

## Wilo-Rexa MINI3



**zh-CHS** 安装及操作说明

**en** Installation and operating instructions



<b>Chinese (simplified).....</b>	<b>4</b>
<b>English .....</b>	<b>16</b>

# 目录表

<b>1 安全</b>	<b>6</b>
1.1 关于本说明书	6
1.2 安全说明的标识	6
1.3 工作人员资格鉴定	6
1.4 危害健康的流体	6
1.5 个人防护装备	6
1.6 运输和存放	7
1.7 安装	7
1.8 电气连接	7
1.9 运行期间	7
1.10 拆卸	7
1.11 清洁和消毒	7
1.12 维护工作	7
1.13 商业应用	7
1.14 工作介质	8
<b>2 产品说明及功能</b>	<b>8</b>
2.1 说明	8
2.2 技术数据	8
2.3 型号代码	9
2.4 供货范围	9
2.5 功能	9
<b>3 应用/使用</b>	<b>9</b>
3.1 规定用途	9
3.2 未按规定使用	9
<b>4 运输和存放</b>	<b>10</b>
<b>5 安装及电气连接</b>	<b>10</b>
5.1 安装方式	10
5.2 安装	10
5.3 电气连接	11
<b>6 试运行</b>	<b>12</b>
6.1 接通前	12
6.2 接通和关闭	12
6.3 测试运行	12
6.4 运行期间	12
<b>7 拆卸</b>	<b>13</b>
7.1 固定湿井安装	13
7.2 移动湿井安装	13
<b>8 清洁</b>	<b>13</b>
8.1 清洁水泵	13
8.2 清洁水泵内室	13
<b>9 保养</b>	<b>14</b>

9.1 工作介质 .....	14
9.2 换油 .....	14
9.3 大修 .....	14
<b>10 故障、原因和排除方法 .....</b>	<b>14</b>
<b>11 备件 .....</b>	<b>15</b>
<b>12 废弃处置 .....</b>	<b>15</b>
12.1 关于收集损耗的电气产品和电子产品的相关信息 .....	15
12.2 油 .....	15

# 1 安全

## 1.1 关于本说明书

本说明书是产品的固定组成部分。遵守本说明书中列出的要求和操作步骤，是正确操作和使用产品的前提条件：

- 在执行所有工作前请仔细阅读本说明书。
- 请妥善保管说明书，以备随时使用。
- 将本说明书转交给后续所有者。
- 遵守所有产品相关参数。
- 注意产品上的标识。

未遵守说明书会导致：

- 人员受伤或财产损失。
- 丧失索赔权利。

操作手册源语言为德语。所有其他语言版本均为翻译件。

可以通过以下产品页面下载数字版安装及操作说明: <http://qr.wilo.com/405>

## 1.2 安全说明的标识

本安装及操作说明列举了多项安全说明。

- 危及人员安全：安全说明以相应的符号作为开头，并使用灰色作为背景色。
- 物资损失：这种安全说明以一个信号词作为开头，但没有符号。

信号词

- **危险！**  
如不注意，会导致死亡或重伤！
- **警告！**  
如不注意，可能导致人员受伤（重伤）！
- **小心！**  
如不遵守，可能造成物资损失，甚至导致彻底损毁。
- **提示！**  
操作产品时有用的注意事项

图标

在本说明书中使用以下图标：



电击危险



爆炸危险



割伤警告



损害健康警告



个人防护装备：戴防护手套



个人防护装备：佩戴口罩



个人防护装备：佩戴护目镜



实用注意事项

## 1.3 工作人员资格鉴定

- 年满 16 周岁
- 已阅读安装及操作说明书并且理解其中内容

儿童和家务能力受限的人

此设备可由 8 岁以上的儿童及生理、感知或心理有缺陷或缺乏经验和相关知识的人员进行操作，但前提是有人对其进行监管或其经过有关安全使用设备的培训且已了解操作设备可能带来的危险。禁止将此装置当做儿童玩具。在无人监管的情况下，禁止由儿童进行清洁和维护。

## 1.4 危害健康的流体

在不流动的积水中（比如泵井、渗水井...）可能会形成有害细菌。可能存在细菌感染危险！

- 拆下之后，应该彻底清洁产品并进行消毒！
- 告知所有工作人员，泵送流体会导致危险！

## 1.5 个人防护装备

执行运输、安装和拆卸以及维护作业时，须穿戴以下防护装备：

- 安全鞋: S1 或 P1 防护等级
- 防护手套 (EN 388): II 类，名称 3131X

执行清洁作业时，须穿戴以下防护装备：

- 防护手套 (EN ISO 374-1): C 类
- 护目镜 (EN 166): uvex skyguard NT (名称：W 166 34 F CE)
- 呼吸面罩 (EN 149): 带过滤器 6055 A2 的 3M 6000 系列

## 1.6 运输和存放

- 穿戴防护装备！
- 始终应抓握把手搬运产品。切勿提起或拖拽接线电缆移动产品！
- 清洁产品，必要时消毒处理！
  - 污染会滋生细菌。
  - 结垢可能导致叶轮卡塞。

## 1.7 安装

- 穿戴防护装备！
- 切勿安装已损坏或有缺陷的产品。
- 如果存在滋生细菌的危险，请注意以下几点：
  - 确保充分的通风。
  - 佩戴呼吸面罩，例如 带过滤器 6055 A2 的 3M 6000 系列

## 1.8 电气连接

- 切勿将产品与已损坏的接线电缆相连！由专业电工或客户服务人员更换接线电缆。
- 电源连接须按照规定安装地线。
- 安装 30 mA 漏电断路器 (RCD)。
- 电源连接保险丝：最大 16 A。
- 不带插头的产品：接线工作须由专业电工执行！

## 1.9 运行期间

- 严禁输送纯粹形态下的易燃易爆流体（汽油、煤油等）！
- 如果人员可触碰到泵送流体（可触及的水槽），则不要将该产品投入运行。

### \*“可行走的水池”释义

是人员在无需借助辅助工具（比如梯子）的情况下便可直接进入的安装地点：

- 花园池塘
- 戏水池

→ 化粪池

→ 喷泉，...

注意！可行走的水池同游泳池的要求一样。

## 1.10 拆卸

- 穿戴防护装备！
- 不带插头的产品：由专业电工将接线电缆与电源连接断开。
- 视运行模式和运行时间而定，外壳部位的温度可能会超过 40 °C (104 °F)。
  - 始终通过把手抓握产品。
  - 使产品冷却。
- 彻底清洁产品。
- 如果存在滋生细菌的危险，请注意以下几点：
  - 确保充分的通风。
  - 佩戴呼吸面罩，例如 带过滤器 6055 A2 的 3M 6000 系列
  - 为产品消毒。

## 1.11 清洁和消毒

- 穿戴防护装备！  
防护设备可防止工作人员接触到有害细菌和消毒剂。
- 使用消毒剂时，需遵守生产商说明！
  - 根据生产商说明穿戴防护装备！如有疑问，请联系专业经销商。
  - 告知所有工作人员有关消毒剂的信息以及正确使用方法！

## 1.12 维护工作

- 穿戴防护装备！
- 执行保养作业的地点须整洁、干燥、光线充足。
- 只使用生产商提供的原装部件。由于使用非原装部件而造成的任何损失，生产商概不承担任何责任。
- 一旦流体和工作介质发生泄露，请立即收集泄漏物。

## 1.13 商业应用

本产品设计用于私人使用。因此本说明书仅介绍了产品的个人使用方法。

本产品也可用于商业应用。用于商业应用时，注意以下几点：

- 此安装及操作说明不包含商业应用所必需的信息。
- 工作人员需接受过操作商业用污水设施的培训。
- 运营者有责任确保产品符合必要的要求。
- 本产品不适用于以下应用：
  - 在变频器上运行
  - 通过软启动控制器运行
  - 在潜在爆炸环境内运行

### 1.14 工作介质

密封室内有油。用于润滑电机和水泵侧的密封件。

- 立即收集泄漏出的物质。
- 如果发生重大泄漏，请联系客户服务部。
- 如果密封件损坏，油会流入泵送流体和污水管道。
- 根据油类型（不得混合）收集废油，并交由经认证的收集点进行废弃处理。
- 如不慎接触皮肤：用肥皂和水彻底冲洗相应皮肤部位。如果皮肤发炎，需就医。
- 如不慎接触眼睛：取下隐形眼镜。用水彻底冲洗眼睛。如果眼睛发炎，需就医。
- 如不慎吞咽：通常无需医治。如果吞入量较大，需就医。

