2) Entry for the recovery of an accident victim is only permissible if two other persons secure the entry with a cable which is firmly anchored outside the tank.

##### § 4 Tanks and canals for animal faeces

- (1) For tanks and canals in the open air, it must be guaranteed by suitable measures that fermentation gas cannot flow into the buildings.
- (2) Closed tanks in the open air must have vent openings on opposite lying sides.
- (3) If tanks and canals are found in the buildings – also under slatted floors – it must be guaranteed that fermentation gases are conducted away from the buildings.
- (4) If tanks and canals in the buildings are furnished with agitating, pumping and rinsing plants, facilities for the removal of fermentation gases must be present which automatically switch on when the agitator and rinsing works are operating. They may only be switched off after conclusion of the work process. The gases conducted away must not endanger persons.
- (5) Canals must be designed so as to avoid any unnecessary whirling up of the faeces.
- (6) Operating stations for agitating, pumping and rinsing, etc., equipment must be built up over the floor.
- (7) Closed rooms in which there are operating stations may not have openings to the tanks and canals.
- (8) Operation instructions must be permanently attached to the operating stands.

##### § 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 agitating and removal of faeces.
- (2) In the buildings in which there are open tanks and canals, the presence of persons and animals during agitation and removal is only permissible with sufficient ventilation.

##### § 6 Warning signs

- (1) Easily visible warning signs must be attached to openings of tanks and canals which indicate the danger of the gases.
- (2) Refer to the "Information Sheet with Notice, Warning, Prohibition and Rescue Signs" of the Federal Association of Agricultural Trade Associations.