## 2 产品说明及功能

### 2.1 说明

潜水泵适用于间歇运行模式下的固定和移动湿式安装。

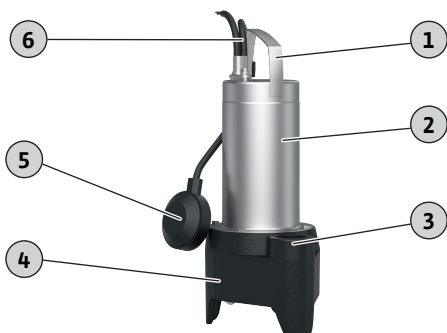


Fig. 1: 概述

1	把手
2	电机外壳
3	压力连接
4	水泵壳体
5	浮子开关
6	接线电缆

#### Rexa MINI3-V ... -P

污水泵带有涡流叶轮和垂直螺纹连接。水力部件壳体由灰口铸铁制成，叶轮由塑料制成。表面冷却单相电机，集成有运行电容器和自切换式热电机监控装置。电机外壳由不锈钢制成。注油密封室采用双重密封：电机侧装有一个轴密封环，水泵侧装有一个机械密封。可拆分的接线电缆带 Schuko 插头。

#### Rexa MINI3-V ... -A

污水泵带有涡流叶轮和垂直螺纹连接。水力部件壳体由灰口铸铁制成，叶轮由塑料制成。表面冷却单相电机，集成有运行电容器和自切换式热电机监控装置。电机外壳由不锈钢制成。注油密封室采用双重密封：电机侧装有一个轴密封环，水泵侧装有一个机械密封。可拆分的接线电缆带浮子开关和 Schuko 插头。

#### Rexa MINI3-V ... -O

污水泵带有涡流叶轮和垂直螺纹连接。水力部件壳体由灰口铸铁制成，叶轮由塑料制成。表面冷却三相电机，配备自动开关的电机过热监控装置。电机外壳由不锈钢制成。注油密封室采用双重密封：电机侧装有一个轴密封环，水泵侧装有一个机械密封。可拆分的接线电缆带裸线端，用于连接现场安装的控制柜。注意！水泵未配备浮子开关和插头！

## 2.2 技术数据

生产日期	参见铭牌 <sup>1)</sup>
电源连接	参见铭牌
电机额定功率	参见铭牌
最高扬程	见铭牌
最大流量	参见铭牌
通电类型	参见铭牌
转速	参见铭牌
压力连接*	G 1½ IG
运行模式，潜水式	S1
运行模式，非潜水式	S3 20% <sup>2)</sup>
介质温度	3 ... 40 °C (37 ... 104 °F)



短时间运行 3 分钟的介质温度	--
最大潜水深度, 5 m (16.5 ft) 接线电缆	2 m (6.5 ft)
最大潜水深度, 10 m (33 ft) 接线电缆	7 m (23 ft)
防护等级	IP68
绝缘等级	F
最大开关频率/小时	30/h

## 图例

\* IG = 内螺纹, AG = 外螺纹

<sup>1)</sup> 数据符合 ISO 8601

<sup>2)</sup> 2 min 运行, 8 min 暂停

## 2.3 型号代码

示例: **Wilo-Rexa MINI3-V04.11/M06-523/A-5M**

**Rexa** 污水潜水泵

**MINI3** 产品系列

**V** 涡流叶轮

**04** 压力连接公称直径 G 1½ IG

**11** 最大扬程, 单位 m

**M** 电源连接规格:

→ M = 单相交流电 (1~)

→ T = 三相交流电 (3~)

**06** 值/10 = 电机额定功率  $P_2$ , 单位 kW

**5** 主频率:

→ 5 = 50 Hz

→ 6 = 60 Hz

**23** 额定电压代码

**A** 附加电气设备:

→ O = 带裸露电缆端部

→ P = 带插头

→ A = 带插头和浮子开关

**5M** 接线电缆的长度

## 2.4 供货范围

→ 水泵

→ 安装及操作说明

## 2.5 功能

### 2.5.1 自动开关的电机过热监控装置

如果电机过热, 水泵将关闭。电机冷却后, 水泵自动重启。

### 2.5.2 浮子开关

Rexa MINI3-V ... -A 装有一个浮子开关。通过浮子开关, 水泵根据液位接通/关闭:

→ 浮子在上部: 水泵接通

→ 浮子在下部: 水泵关闭

## 3 应用/使用

### 3.1 规定用途

在居住空间内进行泵送:

→ 不含粪便的污水

— 洗手盆

— 淋浴/浴缸

— 洗衣机

→ 污水 (含少量沙子和砂砾)

— 雨水

— 生活排水

在建筑物内外使用



### 注意

仅限在建筑物内使用

配有最长 10 m (33 英尺) 接线电缆的水泵  
仅限在建筑物内部使用。禁止在建筑物外使用!

水泵类型	接线电缆的长度	户外使用	建筑物内使用
Rexa MINI3-V ... -5M	5 m (16.5 ft)	—	•
Rexa MINI3-V ... -10M	10 m (33 ft)	•	•

图例:

— = 不允许, • = 允许

### 3.2 未按规定使用



### 危险

输送爆炸性流体会导致爆炸!

严禁输送纯粹形态下的易燃易爆流体 (汽油、煤油等)。爆炸导致生命危险! 水泵不是针对这类流体设计出的产品。

潜水泵不得用于输送:

→ 原污水

→ 含粪便污水 (符合 EN 12050-1 标准)

- 饮用水
  - 混杂硬物（比如石头、木材、金属等）的流体
  - 含有大量磨蚀性物质（比如沙子、砂砾等）的流体。
- 符合规定的使用还包括遵守本说明的规定。任何超出规定范围的应用均视为不合规定。

## 4 运输和存放

### 小心

一旦湿透，包装可能会裂开！

产品会在没有任何保护的情况下跌落地面，致使损毁。请小心提起湿透的包装并立刻进行更换！

- 穿戴防护装备！
- 抓握把手搬运水泵。切勿提起或拖拽接线电缆移动产品！
- 清洁水泵，必要时消毒处理。
- 封闭压力连接。
- 保护接线电缆，防止其弯折和损坏。
- 运输和存放时，需使用原厂包装。
- 包装水泵时确保干燥。带水或潮湿的水泵会导致包装变软。
- 存放条件：
  - 最高：-15 ... +60 °C (5 ... 140 °F)，最大空气湿度：90 %，非冷凝
  - 建议：5 ... 25 °C (41 ... 77 °F)，相对空气湿度：40 ... 50 %

## 5 安装及电气连接

### 5.1 安装方式

- 固定湿井安装
- 移动湿井安装

不支持下列安装方式：

- 干式地坑安装
- 卧式安装

### 5.2 安装

- 穿戴防护装备！
- 切勿安装已损坏或有缺陷的水泵。
- 安装地点不会结霜。
- 正确敷设接线电缆。运行期间，不得由于接线电缆导致危险（绊倒、损坏等）。
- 浮子开关可以任意活动！

#### 5.2.1 固定湿井安装

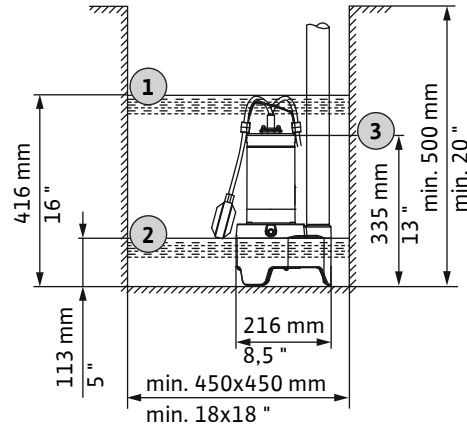


Fig. 2: 安装尺寸和切换点

1	接通液位
2	关闭液位
3	连续运行时的最低水位 (S1)。从此处起仅限采用断续周期工作方式 (S3)

在固定湿井安装时，直接将水泵安装到压力管道上。请注意并遵守以下几点：

- 连接的压力管必须能够自行支撑。压力管不允许由水泵支撑。
- 运行期间，水泵可能会轻微振动。这种振动必须通过压力管道传递出去。
- 无应力地拧接压力管道。
- 压力管不允许小于水泵的压力连接。
- 管路接口通过特氟龙胶带密封。
- 按照当地法规安装规定的所有阀门（闸阀、止回阀）。
- 铺设压力管时采用防冻保护措施。
- 避免空气进入！水泵和管道系统中的空气会导致出现泵送问题。通过排气装置排出流体中的空气！
- 为了避免发生从公共排水管回流的情况，应将压力管设计成“管路回线”。  
管路回线下边缘必须在当地规定的回流水位上方最高点上！