## 14 SPARE PARTS LIST DKP D60-300

### Stallkamp spare parts list for rotary pump type D60 / 60 - 300 tractor drive

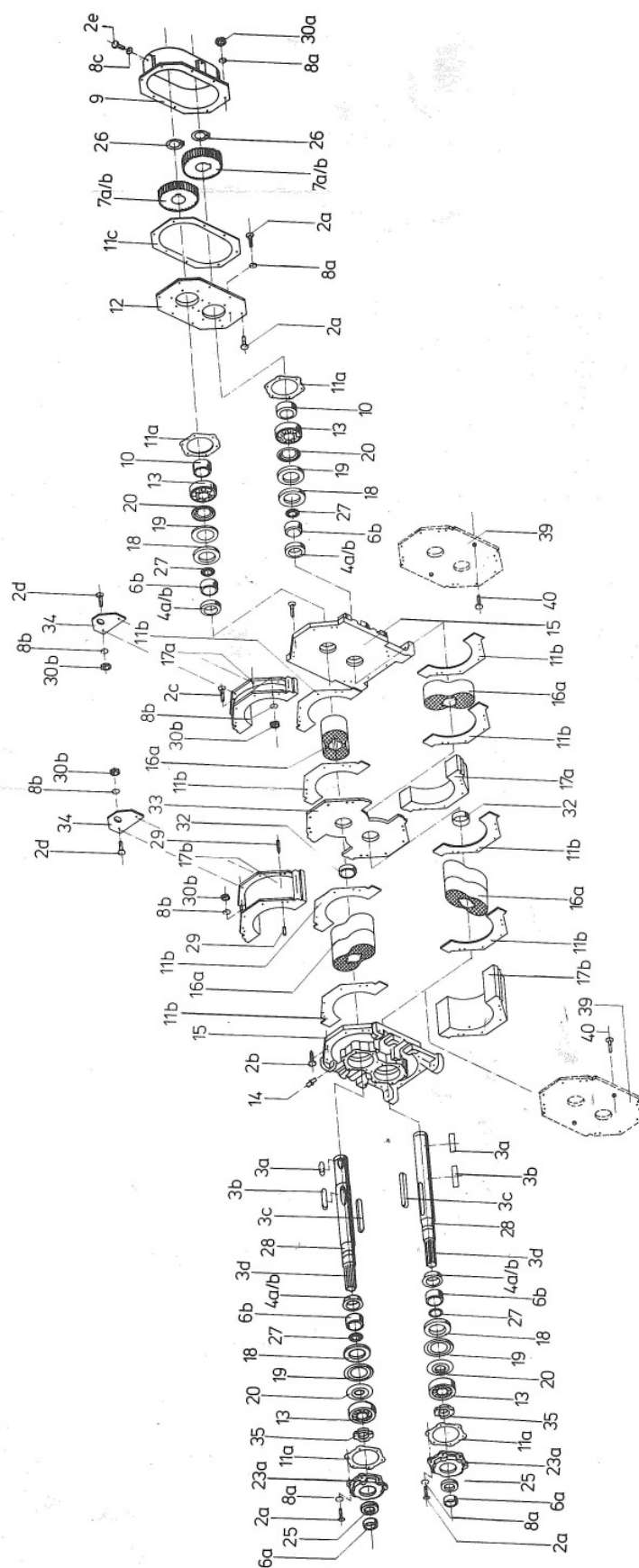
No.	Parts no.	Description	Technical dimensions	Type D60/60	Type D60/120	Type D60/180	Type D60/240	Type D60/300
2a	5210025	Allen screw	M8x25 8.8	24	24	24	24	24
2b	5220092	Allen screw	M8x35 8.8	8	8	8	8	8
2c	5210052	Hexagon bolt	M10x45 8.8	16	16	24	24	32
2e	5600005	Hexagon bolt	M12x16 8.8	3	3	3	3	3
3a	5600007	Fitting key	14x9x28	2	2	2	2	2
3b	5600008	Fitting key	14x9x55	2		2		
3c	5600009	Fitting key	14x9x110		2	2	4	2
3e	5250119	Fitting key	14x9x170					2
4b	7130006	Pull-off ring	L=20	4	4	4	4	4
6a	5600034	INA ring	LR35x40x16.5	2	2	2	2	2
6b	5180057	INA ring	IR45x55x22	4	4	4	4	4
7a	7130008	Gear wheel I	T=29; m=4; B=30	2	2	2	2	2
8a	5230037	Spring ring	M8	32	32	32	32	32
8b	5230038	Spring ring	M10	16	16	24	24	32
8c	5700024	Copper asbestos ring	M12	3	3	3	3	3
9	7130011	Gearbox housing		1	1	1	1	1
10	7130013	Spacer sleeve	D45x54x25	2	2	2	2	2
11a	5600030	Seal (bearing housing)	0.7	2	2	2	2	2
11b	5600028	Seal (housing)	0.4	4	4	8	8	10
11c	5600029	Seal (gearbox housing)	1	1	1	1	1	1
12	5600023	Flange plate		1	1	1	1	1
13	5600010	Thrust ball bearing	No. 6209 2RS	4	4	4	4	4
14	5700023	Ball lubricating element	H1 M10x1	4	4	4	4	4
15a	7130017	Bearing housing, drive-side		1	1	1	1	1
15b	7130090	Bearing housing, gear-side		1	1	1	1	1
16a	7130181	Piston, short 60 mm	NBR	2		2		2
16b	7130180	Piston, short 60 mm	SBR70	[2]		[2]		[2]
16c	7130185	Piston, long 120 mm	NBR		2	2	4	4
16d	7130184	Piston, long 120 mm	SBR70		[2]	[2]	[4]	[4]
17a	7130021	Pump housing half shell	L=60	2		2		2
17b	7130022	Pump housing half shell	L=120		2	2	4	4
18	5600039	Domsel ring	D55x80x10AB	4	4	4	4	4
19	7130024	Supporting washer	D56x85x6	4	4	4	4	4
20	5600037	Seal washer	No. 6209AV	4	4	4	4	4
23a	7130027	Cover plate with hole		2	2	2	2	2
25	5600016	Shaft seal	D40x55x8 BASL	2	2	2	2	2
26	5600018	Fastening ring	D40x2.5 Seeger A	2	2	2	2	2
27	5190071	O-ring	D40x2	4	4	4	4	4
28a	7130050	Shaft	L=375	2				
28d	7130053	Shaft	L=435		2			
28g	7130056	Shaft	L=505 No. A			1		
28h	7130057	Shaft	L=505 No. B			1		
28l	7130060	Shaft	L=565 No. A				1	
28m	7130061	Shaft	L=565 No. B				1	
28p	7130064	Shaft	L=625 No. A					1
28q	7130065	Shaft	L=625 No. B					1
30a	5230027	Hex nut	M8 8.8	8	8	8	8	8
30b	5230003	Hex nut	M10 8.8	16	16	24	24	32
32	7130069	Bronze bush	D45x60x10			2	2	2

33	5600026	Central plate	240x356x10			1	1	1
34	5600015	Hoisting eye	DIN580 M10	2	2	2	2	2
35	5600031	Shaft nut, self-securing	M45x1.5	2	2	2	2	2
39	5600017	Wear plate	4	2	2	2	2	2
40	5200000	Screw	M8x15 (16), stainless steel	4	4	4	4	4
	5350008	Gear oil	SAE 85W90	1 litre	1 litre	1 litre	1 litre	1 litre
	5350009	Grease	Aralub HL 2	300g	300g	300g	300g	300g
	5380020	Curil	Tube a50ml	1	1	1	1	1