✓ 安装地点已准备就绪。

✓ 压力管已正确敷设。

1. 在水泵的压力连接上拧入排放管，一直拧到底。

2. 将水泵安放在使用地点。

小心！为避免软底座会出现的沉降问题，必须在使用地点上使用硬底座。

3. 将排放管连接到压力管（比如柔性软管接头）。

4. 将接线电缆固定在压力管上并一直铺设到插座/电源连接处。

► 水泵安装完毕。

### 5.2.2 移动湿井安装

采用移动湿井安装方式时，将水泵放置在使用地点的任意位置。请注意并遵守以下几点：

- 防止水泵倾翻和移动。
  - 将压力软管牢牢地固定在软管连接上。
    - ✓ 安装地点已准备就绪
    - ✓ 具备压力软管：内径至少 1½"
    - ✓ 具备软管夹：内径 40–60 mm (1.6–2.4 英寸)
    - ✓ 已配备软管连接：G 1½" (带有外螺纹)
  - 1. 安装软管连接。  
将软管连接旋入压力套管，并拧到底。
  - 2. 将软管夹穿到压力软管上。
  - 3. 将压力软管推到压力管套上的软管连接上。
  - 4. 将压力软管和软管夹固定在软管连接上。
  - 5. 将水泵安放在使用地点。  
小心！为避免软底座会出现的沉降问题，必须在使用地点上使用硬底座。
  - 6. 铺设压力软管并在指定位置（比如排出口）进行固定。小心！如果将水泵放入装满水的集水坑中，浸没水泵时稍稍倾斜放置。从而使空气从水泵中逸出！
  - 7. 接线电缆铺设至插座/电源连接处。
- 水泵安装完毕。

## 5.3 电气连接

- 电源连接须按照规定安装地线。
- 带 30 mA 的漏电断路器 (RCD) 已安装完毕。
- 电源连接保险丝：最大 16 A。
- 铭牌上的电压 (U) 和频率 (f) 值与电源连接的数据一致。

出现以下情况时切勿连接水泵：

- 接线电缆破损  
由专业电工或客户服务人员更换接线电缆。
- 岛式逆变器  
岛式逆变器用于一些自主电源，比如使用太阳能馈电并能产生过电压的情况。峰值电压可能破坏水泵。
- 多头插座
- “节能插头”  
在此期间水泵的能源供给减少，水泵可能会剧烈升温。

### 5.3.1 接口：配有插头的水泵

插座带有保护触点。连接水泵时，将插头插入插座中。



#### 注意

水泵运行就绪或已启动！

如果插头已插入了插座，则水泵立刻处于运行就绪状态或启动：

- 水泵未配备浮子开关：水泵直接接通！
  - 水泵带有浮子开关：水泵已运行就绪，并根据液位接通！
- 建议通过单独的主开关接通和断开插座！

### 5.3.2 接口：水泵不带插头



#### 危险

小心触电死亡！

执行电气作业时不按规定操作，会发生电击致死事故！电气作业必须由专业电工按照当地的相关规定执行。

#### 小心

渗入的水可造成彻底的损毁

不带插头的接线电缆具有裸露的电缆末端。水可以通过这个裸露的电缆末端进入接线电缆并渗入水泵。因此可能破坏接线电缆和水泵。切勿将接线电缆裸露的电缆末端浸入液体中，仓储期间须将其牢牢封住。

水泵配有带裸露端部的接线电缆。水泵必须固定连接到开关设备上。注意以下几点：

- 按照规定将产品接地！
- 请配备电机保护开关！  
最低要求是配备一个符合本地规定，具备温度补偿、差分触发和重启锁定功能的热敏继电器/电机保护开关。
- 安装电源分断装置！  
最低要求：主开关具有全极断开功能。

### 配有单相交流电机的水泵

如要将水泵固定连接到开关设备上，需断开插头连接。控制开关内的接口布置如下：

芯线颜色	控制开关内的端子
棕色 (bn)	L (火线)
蓝色 (bl)	N (中性线)
绿色/黄色 (gn-ye)	接地 (保护接地导体)

## 配有三相交流电机的水泵

水泵适于连接顺时针的旋转磁场。连接到旋转磁场前须使用旋转磁场检测仪进行检查，必要时修正。小心！水泵不允许在逆时针旋转磁场中运行！控制开关内的接口布置如下：

芯线颜色	控制开关内的端子
棕色 (bn)	U
黑色 (bk)	V
蓝色 (bl)	W
绿色/黄色 (gn-ye)	接地（保护接地导体）

## 设置电机保护

将电机保护开关参数设为额定电流（参见铭牌）。

## 6 试运行



### 危险

可行走水池内存在危及生命的触电危险！

人员在泵送流体内停留期间，不得接通水泵。发生故障时存在致命的触电危险！只有泵送流体内无人停留时，才能接通水泵。



### 注意

检查进水量！

进水口的最大泵送量必须小于水泵的最大输出量。如果进水量更大，水泵不能排出产生的泵送量。集水坑可能溢流！

### 6.1 接通前

接通前，请检查以下几项：

- 电气连接是否符合规定？
- 接线电缆的铺设是否牢固？
- 浮子开关能否任意活动？
- 是否遵守了流体温度？
- 是否遵守了潜水深度？
- 压力管和泵井有无沉积物？
- 压力管路中的所有闸阀是否已打开？

### 6.2 接通和关闭

水泵根据规格接通/关闭：

- 带插头不带浮子开关的水泵

水泵在插入插头后直接启动。如要关闭水泵，请拔出插头。

- 带插头和浮子开关的水泵

达到水位时，水泵自动接通和关闭：

- 浮子在上部：水泵接通。
- 浮子在下部：水泵关闭。

- 带裸露电缆端部的水泵（不带插头）

水泵通过单独的控制器接通和关闭。更多细节请查看控制器的安装及操作说明。

## 6.3 测试运行

如果水泵以固定方式安装（例如化粪池、溢流井），需进行测试运行。通过测试运行检查是否符合框架条件（入口流量、切换点）。测试运行必须包括三个泵送循环。

1. 集水坑溢水：打开入口。

注意！测试运行所需的入口流量也可通过另一个水源模拟。

2. 已达到接通水位：水泵启动。
3. 达到关闭液位：水泵停止。
4. 重复另外两个泵送过程。

- 如果三步泵送过程均畅通无阻，则调试完成。

注意！如果水泵没有办法保证每周接通一次，则每月重复一次测试运行。

## 6.4 运行期间

### 小心

水泵禁止空运行！

水泵禁止在没有泵送流体（空运行）的情况下运行。如果达到了剩余水位，水泵关闭。空运行可能破坏密封件并导致水泵彻底损毁。

检查以下几项：

- 进水量是否符合水泵输出量。
- 浮子开关是否正确工作。
- 确保接线电缆完好无损。
- 水泵无沉积物和结垢现象。

## 7 拆卸



### 危险

危害健康的流体存在传染疾病的危险！

在不流动的积水中可能会形成有害细菌。如果存在滋生细菌的危险，请注意以下几点：

- 确保充分的通风。
- 佩戴呼吸面罩，例如带过滤器 6055 A2 的 3M 6000 系列。
- 为产品消毒。



- 穿戴防护装备！
- 视运行模式和运行时间而定，外壳部位的温度可能会超过 40 °C (104 °F)。
  - 始终通过把手抓握产品。
  - 使产品冷却。
- 彻底清洁产品。

### 7.1 固定湿井安装

1. 关闭入口管和压力管中的截止阀。
2. 关闭水泵。  
带插头的水泵：拔下插头。  
水泵固定连接（不带插头）：将水泵与电源连接断开。危险！电气作业须由专业电工执行！
3. 松开压力管上的接线电缆。
4. 从压力管上松开带排放管的水泵。
5. 从运行空间中提出水泵。小心！始终抓握把手搬运水泵。切勿提起或拖拽接线电缆移动水泵！
6. 从压力套管上拧下排放管。
7. 卷起接线电缆并同水泵放在一处。
8. 彻底清洁水泵和排放管。

如果水泵在关闭后继续保持安装状态，注意下列几项要求：

- 避免水泵出现霜冻或结冰：
  - 将整个水泵浸入流体中。
  - 最低环境温度：+3 °C (+37 °F)
  - 最低流体温度：+3 °C (+37 °F)
- 长时间休止状态可能导致结垢和堵塞，水泵每 2 个月接通一次泵送过程。小心！必须在有效的工作条件下执行泵送过程。严格禁止空运行！违反规定会导致水泵彻底损毁！