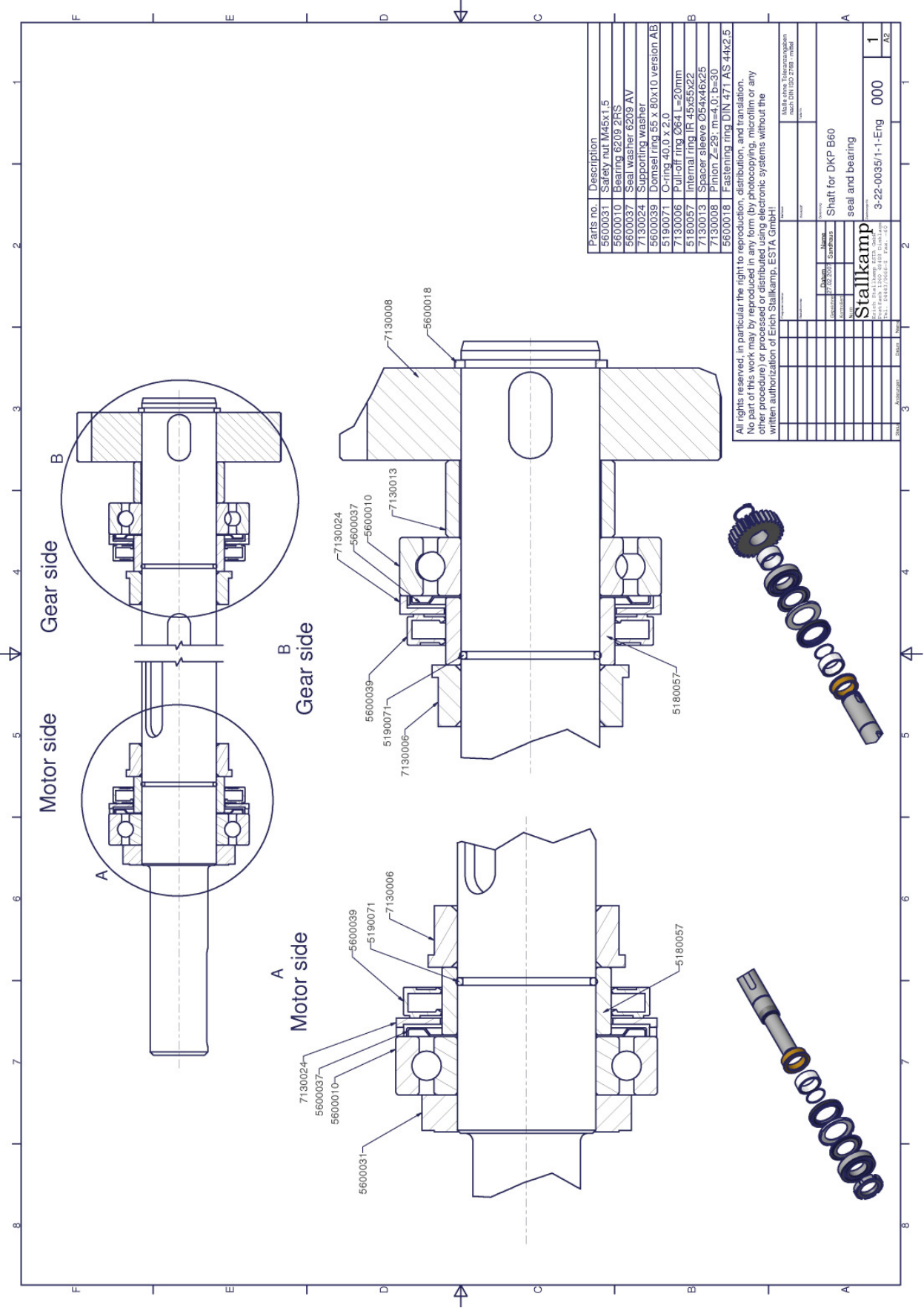
## Stallkamp spare parts list for rotary pump type D60 / 60 - 300 electrical drive