如果不能保证满足上述要求，请将水泵拆除！

### 7.2 移动湿井安装

1. 关闭水泵：拔下插头。

2. 从运行空间中提出水泵。小心！始终抓握把手搬运水泵。切勿提起或拖拽接线电缆移动水泵！
3. 松开软管夹并从压力套管上拔下压力软管。
4. 卷起接线电缆并同水泵放在一处。
5. 彻底清洁水泵和排放软管。

## 8 清洁

- 穿戴防护装备！  
防护设备可防止工作人员接触到有害细菌和消毒剂。
- 使用消毒剂时，需遵守生产商说明！
  - 根据生产商说明穿戴防护装备！如有疑问，请联系专业经销商。
  - 告知所有工作人员有关消毒剂的信息以及正确使用方法！
- 将清洁用水排入污水管道。

### 8.1 清洁水泵

- ✓ 已拆下水泵。
- ✓ 消毒剂可供使用。
- 1. 防水地包装好插头或裸露的电缆末端！
- 2. 在流动的清水下冲洗水泵和电缆。  
注意！使用消毒剂时严格遵守生产商规定的使用注意事项！
- 3. 为了清洁叶轮和水泵内部空间，通过压力套管向内部喷射水束。
- 4. 在流动的清水下冲洗诸如排放管或压力软管等加装件。
- 5. 彻底冲洗污水管道底部残留的所有污垢残渣。
- 6. 使水泵干燥。
- 7. 仅用一块湿布清洁插头或裸露的电缆末端！
- ▶ 水泵已清洁。将水泵包装好并存入仓库。

注意！当吸水口严重脏污时，拆下盖板彻底清洁！

### 8.2 清洁水泵内室



#### 警告

叶轮和吸水口的锋利边缘！

叶轮和吸水口可能形成锋利的边缘。存在割伤危险！佩戴防护手套！

出现严重污染和结垢的情况下，拆下吸水口的盖板并清洁水泵内室。



1. 将水泵水平放置在坚固的底座上。警告！手被挤伤危险。确保水泵不会滑移！
  2. 拧下盖板上的 3 颗紧固螺钉。
  3. 取下盖板。
  4. 用流动的清水冲洗水泵内室。用手清除固体。
  5. 检查吸水口上的 O 形圈。如果 O 形圈破损（撕裂、多孔、挤压）则更换 O 型圈。
  6. 将盖板放在吸水口上。
  7. 将 3 颗紧固螺钉拧到底。注意！更换磨损的螺钉！
- 水泵内室已清洁完毕并重新装好了盖板，清洁工作结束。

## 9 保养

- 穿戴防护装备！
- 只执行本安装及操作说明中列出的保养工作。
- 执行保养作业的地点须整洁、干燥、光线充足。
- 只使用生产商提供的原装部件。由于使用非原装部件而造成的任何损失，生产商概不承担任何责任。
- 一旦流体和工作介质发生泄露，请立即收集泄漏物。
- 将工作介质交由经认证的收集点废弃处理。

### 9.1 工作介质

- 加注量: 220 ml (7.4 US.fl.oz)
- 换油间隔: 720 个运行小时或者每年 1 次
- 油类型 (ISO VG 32 级):
  - ELFOLNA DS 22
  - Shell Turbo T 32

### 9.2 换油

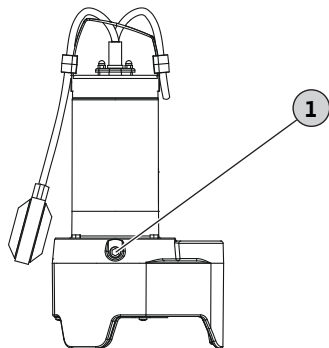


Fig. 3: 密封室换油

#### 1 密封室螺旋塞

- ✓ 已佩戴防护手套！
- ✓ 水泵已拆卸、清洁完毕，必要时做消毒处理。

- ✓ 有耐油耐磨的集油罐。

1. 将水泵斜放在坚固的底座上。螺旋塞朝上。警告！手被挤伤危险。请确保水泵不会翻倒或滑倒！
2. 缓慢旋出螺旋塞。
3. 把集油罐放在水泵下面。
4. 排放油：转动水泵，直到开口朝下为止。
5. 检查油：如果油内有金属屑，请联系客户服务部！
6. 转动水泵，直到开口重新朝上为止。
7. 加注油：通过开口注油。
  - ⇒ 遵守规定的油品种类和油量！
8. 清洁螺旋塞，装入新的密封环，重新拧入并拧到底。

### 9.3 大修

在运行 1500 个小时之后，须由客户服务部检查水泵。检查所有部件的磨损情况，更换损坏的部件。

## 10 故障、原因和排除方法

### 水泵不启动或者短时间后关闭

1. 供电中断
  - ⇒ 检查水泵的电气连接。
  - ⇒ 由专业电工检查保险丝/漏电断路器。
2. 电机过热保护脱扣
  - ⇒ 待水泵冷却，水泵自动重启。
  - ⇒ 水泵在开/关状态间切换过于频繁。检查浮子开关的开关循环。
  - ⇒ 泵送流体的温度太高。检查温度，必要时使用其他水泵。
3. 进水口/滤网/叶轮瘀塞/堵塞
  - ⇒ 停止水泵运行，拆卸并清洁。
4. 浮子开关无法正常工作
  - ⇒ 浮子开关必须能够任意活动。

### 水泵运转，但不输水

1. 压力管/排放管堵塞
  - ⇒ 冲洗压力管至通畅。
  - ⇒ 冲洗压力软管。
  - ⇒ 理清压力软管中的弯折位置。
2. 止回阀脏污
  - ⇒ 停止水泵运行，拆卸并清洁压力连接。

⇒ 更换损坏的止回阀。

### 3. 水位过低

⇒ 检查入水口。

⇒ 水泵泵汲太低。检查浮子开关的开关循环。

### 4. 进水口/滤网瘀塞/堵塞

⇒ 停止水泵运行，拆卸并清洁。

### 5. 水泵/压力管中进入空气

⇒ 将水泵稍稍斜放，可排出空气。

⇒ 在压力管中安装排气装置。

## 水泵运转，输出量降低

### 1. 压力管/排放管堵塞

⇒ 冲洗压力管至通畅。

⇒ 冲洗压力软管。

⇒ 理清压力软管中的弯折位置。

### 2. 进水口/滤网瘀塞/堵塞

⇒ 停止水泵运行，拆卸并清洁。

### 3. 水泵/压力管中进入空气

⇒ 将水泵稍稍斜放，可排出空气。

⇒ 在压力管中安装排气装置。

### 4. 有磨损迹象

⇒ 通知客户服务部。

## 客户服务部

如果所述方法于故障排除无益，请联系客户服务部。如果向客户服务部门提出支援请求，可能会产生费用！具体金额请咨询客户服务部。

## 11 备件

请在客户服务部订购备件。为了减少询问，同时避免出现订购错误，请提供序列号或商品号。保留技术变更权利！

## 12 废弃处置

### 12.1 关于收集损耗的电气产品和电子产品的相关信息

按规定废弃处置和正确回收这些产品，能避免环境污染、保护人身健康。



### 注意

**禁止作为生活垃圾废弃处置！**

在欧盟地区，该标志张贴在产品、包装或随附的资料中。它的意思是，相关的电气和电子产品不得作为生活垃圾废弃处置。

在按规定处理、回收和废弃处置相关旧产品时，要注意以下几点：

→ 这些产品只能交给专门为此设立且获得认证的垃圾处理场。

→ 注意当地现行的规定！

有关按规定废弃处置的信息，请咨询当地社区、最近的垃圾处理场或您购买产品的经销商。关于回收的详细信息请访问[www.wilo-recycling.com](http://www.wilo-recycling.com)。