No.	Parts no.	Description	Technical di- mensions	Type D60/60	Type D60/120	Type D60/180	Type D60/240	Type D60/300
2a	5210025	Allen screw	M8x25 8.8	24	24	24	24	24
2b	5220092	Allen screw	M8x35 8.8	8	8	8	8	8
2c	5210052	Hexagon bolt	M10x45 8.8	16	16	24	24	32
2e	5600005	Hexagon bolt	M12x16 8.8	3	3	3	3	3
3a	5600007	Fitting key	14x9x28	2	2	2	2	2
3b	5600008	Fitting key	14x9x55	2		2		
3c	5600009	Fitting key	14x9x110		2	2	4	2
3d	5250105	Fitting key	10x8x60	1	1	1	1	1
3e	5250119	Fitting key	14x9x170					2
4b	7130006	Pull-off ring	L=20	4	4	4	4	4
6a	5600034	INA ring	LR35x40x16.5	1	1	1	1	1
6b	5180057	INA ring	IR45x55x22	4	4	4	4	4
7a	7130008	Gear wheel I	T=29; m=4; B=30	2	2	2	2	2
8a	5230037	Spring ring	M8	32	32	32	32	32
8b	5230038	Spring ring	M10	16	16	24	24	32
8c	5700024	Copper asbestos ring	M12	3	3	3	3	3
9	7130011	Gearbox housing		1	1	1	1	1
10	7130013	Spacer sleeve	D45x54x25	2	2	2	2	2
11a	5600030	Seal (bearing housing)	0.7	2	2	2	2	2
11b	5600028	Seal (housing)	0.4	4	4	8	8	10
11c	5600029	Seal (gearbox housing)	1	1	1	1	1	1
12	5600023	Flange plate		1	1	1	1	1
13	5600010	Thrust ball bearing	No. 6209 2RS	4	4	4	4	4
14	5700023	Ball lubricating element	H1 M10x1	4	4	4	4	4
15a	7130017	Bearing housing, drive- side		1	1	1	1	1
15b	7130090	Bearing housing, gear- side		1	1	1	1	1
16a	7130181	Piston, short 60 mm	NBR	2		2		2
16b	7130180	Piston, short 60 mm	SBR70	[2]		[2]		[2]
16c	7130185	Piston, long 120 mm	NBR		2	2	4	4
16d	7130184	Piston, long 120 mm	SBR70		[2]	[2]	[4]	[4]
17a	7130021	Pump housing half shell	L=60	2		2		2
17b	7130022	Pump housing half shell	L=120		2	2	4	4
18	5600039	Domsel ring	D55x80x10AB	4	4	4	4	4
19	7130024	Supporting washer	D56x85x6	4	4	4	4	4
20	5600037	Seal washer	No. 6209AV	4	4	4	4	4
23a	7130027	Cover plate with hole		1	1	1	1	1
23b	7130028	Cover plate, sealed		1	1	1	1	1
25	5600016	Shaft seal	D40x55x8 BASL	1	1	1	1	1
26	5600018	Fastening ring	D40x2.5 Seeger A	2	2	2	2	2

27	5190071	O-ring	D40x2	4	4	4	4	4
28b	7130051	Shaft, short	L=260	1				
28c	7130052	Shaft, long	L=375	1				
28e	7130054	Shaft, short	L=320		1			
28f	7130055	Shaft, long	L=435		1			
28j	7130058	Shaft, short	L=390			1		
28k	7130059	Shaft, long	L=505			1		
28n	7130062	Shaft, short	L=450				1	
28o	7130063	Shaft, long	L=565				1	
28r	7130066	Shaft, short	L=510					1
28s	7130067	Shaft, long	L=625					1
30a	5230027	Hex nut	M8 8.8	8	8	8	8	8
30b	5230003	Hex nut	M10 8.8	16	16	24	24	32
32	7130069	Bronze bush	D45x60x10			2	2	2
33	5600026	Central plate	240x356x10			1	1	1
34	5600015	Hoisting eye	DIN580 M10	2	2	2	2	2
35	5600031	Shaft nut, self-securing	M45x1.5	2	2	2	2	2
39	5600017	Wear plate	4	2	2	2	2	2
40	5200000	Screw	M8x15 (16), stainless steel	4	4	4	4	4
	5350008	Gear oil	SAE 85W90	1 litre	1 litre	1 litre	1 litre	1 litre
	5350009	Grease	Aralub HL 2	300g	300g	300g	300g	300g
	5380020	Curil	Tube a50ml	1	1	1	1	1



14.2 Installation drawing of seal and bearing DKP D60-300



## 15 SPARE PARTS LIST DKP D70-420

### Stallkamp spare parts list for rotary pump type D70 / 70 - 420 tractor drive

No.	Parts no.	Description	Technical dimensions	Type D70/70	Type D70/140	Type D70/210	Type D70/280	Type D70/350	Type D70/420
1	7130000	Spring washer	D70x15	2	2	2	2	2	2
2a	5210083	Hexagon bolt	M16x45 12.9	2	2	2	2	2	2
2b	5600005	Hexagon bolt	M12x16 8.8	3	3	3	3	3	3
2c	5700001	Allen screw	M10x30 8.8	32	32	32	32	32	32
2f	5600004	Hexagon bolt	M10x50 8.8	24	24	24	36	36	36
2g	5700002	Hexagon bolt	M8x10 8.8	4	4	4	4	4	4
3a	5700045	Fitting key	18x11x60	2					
3c	5700047	Fitting key	18x11x130		2		4	2	
3f	5700048	Fitting key	18x11x200			2		2	4
3g	5700055	Fitting key	18x11x50	2	2	2	2	2	2
4e	7130003	Pull-off ring	L=21.0	2	2	2	2	2	2
4f	7130004	Pull-off ring	L=20.2	2	2	2	2	2	2
5	5700038	O-ring	D56x2	4	4	4	4	4	4
6a	5700028	INA ring	IR60x70x25	8	8	8	8	8	8
6b	5700029	INA ring	LR50x55x20.5	2	2	2	2	2	2
7	7130007	Gear wheel I	T=34; m=4; b=40	2	2	2	2	2	2
8a	5700024	Copper asbestos ring	M12	3	3	3	3	3	3
8b	5230038	Spring ring	M10	56	56	56	64	64	64
9	7130010	Gearbox housing	V	1	1	1	1	1	1
10	7130012	Spacer sleeve	D60x70x35	2	2	2	2	2	2
11a	5700021	Seal (bearing housing)	0.7	2	2	2	2	2	2
11b	5700019	Seal (pump housing)	0.4	4	4	4	8	8	8
11c	5700020	Seal (gearbox housing)	1	1	1	1	1	1	1
12	5700014	Flange plate		1	1	1	1	1	1
13a	5700004	Two-row thrust ball bearing	No. 4212	2	2	2	2	2	2
13b	5700003	Cylindrical roller bearing	No. NJ2212	2	2	2	2	2	2
14	5700023	Ball lubricating element	No. H1 M10x1	4	4	4	4	4	4
15a	7130016	Bearing housing (drive-side)		1	1	1	1	1	1
15b	7130089	Bearing housing (gear-side)		1	1	1	1	1	1
16a	7130183	Piston, short 70 mm	NBR	2		2		2	4
16b	7130182	Piston, short 70 mm	SBR70	[2]		[2]		[2]	[4]
16c	7130187	Piston, long 140 mm	NBR		2	2	4	4	4
16d	7130186	Piston, long 140 mm	SBR70		[2]	[2]	[4]	[4]	[4]
17	7130018	Pump housing half shell	L=70	2					
17a	7130019	Pump housing half shell	L=140		2		4	2	
17b	7130020	Pump housing half shell	L=210			2		2	4
18a	5700039	Domsel ring	D70x90x10A	4	4	4	4	4	4
18b	5700040	Domsel ring	D70x90x10AB	4	4	4	4	4	4
18c	5700041	Domsel ring	D70x90x10AC	4	4	4	4	4	4
19	5700037	Supporting washer	D71x90x2	4	4	4	4	4	4
20a	5700035	Spacer disk	ZW80x90 SKF	8	8	8	8	8	8
20b	5700036	Spacer disk	ZW90x110 SKF	4	4	4	4	4	4
21	7130023	Support ring	D80x110x6	4	4	4	4	4	4
22	5700032	Spacer ring	FRB 10x110	2	2	2	2	2	2
23a	7130025	Cover plate with hole	D70x150x8	2	2	2	2	2	2
25	5700044	Shaft seal	D55x70x8 B1S1	2	2	2	2	2	2
28a	7130029	Shaft	L=540		2				
28d	7130032	Shaft	L=610			2			
28ga	7130035	Shaft	L=690 No. A				1		