### 12.2 油



### 警告

**错误地废弃处置油类产品可破坏环境并危害健康！**

油类产品可破坏环境并危害健康！不得将油作为家庭垃圾排放到污水管道！将油装在耐油耐磨的集油罐中并交由经认证的回收点处理。

## Table of contents

<b>1</b>	<b>Safety .....</b>	<b>18</b>
1.1	About these instructions .....	18
1.2	Identification of safety instructions .....	18
1.3	Personnel qualifications .....	18
1.4	Fluids hazardous to health .....	19
1.5	Personal protective equipment .....	19
1.6	Transport and storage .....	19
1.7	Installation .....	19
1.8	Electrical connection .....	19
1.9	During operation .....	19
1.10	Removal .....	19
1.11	Clean and disinfect .....	20
1.12	Maintenance tasks .....	20
1.13	Commercial use .....	20
1.14	Operating fluid .....	20
<b>2</b>	<b>Product description and function .....</b>	<b>20</b>
2.1	Description .....	20
2.2	Technical data .....	21
2.3	Type key .....	21
2.4	Scope of delivery .....	22
2.5	Functions .....	22
<b>3</b>	<b>Application/use .....</b>	<b>22</b>
3.1	Intended use .....	22
3.2	Improper use .....	22
<b>4</b>	<b>Transport and storage .....</b>	<b>22</b>
<b>5</b>	<b>Installation and electrical connection .....</b>	<b>23</b>
5.1	Installation types .....	23
5.2	Installation .....	23
5.3	Electrical connection .....	24
<b>6</b>	<b>Commissioning .....</b>	<b>25</b>
6.1	Before activating .....	25
6.2	Switching on and off .....	25
6.3	Test run .....	25
6.4	During operation .....	26
<b>7</b>	<b>Removal .....</b>	<b>26</b>
7.1	Stationary wet well installation .....	26
7.2	Portable wet well installation .....	26
<b>8</b>	<b>Cleaning .....</b>	<b>27</b>
8.1	Clean pump .....	27
8.2	Cleaning the pump interior .....	27
<b>9</b>	<b>Maintenance .....</b>	<b>27</b>



9.1 Operating fluid.....	27
9.2 Oil change.....	28
9.3 General overhaul .....	28
<b>10 Faults, causes and remedies .....</b>	<b>28</b>
<b>11 Spare parts.....</b>	<b>29</b>
<b>12 Disposal.....</b>	<b>29</b>
12.1 Information on the collection of used electrical and electronic products.....	29
12.2 Oil .....	29

## 1 Safety

### 1.1 About these instructions

These instructions form part of the product. Compliance with the instructions is essential for correct handling and use:

- Read the instructions carefully before all activities.
- Keep the instructions in an accessible place at all times.
- Pass the instructions on to a subsequent owner.
- Observe all product specifications.
- Observe the markings on the product.

Failure to follow the instructions will result in:

- Danger to persons or damage to property.
- The loss of claims for damages.

The creation language of the instructions is German. All other languages are a translation. A digital version of the installation and operating instructions can be downloaded from the following product page: <http://qr.wilo.com/405>

### 1.2 Identification of safety instructions

In these installation and operating instructions, safety instructions are displayed as follows:

- Danger to persons: Safety instructions are **preceded by a corresponding symbol** and are shaded in grey.
- Damage to property: Safety instructions start with a signal word and are displayed **without** a symbol.

#### Signal words

- **DANGER!**  
Failure to follow the instructions will result in serious injuries or death!
- **WARNING!**  
Failure to follow the instructions can lead to (serious) injury!
- **CAUTION!**  
Failure to follow the instructions can lead to potentially irreparable property damage.

#### → NOTICE!

Useful information on handling the product

#### Symbols

These instructions use the following symbols:



Danger caused by electric voltages



Danger of explosion



Warning – risk of cuts and similar injuries



Warning – risk of health damage



Personal protective equipment: wear protective gloves



Personal protective equipment: wear face mask



Personal protective equipment: wear safety goggles



Useful information

### 1.3 Personnel qualifications

- Persons aged 16 and over
- Have read and understood the installation and operating instructions

#### **Children and persons with limited abilities in the household**

This device can be used by children from 8 years of age as well as people with reduced physical, sensory or mental capacities or lack of experience and knowledge if they are supervised or instructed on the safe use of the device and they understand the dangers that can occur. Children are not allowed to play with the device. Cleaning and user maintenance must not be carried out by children without supervision.

### 1.4 Fluids hazardous to health

In stagnant water (e.g. pump sump, soakaway, etc.) germs which are hazardous to health can form. There is a danger of bacterial infections!

- Clean and disinfect the product thoroughly after removal!
- Inform all persons about the pumped fluid and the danger it poses!

### 1.5 Personal protective equipment

Wear the following protective equipment during transport, installation, removal and maintenance:

- Safety shoes: Protection class S1 or P1
- Protective gloves (EN 388): Category II, marking 3131X

Wear the following protective equipment during cleaning operations:

- Protective gloves (EN ISO 374-1): Category C
- Safety goggles (EN 166): uvex skyguard NT (Identification marking: W 166 34 F CE)
- Breathing protection mask (EN 149): 3M Series 6000 with filter 6055 A2

### 1.6 Transport and storage

- Wear protective equipment!
- Always carry the product by the handle. Never carry or pull on the connection cable!
- Clean product and disinfect if necessary!
  - Dirt fosters the formation of germs.
  - Encrustations may lead to the impeller becoming blocked.

### 1.7 Installation

- Wear protective equipment!
- Do not install damaged or defective products.
- If there is a risk of germ formation, observe the following points:
  - Ensure sufficient air exchange.
  - Wear a breathing protection mask e.g. 3M Series 6000 with filter 6055 A2

### 1.8 Electrical connection

- Do not connect products with a damaged connection cable! Have the connection cable replaced by a qualified electrician or the customer service.
- Mains connection with correctly installed protective earth conductor.
- Install the residual-current device (RCD) with 30 mA.
- Fuse protection at mains connection: max. 16 A.
- **Product without plug:** Electrical connection must be carried out by a qualified electrician!

### 1.9 During operation

- The pumping of highly inflammable and explosive fluids (petrol, paraffin, etc.) in their pure form is strictly prohibited!
- If persons come into contact with the pumped fluid (accessible basins\*), do not commission the product.

#### *\*Definition of "accessible basins"*

Installation sites that can be walked on and directly accessed without tools (e.g. ladders):

- Garden ponds
- Paddling pools
- Cesspools
- Fountains, etc.

**NOTICE! The specifications applicable to swimming pools also apply to accessible basins.**

### 1.10 Removal

- Wear protective equipment!
- **Product without plug:** Have the connection cable disconnected from the mains by a qualified electrician.
- Depending on the operating mode and duration, the housing parts become hotter than 40 °C (104 °F).
  - Only touch the product by the carrying handle.
  - Allow product to cool down.
- Clean the device thoroughly.

- If there is a risk of germ formation, observe the following points:
  - Ensure sufficient air exchange.
  - Wear a breathing protection mask e.g. 3M Series 6000 with filter 6055 A2
  - Disinfect product.

### 1.11 Clean and disinfect

- Wear protective equipment!  
The protective equipment prevents contact with germs that are hazardous to health and the disinfectant.
- If a disinfectant is used, follow the manufacturer's instructions!
  - Wear protective equipment according to the manufacturer's instructions! If in doubt, ask your specialist dealer.
  - Inform all persons about the disinfectant and how to use it correctly!

### 1.12 Maintenance tasks

- Wear protective equipment!
- Carry out maintenance work in a clean, dry and well-lit place.
- Only original parts of the manufacturer may be used. The use of any non-original parts releases the manufacturer from any liability.
- Collect any leakage of fluid and operating fluid immediately.

### 1.13 Commercial use

The product is intended for domestic use. The instructions therefore refer only to the domestic use of the product.

The product is also suitable for commercial applications. The following must be observed as regards commercial use:

- These installation and operating instructions do not contain the necessary information for commercial use.
- The staff is trained in the operation of commercial wastewater facilities.
- The operator is responsible for ensuring that the product meets the necessary requirements.

- The product is **not** suitable for the following applications:
  - Frequency converter operation
  - Operation on soft start control
  - Operation within potentially explosive atmospheres

### 1.14 Operating fluid

The oil is located in the sealing chamber. It serves to lubricate the seal on the motor and pump side.

- Absorb leakages immediately.
- If major leakages occur, contact customer service.
- If the seal is defective, the oil enters the pumped fluid and the sewer.
- Collect waste oil by type (unmixed) and dispose of it in accordance with regulations at a certified collection point.
- **Skin contact:** Rinse skin areas thoroughly with soap and water. If skin irritation occurs, consult a doctor.
- **Contact with eyes:** Remove the contact lenses. Rinse eye thoroughly with water. If eye irritation occurs, consult a doctor.
- **Ingestion:** In general, no treatment is necessary. If larger amounts have been swallowed, consult a doctor.

## 2 Product description and function

### 2.1 Description

Submersible pump for stationary and portable wet well installation in intermittent operation.

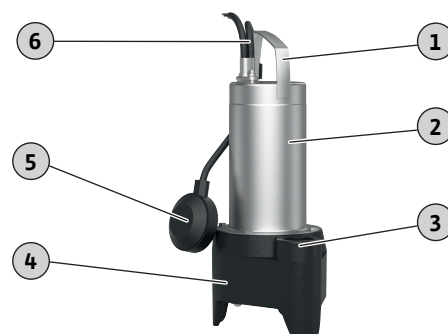


Fig. 1: Overview

1	Handle
2	Motor housing
3	Discharge connection
4	Pump housing
5	Float switch
6	Connection cable

### Rexa MINI3-V ... -P

Sewage pump with vortex impeller and vertical threaded connection. Hydraulics housing made of grey cast iron, impeller made of plastic. Surface-cooled 1~ motor with integrated operating capacitor and self-switching thermal motor monitoring. Stainless steel motor housing. Oil-filled sealing chamber with double sealing: a rotary shaft seal is installed on the motor side, a mechanical seal on the pump side. Detachable connection cable with fitted shockproof plug.

### Rexa MINI3-V ... -A

Sewage pump with vortex impeller and vertical threaded connection. Hydraulics housing made of grey cast iron, impeller made of plastic. Surface-cooled 1~ motor with integrated operating capacitor and self-switching thermal motor monitoring. Stainless steel motor housing. Oil-filled sealing chamber with double sealing: a rotary shaft seal is installed on the motor side, a mechanical seal on the pump side. Detachable connection cable with float switch and fitted shockproof plug.

### Rexa MINI3-V ... -O

Sewage pump with vortex impeller and vertical threaded connection. Hydraulics housing made of grey cast iron, impeller made of plastic. Surface-cooled 3~ motor with self-switching thermal motor monitoring. Stainless steel motor housing. Oil-filled sealing chamber with double sealing: a rotary shaft seal is installed on the motor side, a mechanical seal on the pump side. Detachable connection cable with bare cable end, for fixed connection to on-site controls.

**NOTICE! Pump without float switch and plug!**

## 2.2 Technical data

Date of manufacture	See rating plate <sup>1)</sup>
Mains connection	See rating plate
Rated power	See rating plate
Max. delivery head	See rating plate
Max. volume flow	See rating plate
Activation type	See rating plate

Speed	See rating plate
Discharge connection*	G 1½ IG
Operating mode, immersed	S1
Operating mode, non-immersed	S3 20% <sup>2)</sup>
Fluid temperature	3 ... +40 °C (37 ... 104 °F)
Fluid temperature, short-term for 3 min	--
Max. immersion depth, 5 m (16.5 ft) connection cable	2 m (6.5 ft)
Max. immersion depth, 10 m (33 ft) connection cable	7 m (23 ft)
Protection class	IP68
Insulation class	F
Max. switching frequency /h	30/h

### Key

\* IG = female thread, AG = male thread

<sup>1)</sup> Information according to ISO 8601

<sup>2)</sup> 2 min operation, 8 min standby

## 2.3 Type key

Ex-ample:	<b>Wilo-Rexa MINI3-V04.11/M06-523/A-5M</b>
<b>Rexa</b>	Submersible sewage pump
<b>MINI3</b>	Series
<b>V</b>	Vortex impeller
<b>04</b>	Nominal diameter discharge connection G 1½ IG
<b>11</b>	Max. delivery head in m
<b>M</b>	Mains connection version: → M = single-phase current (1~) → T = three-phase current (3~)
<b>06</b>	Value/10 = rated power P <sub>2</sub> in kW
<b>5</b>	Mains frequency: → 5 = 50 Hz → 6 = 60 Hz
<b>23</b>	Rated voltage code
<b>A</b>	Additional electrical equipment: → O = with bare cable end → P = with plug → A = with plug and float switch
<b>5M</b>	Connection cable length

## 2.4 Scope of delivery

- Pump
- Installation and operating instructions

## 2.5 Functions

### 2.5.1 Self-switching thermal motor monitoring

If the motor becomes too hot, the pump is deactivated. After the motor has cooled down, the pump is automatically switched on again.

### 2.5.2 Float switch

The Rexa MINI3-V ... -A is equipped with a float switch. The float switch is used to switch the pump on and off depending on the level:

- Upper floater: Pump on
- Lower floater: Pump off

## 3 Application/use

### 3.1 Intended use

For the pumping in domestic areas of:

- Sewage not containing faeces
  - Wash basins
  - Shower basins/bathtubs
  - Washing machines
- Wastewater (with small amounts of sand and gravel)
  - Rainwater
  - Drainage water

#### *Use inside and outside buildings*



#### NOTICE

##### For use inside buildings only

Use pumps with a connection cable less than 10 m (33 ft) long only inside buildings. Use outside buildings is prohibited!

Pump type	Connection cable length	Outdoor application	Indoor application
Rexa MINI3-V ... -5M	5 m (16.5 ft)	—	•
Rexa MINI3-V ... -10M	10 m (33 ft)	•	•

#### Key:

— = Not permitted, • = Permitted

## 3.2 Improper use



#### DANGER

##### Explosion due to pumping of explosive fluids!

Pumping of highly flammable and explosive fluids (gasoline, kerosene, etc.) in pure form is strictly prohibited. There is a risk of fatal injury due to explosion! The pumps are not designed for these fluids.

The submersible pumps **must not be used** for pumping of:

- Untreated sewage
- Sewage containing faeces (as per EN 12050-1)
- Drinking water
- Fluids containing hard components (such as stones, wood, metal, etc.)
- Fluids containing high quantities of abrasive contents (e.g. sand, gravel).

Intended use requires compliance with this manual. Any other use is regarded as non-compliant with the intended use.

## 4 Transport and storage

#### CAUTION

##### Soaked packaging may tear!

The product may fall on the ground if unprotected and may be damaged. Lift wet packaging carefully and replace it immediately!

- Wear protective equipment!
- Carry the pump by the handle. Never carry or pull on the connection cable!
- Clean the pump and disinfect if necessary.
- Close the discharge connection.
- Protect the connection cable against kinking and damage.
- Use original packaging for transport and storage.
- Pack the pump when dry. Wet or humid pumps may soften the packaging.
- Storage conditions:
  - Maximum: -15 ... +60 °C (5 ... 140 °F), max. humidity: 90 %, non-condensing
  - Recommended: 5 ... 25 °C (41 ... 77 °F), relative humidity: 40 ... 50 %

## 5 Installation and electrical connection

### 5.1 Installation types

- Stationary wet well installation
- Portable wet well installation

The following installation types are **not** permitted:

- Dry well installation
- Horizontal installation

### 5.2 Installation

- Wear protective equipment!
- Do not install a damaged or defective pump.
- Frost-free location.
- Lay the connection cable properly. During operation there must be no danger (stumbling, damage, etc.).
- Float switch must be able to move freely!

#### 5.2.1 Stationary wet well installation

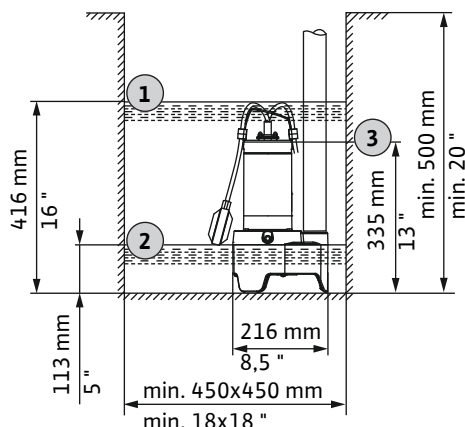


Fig. 2: Installation dimensions and switching points

1	Switch-on level
2	Switch-off level
3	Minimum water level for continuous duty (S1). From here only intermittent periodic duty (S3)

For stationary wet well installation, the pump is installed directly onto the pressure pipe. Observe and adhere to the following points:

- The connected pressure pipe must be self-supporting. The pressure pipe must not be supported by the pump.
- The pump may oscillate slightly during operation. These oscillations must be dissipated via the pressure pipe.
- Ensure that the connection to the pressure pipe is stress-free – do not screw it in too tightly.
- The pressure pipe must not be smaller than the pump's discharge connection.
- Seal pipe connections with Teflon tape.

- Install all specified valves in accordance with local requirements (gate valve, non-return valve).
  - Lay the pressure pipe frost-proof.
  - Avoid air intake! Air in the pump and in the pipe system can lead to delivery problems. Air pockets must be removed using the ventilation systems!
  - Install the pressure pipe as a "pipe loop" to avoid backflow from the public sewer.
- At its highest point, the bottom edge of the pipe loop must be above the locally determined backflow level!