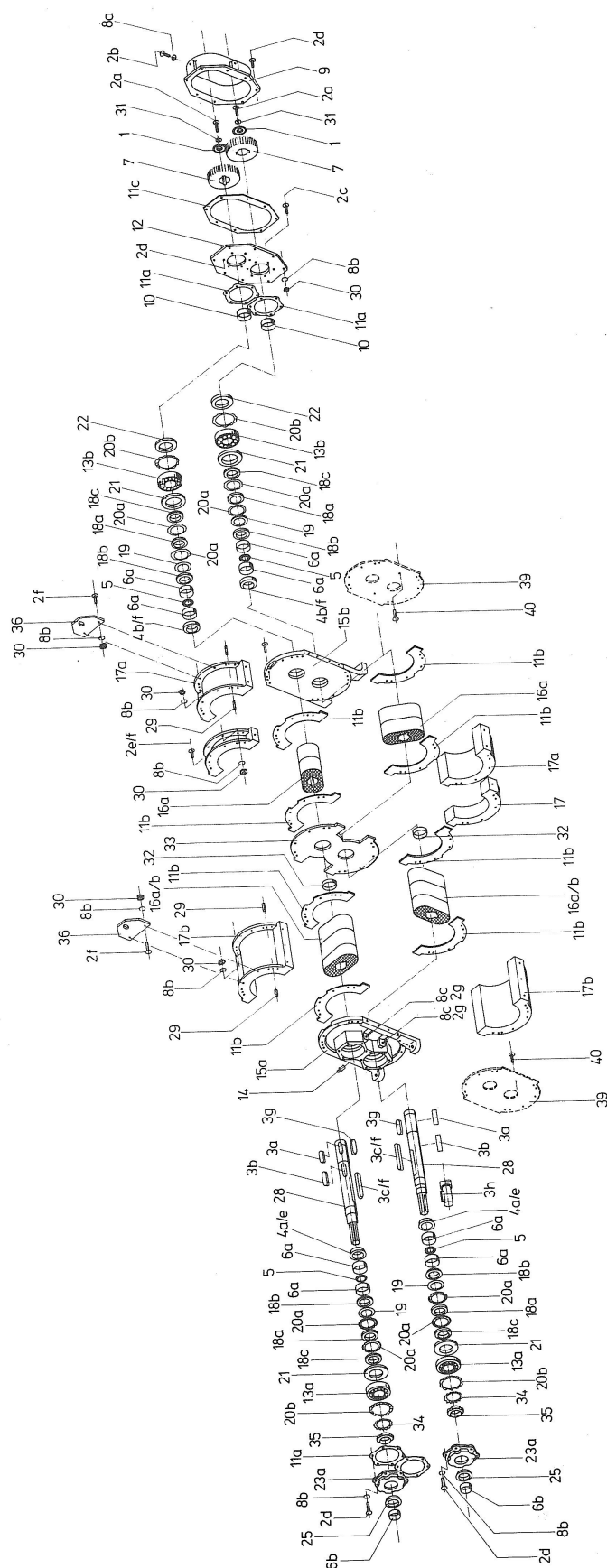
28gb	7130036	Shaft	L=690 No. B				1		
28j	7130039	Shaft	L=760 No. A					1	
28k	7130040	Shaft	L=760 No. B					1	
28n	7130043	Shaft	L=830 No. A						1
28o	7130044	Shaft	L=830 No. B						1
28r	7130047	Shaft	L=470	2					
30	5230003	Hex nut	M10 8.8	32	32	32	44	44	44
31	5700026	Safety plate	M16	2	2	2	2	2	2
32	7130068	Bronze bush	D60x73x11				2	2	2
33	5700017	Central plate	10				1	1	1
34	5700034	Fastening ring	D60xMB12 SKF	2	2	2	2	2	2
35	5700033	Shaft nut	M60x2 KM12 SKF	2	2	2	2	2	2
36	5600015	Hoisting eye	DIN580 M10	2	2	2	2	2	2
39	5700042	Wear plate	4	2	2	2	2	2	2
40	5200000	Screw	M8x15 (16), stainless steel	4	4	4	4	4	4
	5350008	Gear oil	SAE 85W90	1.5 litre	1.5 litre	1.5 litre	1.5 litre	1.5 litre	1.5 litre
	5350009	Grease	Aralub HL 2	350g	350g	350g	350g	350g	350g
	5380020	Curil	Tube a50ml	1	1	1	1	1	1