- ✓ Site is prepared.
  - ✓ Pressure pipe properly installed.
1. Screw the discharge pipe fully into the pump's discharge connection.
  2. Position the pump at the installation site.
- CAUTION! Use a hard surface or underlay at the installation site to prevent sinking on soft substrate.**
3. Connect the discharge pipe to the pressure pipe (e.g. using a flexible hose section).
  4. Secure the connection cable to the pressure pipe and route it to the socket/power supply.
- Pump is installed.

#### 5.2.2 Portable wet well installation

The pump can be installed at any location on the application site when carrying out portable wet well installation.

Observe and adhere to the following points:

- Secure the pump against falling over and moving (creeping) during use.
  - Secure the pressure hose to the hose connection.
- ✓ Site is prepared
  - ✓ Pressure hose to be used: Min. inside diameter 1½"
  - ✓ Hose clip to be used: 40 – 60 mm inside diameter (1.6 – 2.4 in)
  - ✓ Hose connection to be used: G 1½" (with male thread)
1. Attach the hose connection.
 

Twist the hose connection into the pressure port as far as it will go.
  2. Slide the hose clip over the pressure hose.
  3. Slide the pressure hose onto the hose connection at the pressure port.



4. Secure the pressure hose to the hose connection using the hose clip.

5. Position the pump at the installation site.

**CAUTION! Use a hard surface or underlay at the installation site to prevent sinking on soft substrate.**

6. Lay the pressure hose and fasten it in the appropriate place (e.g. drainage). **CAUTION! If the pump is placed in a full chamber, hold the pump at a slight angle when immersing. This causes the air to escape from the pump!**

7. Route the connection cable to the socket/power supply.

► Pump is installed.

### 5.3 Electrical connection

- Mains connection with correctly installed protective earth conductor.
- Residual-current device (RCD) is installed with 30 mA.
- Mains connection fuse protection: max. 16 A.
- Voltage (U) and frequency (f) data on the rating plate correspond to the data of the mains connection.

Do **not** connect the pump if:

- The connection cable is damaged  
Have the connection cable replaced by a qualified electrician or the customer service.
- A standalone inverter is in use  
Stand-alone inverters are used in autonomous power supplies, e.g. solar power supply, and can generate overvoltages. Overvoltages can destroy the pump.
- A multiple plug socket or power strip is in use
- An energy-saving plug is in use  
This reduces the energy supply to the pump and the pump may heat up too much.

#### 5.3.1 Connection: Pump with plug

Provide a socket outlet with earthing contact. To connect the pump, insert the plug into the socket.



### NOTICE

#### Pump starts up or is ready for operation!

Once the plug is connected to the socket, the pump will either start immediately or be ready for operation:

- Pump **without float switch**: pump switches on immediately!
- Pump **with float switch**: pump is ready for operation and will switch on depending on the fill level!
  - We recommend switching the socket on and off using a separate main switch!

#### 5.3.2 Connection: Pump without a plug



### DANGER

#### Risk of death due to electrocution!

Improper conduct when carrying out electrical work can lead to death due to electric shock! Electrical work must be carried out by a qualified electrician in accordance with the locally applicable regulations.

### CAUTION

#### Irreparable damage as a result of water penetration

Connection cables without plugs feature bare cable ends. Water may penetrate the connection cable and pump via these bare cable ends. This will destroy both the connection cable and the pump. Never immerse the bare end of the connection cable in fluid. Firmly seal it during storage.

The pump has a connection cable with bare cable end. The pump must be permanently connected to a switchgear.

Observe the following points:

- Earth the device properly!
- Provide a motor protection switch!

The minimum requirement is a thermal relay/motor protection switch with temperature compensation, differential trip and reactivation lock according to local regulations.

- Install the mains disconnection device!



Minimum requirement: Main switch with all-pole disconnection.

### **Pump with single-phase AC motor**

To connect the pump firmly to the switchgear, cut off the plug. Carry out connection to a switchgear as follows:

Wire colour	Terminal in switchgear
Brown (bn)	L (phase)
Blue (bl)	N (neutral conductor)
Green/yellow (gn-ye)	Earth (protective earth conductor)

### **Pump with three-phase AC motor**

The pump is suitable for connection to a clockwise rotating field. Check the rotating field with a rotating-field-testing device before connection and correct if necessary. **CAUTION! The pump is not approved for operation with a counter-clockwise rotating field!** Carry out connection to a switchgear as follows:

Wire colour	Terminal in switchgear
Brown (bn)	U
Black (bk)	V
Blue (bl)	W
Green/yellow (gn-ye)	Earth (protective earth conductor)

### **Adjust the motor protection**

Set the motor protection switch to the rated current (see rating plate).

## **6 Commissioning**



### **DANGER**

**Risk of fatal injury due to electrical currents in accessible basins!**

Do not operate the pump if there are persons in contact with the fluid. In the event of a fault this may cause death by electric shock! Only activate the pump when there are no longer any persons in contact with the fluid.



### **NOTICE**

#### **Check the inlet quantity!**

The maximum inlet volume flow must be less than the maximum pump delivery rate. If the inlet quantity is higher, the pump will not be able to pump away the volume flow. The pump chamber may overflow!

### **6.1 Before activating**

Check the following prior to activation:

- Has the electrical connection been carried out in accordance with regulations?
- Has the connection cable been routed safely?
- Can the float switch move freely?
- Temperature of the pumped fluid observed?
- Immersion depth observed?
- Are the pressure pipe and pump sump free of deposits?
- All gate valves in the pressure pipe open?

### **6.2 Switching on and off**

The pump is switched on and off depending on the version:

- Pump **with** plug, **without** float switch  
The pump will switch on immediately after the plug has been inserted into the socket. To switch off the pump, pull the plug.
- Pump **with** plug **and** float switch  
The pump will switch on and off automatically on reaching the switching level:
  - Upper floater: Pump on.
  - Lower floater: Pump off.
- Pump with bare cable end (**without** plug)  
Switch the pump on and off via a separate control. Read the installation and operating instructions for the control unit for further details.

### **6.3 Test run**

If the pump is installed stationary (e.g. cesspool, overflow shaft), carry out a test run. Check the basic conditions (feed quantity, switching points) with the test run. The test run must include three pump cycles.

1. Flood the pump chamber: Open inlet.

**NOTICE! The required feed quantity for the test run can also be simulated using another water source.**

2. When the switch-on level is reached: pump starts.
3. Switch-off level reached: pump stops.

4. Repeat two more pumping processes.

- Once three pumping processes have been completed without problems, the test run is finished.

**NOTICE! If the pump does not switch on once a week, repeat the test run every month.**

## 6.4 During operation

### CAUTION

#### Do not allow the pump to dry run!

Do not run the pump without fluid (dry run). Switch off the pump once the residual water level has been reached. Dry running may destroy the seal and cause the pump to be irreparably damaged.

Check the following points:

- Inlet quantity corresponds to the pump delivery rate.
- Float switch is operating correctly.
- Connection cable is not damaged.
- Pump free from deposits and encrustations.

## 7 Removal



### DANGER

#### Risk of infection due to fluids hazardous to health!

Hazardous germs can form in standing waters. If there is a risk of germ formation, observe the following points:

- Ensure sufficient air exchange.
- Wear a breathing protection mask e.g. 3M Series 6000 with filter 6055 A2.
- Disinfect product.



- Wear protective equipment!
- Depending on the operating mode and duration, the housing parts become hotter than 40 °C (104 °F).
  - Only touch the product by the carrying handle.
  - Allow product to cool down.
- Clean the device thoroughly.

### 7.1 Stationary wet well installation

1. Close the gate valve in the inlet and pressure pipe.
2. Switch off pump.  
Pump **with** a plug: Pull the plug.  
Pump firmly connected(**without** plug): Disconnect

the pump from the mains. **DANGER! Have electrical work carried out by a qualified electrician!**

3. Disconnect the connection cable from the pressure pipe.
4. Release the pump and discharge pipe from the pressure pipe.
5. Lift the pump out of the operating space. **CAUTION! Always carry the pump by the handle. Never carry or pull the pump by the connection cable!**
6. Unscrew the discharge pipe from the pressure port.
7. Coil up the connection cable and store it with the pump.
8. Clean pump and discharge pipe thoroughly.

If the pump remains installed after switching off, observe the following points:

- Protect pump from frost and ice:
  - Immerse the pump completely in the pumped fluid.
  - Min. ambient temperature: +3 °C (+37 °F)
  - Min. fluid temperature: +3 °C (+37 °F)
- If the pump will not be used for a prolonged period, switch on the pump and carry out one pumping process every 2 months to prevent encrustations and clogging. **CAUTION! Only carry out the pumping process under suitable operating conditions. Allowing the pump to dry run is strictly forbidden! Failure to observe these instructions will lead to irreparable damage to the pump!**

If the above points are not guaranteed, remove the pump!