## Stallkamp spare parts list for rotary pump type D70 / 70 - 420 electrical drive

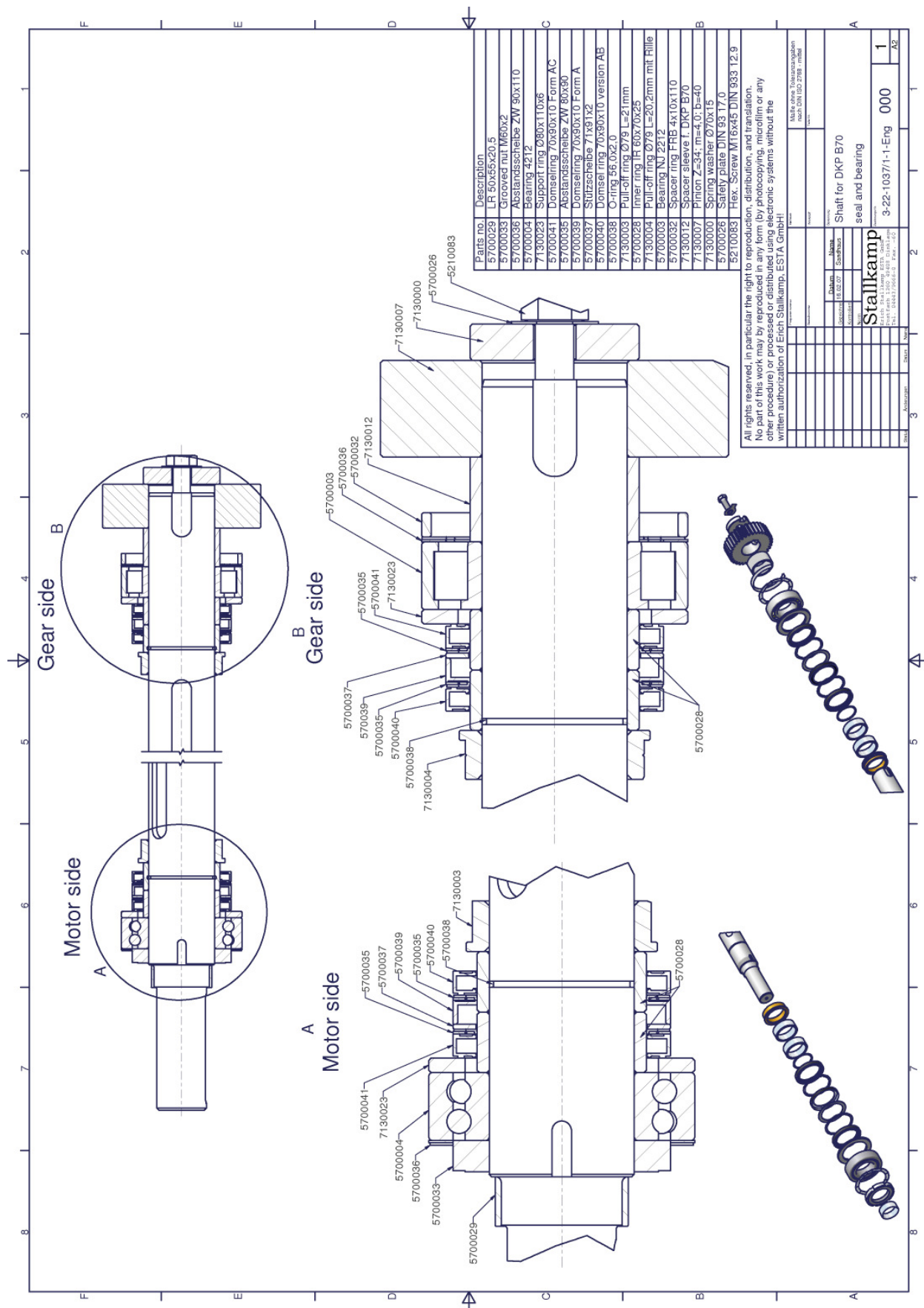
No.	Parts no.	Description	Technical dimensions	Type D70/70	Type D70/140	Type D70/210	Type D70/280	Type D70/350	Type D70/420
1	7130000	Spring washer	D70x15	2	2	2	2	2	2
2a	5210083	Hexagon bolt	M16x45 12.9	2	2	2	2	2	2
2b	5600005	Hexagon bolt	M12x16 8.8	3	3	3	3	3	3
2c	5700001	Allen screw	M10x30 8.8	32	32	32	32	32	32
2f	5600004	Hexagon bolt	M10x50 8.8	24	24	24	36	36	36
2g	5700002	Hexagon bolt	M8x10 8.8	4	4	4	4	4	4
3a	5700045	Fitting key	18x11x60	2					
3c	5700047	Fitting key	18x11x130		2		4	2	
3f	5700048	Fitting key	18x11x200			2		2	4
3g	5700055	Fitting key	18x11x50	2	2	2	2	2	2
3h	5700054	Fitting key	14x9x100	1	1	1	1	1	1
4e	7130003	Pull-off ring	L=21.0	2	2	2	2	2	2
4f	7130004	Pull-off ring	L=20.2	2	2	2	2	2	2
5	5700038	O-ring	D56x2	4	4	4	4	4	4
6a	5700028	INA ring	IR60x70x25	8	8	8	8	8	8
6b	5700029	INA ring	LR50x55x20.5	1	1	1	1	1	1
7	7130007	Gear wheel I	T=34; m=4; b=40	2	2	2	2	2	2
8a	5700024	Copper asbestos ring	M12	3	3	3	3	3	3
8b	5230038	Spring ring	M10	56	56	56	64	64	64
9	7130010	Gearbox housing	V	1	1	1	1	1	1
10	7130012	Spacer sleeve	D60x70x35	2	2	2	2	2	2
11a	5700021	Seal (bearing housing)	0.7	2	2	2	2	2	2
11b	5700019	Seal (pump housing)	0.4	4	4	4	8	8	8
11c	5700020	Seal (gearbox housing)	1	1	1	1	1	1	1
12	5700014	Flange plate		1	1	1	1	1	1
13a	5700004	Two-row thrust ball bearing	No. 4212	2	2	2	2	2	2
13b	5700003	Cylindrical roller bearing	No. NJ2212	2	2	2	2	2	2
14	5700023	Ball lubricating element	No. H1 M10x1	4	4	4	4	4	4
15a	7130016	Bearing housing (drive-side)		1	1	1	1	1	1
15b	7130089	Bearing housing (gear-side)		1	1	1	1	1	1
16a	7130183	Piston, short 70 mm	NBR	2		2		2	4
16b	7130182	Piston, short 70 mm	SBR70	[2]		[2]		[2]	[4]
16c	7130187	Piston, long 140 mm	NBR		2	2	4	4	4

16d	7130186	Piston, long 140 mm	SBR70		[2]	[2]	[4]	[4]	[4]
17	7130018	Pump housing half shell	L=70	2					
17a	7130019	Pump housing half shell	L=140		2		4	2	
17b	7130020	Pump housing half shell	L=210			2		2	4
18a	5700039	Domsel ring	D70x90x10A	4	4	4	4	4	4
18b	5700040	Domsel ring	D70x90x10AB	4	4	4	4	4	4
18c	5700041	Domsel ring	D70x90x10AC	4	4	4	4	4	4
19	5700037	Supporting washer	D71x90x2	4	4	4	4	4	4
20a	5700035	Spacer disk	ZW80x90 SKF	8	8	8	8	8	8
20b	5700036	Spacer disk	ZW90x110 SKF	4	4	4	4	4	4
21	7130023	Support ring	D80x110x6	4	4	4	4	4	4
22	5700032	Spacer ring	FRB 10x110	2	2	2	2	2	2
23a	7130025	Cover plate with hole	D70x150x8	1	1	1	1	1	1
23b	7130026	Cover plate, sealed	D 150x8	1	1	1	1	1	1
25	5700044	Shaft seal	D55x70x8 B1S1	1	1	1	1	1	1
28b	7130030	Shaft, short	L=418		1				
28c	7130031	Shaft, long	L=550		1				
28e	7130033	Shaft, short	L=488			1			
28f	7130034	Shaft, long	L=620			1			
28h	7130037	Shaft, short	L=568				1		
28i	7130038	Shaft, long	L=700				1		
28l	7130041	Shaft, short	L=638					1	
28m	7130042	Shaft, long	L=770					1	
28p	7130045	Shaft, short	L=718						1
28q	7130046	Shaft, long	L=840						1
28s	7130048	Shaft, short	L=348	1					
28t	7130049	Shaft, long	L=480	1					
30	5230003	Hex nut	M10 8.8	32	32	32	44	44	44
31	5700026	Safety plate	M16	2	2	2	2	2	2
32	7130068	Bronze bush	D60x73x11				2	2	2
33	5700017	Central plate	10				1	1	1
34	5700034	Fastening ring	D60xMB12 SKF	2	2	2	2	2	2
35	5700033	Shaft nut	M60x2 KM12 SKF	2	2	2	2	2	2
36	5600015	Hoisting eye	DIN580 M10	2	2	2	2	2	2
39	5700042	Wear plate	4	2	2	2	2	2	2
40	5200000	Screw	M8x15 (16), stainless steel	4	4	4	4	4	4
	5350008	Gear oil	SAE 85W90	1.5 litre	1.5 litre	1.5 litre	1.5 litre	1.5 litre	1.5 litre
	5350009	Grease	Aralub HL 2	350g	350g	350g	350g	350g	350g
	5380020	Curil	Tube a50ml	1	1	1	1	1	1

## 15.1 Exploded drawing DKP D70-420



## 15.2 Installation drawing of seal and bearing DKP D70-420



## 16 MAINTENANCE AND REVISION LIST

Each person must clearly correctly enter all maintenance and revision work in the list and confirm it with his or her own signature and that of the person responsible.

This list must be submitted to the supervisory bodies of the professional association, the TÜV and the manufacturer on request.

[illegible]



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