### 7.2 Portable wet well installation

1. Switching off the pump: Disconnect the plug.
2. Lift the pump out of the operating space. **CAUTION! Always carry the pump by the handle. Never carry or pull the pump by the connection cable!**
3. Loosen the hose clip and pull the pressure hose off the discharge port.
4. Coil up the connection cable and store it with the pump.
5. Clean pump and pressure hose thoroughly.

## 8 Cleaning

→ Wear protective equipment!

The protective equipment prevents contact with germs that are hazardous to health and the disinfectant.

→ If a disinfectant is used, follow the manufacturer's instructions!

- Wear protective equipment according to the manufacturer's instructions! If in doubt, ask your specialist dealer.
- Inform all persons about the disinfectant and how to use it correctly!

→ Drain the water used for cleaning into the sewage system.

### 8.1 Clean pump

✓ Pump removed.

✓ Disinfectant is available.

1. Ensure that the plug or bare cable end is packed and stored in a watertight manner!
2. Rinse the pump and cable with clean, running water.

**NOTICE! When using disinfectants, strictly observe the manufacturer's specifications and instructions for use!**

3. To clean the impeller and the pump interior, guide the water jet inside through the pressure port.
4. Rinse attachments such as the discharge pipe and pressure hose with clean, running water.
5. Flush any dirt residue on the floor into the sewage drain.
6. Allow the pump to dry out.
7. Only clean the plug or bare cable end with a damp cloth!

► Pump has been cleaned. Pack and store the pump.

**NOTICE! If the suction port is very contaminated, remove the cover plate for thorough cleaning!**

### 8.2 Cleaning the pump interior



#### WARNING

**Sharp edges on the impeller and suction port!**

Sharp edges can form on the impeller and suction port. There is a danger of cuts and similar injuries! Wear protective gloves!

In the case of severe dirt and encrustations, remove the cover plate on the suction port and clean the pump interior.

1. Horizontally position the pump on a firm surface.

**WARNING! Risk of hands being crushed. Make sure that the pump cannot slip away!**

2. Unscrew the 3 fastening screws on the cover plate.
3. Remove the cover plate.
4. Rinse the pump interior with clean, running water. Remove solids by hand.
5. Check the O-ring on the suction port. If the O-ring is damaged (cracks, porosity, crushed areas), replace the O-ring.
6. Position the cover plate on the suction port.
7. Fully screw in the 3 fastening screws. **NOTICE! Replace worn screws!**

► Pump interior is cleaned and cover plate has been reattached. Complete the cleaning work.

## 9 Maintenance

→ Wear protective equipment!

→ Only perform the maintenance work described in these installation and operating instructions.

→ Carry out maintenance work in a clean, dry and well-lit location.

→ Use only original parts obtained from the manufacturer. The use of any non-original parts releases the manufacturer from any liability.

→ Collect any leakage of fluid and operating fluid immediately.

→ Dispose of the operating fluid at certified collection points.

### 9.1 Operating fluid

→ Capacity: 220 ml (7.4 US.fl.oz)

→ Interval for oil change: After 720 operating hours or 1x per year

→ Oil types (ISO VG class 32):

- ELFOLNA DS 22
- Shell Turbo T 32

## 9.2 Oil change

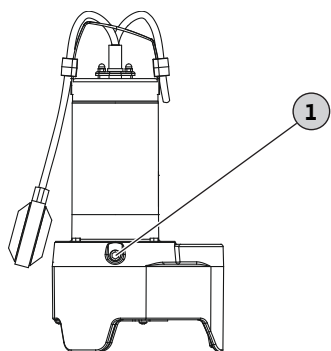


Fig. 3: Sealing chamber oil change

### 1 Sealing chamber screw plug

- ✓ Wear protective gloves!
  - ✓ Pump is removed, cleaned and if necessary disinfected.
  - ✓ Oil-resistant sealable collector tank is accessible.
1. Position the pump horizontally on a firm surface. The screw plug should be on top. **WARNING! Risk of hands being crushed. Make sure that the pump cannot fall over or slip!**
  2. Unscrew the screw plug slowly.
  3. Place a collector tank underneath the pump.
  4. Draining the oil: rotate the pump until the opening points downwards.
  5. Checking the oil: notify customer service if the oil contains metal swarf!
  6. Rotate the pump until the opening points upwards again.
  7. Filling the oil: pour the oil in through the opening.
    - ⇒ Comply with requirements concerning oil type and quantity!
  8. Clean the screw plug, replace the seal ring with a new one and fully screw it in.

## 9.3 General overhaul

Have the customer service team check the pump after 1,500 operating hours. All components will be checked for wear and damaged components will be replaced.

## 10 Faults, causes and remedies

### ***Pump not starting or switches off after a short time***

1. Interrupted power supply
  - ⇒ Check the electrical connection of the pump.
  - ⇒ Have a qualified electrician check fuses/residual-current devices.
2. Thermal motor monitoring has been tripped
  - ⇒ Allow the pump to cool down. The pump will start automatically.
  - ⇒ Pump switches on/off too frequently. Check the switching cycle of the float switch.
  - ⇒ Excessive fluid temperature. Check the temperature. If necessary, use a different pump.
3. Suction port/strainer/impeller silted/clogged
  - ⇒ Shut down the pump, remove it and clean it.
4. Float switch not operational
  - ⇒ The float switch must be able to move freely.

### ***Pump starts up, but does not supply fluid***

1. Pressure pipe/discharge pipe clogged
  - ⇒ Flush out the pressure pipe.
  - ⇒ Flush out the pressure hose.
  - ⇒ Remove any kinks in the pressure hose.
2. Swing check valve contaminated
  - ⇒ Shut down the pump, remove it and clean the discharge connection.
  - ⇒ Replace faulty swing check valve.
3. Water level too low
  - ⇒ Check inlet.
  - ⇒ Pump is pumping at a too low level. Check the switching cycle of the float switch.
4. Suction port/strainer silted/clogged
  - ⇒ Shut down the pump, remove it and clean it.
5. Air in the pump/pressure pipe
  - ⇒ Position the pump at a slight angle to allow air to escape.
  - ⇒ Install a bleed unit in the pressure pipe.

### ***Delivery rate drops while the pump is running***

1. Pressure pipe/discharge pipe clogged
  - ⇒ Flush out the pressure pipe.
  - ⇒ Flush out the pressure hose.
  - ⇒ Remove any kinks in the pressure hose.

2. Suction port/strainer silted/clogged
  - ⇒ Shut down the pump, remove it and clean it.
3. Air in the pump/pressure pipe
  - ⇒ Position the pump at a slight angle to allow air to escape.
  - ⇒ Install a bleed unit in the pressure pipe.
4. Signs of wear
  - ⇒ Contact customer service.

### Customer service

If the points listed here do not rectify the fault, contact customer service. Costs may be incurred when using customer service support! Please contact customer services for more information.

## 11 Spare parts

Spare parts are ordered via customer service. To avoid return queries and incorrect orders, the serial or article number must always be supplied. **Subject to change without prior notice!**

## 12 Disposal

### 12.1 Information on the collection of used electrical and electronic products

Proper disposal and appropriate recycling of this product prevents damage to the environment and putting your personal health at risk.



#### NOTICE

#### Disposal in domestic waste is prohibited!

In the European Union this symbol may be included on the product, the packaging or the accompanying documentation. It means that the electrical and electronic products in question must not be disposed of along with domestic waste.

Please note the following points to ensure proper handling, recycling and disposal of the used products in question:

- Hand over these products at designated, certified collection points only.
- Observe the locally applicable regulations!

Please consult your local municipality, the nearest waste disposal site, or the dealer who sold the product to you for information on proper disposal. See

[www.wilo-recycling.com](http://www.wilo-recycling.com) for more information about recycling.

### 12.2 Oil



#### WARNING

#### Risk of environmental and health damage due to incorrect disposal of oils!

Oil is harmful to health and the environment! Do not dispose of oil with domestic waste or in the sewage system! Collect the oil in a sealable, oil-resistant container and dispose of it at a certified collection point.







Pioneering for You



Local contact at  
[www.wilo.com/contact](http://www.wilo.com/contact)

WILO SE  
Nortkirchenstr. 100  
44263 Dortmund  
Germany  
T +49 (0)231 4102-0  
T +49 (0)231 4102-7363  
[wilo@wilo.com](mailto:wilo@wilo.com)  
[www.wilo.com](http://www.wilo.com)