Pioneering for You

Wilo-DrainLift BOX

zh-CHS 安装及操作说明

en Installation and operating instructions

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DrainLift BOX
https://qr.wilo.com/742

目录

1 概述

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。
- 遵守所有产品相关参数。
- 注意产品上的标识。

原版操作说明书以德语撰写。其他语种的说明书均为其翻译件。

1.2 版权

1.3 保留更改权力

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1.4 保修和免责声明

Wilo对于如下情况，不承担任何保修义务或责任：

- 由于运营者或委托方提供的数据存在缺陷或者错误，导致出现配置欠缺问题
- 不遵守本说明书的内容
- 未按规定使用
- 不按规范存放或运输
- 错误安装或拆卸
- 缺乏维护
- 无授权维修
- 安装基础有缺陷
- 化学、电气或电化学影响
- 磨损

2 安全

本章节主要介绍各生命阶段适用的基础提示信息。不遵守提示会导致：

- 人员受伤
- 环境污染
- 物资损失
- 丧失索赔权利

2.1 安全说明的标识

本安装及操作说明针对物资损失和人身安全问题列举了多项安全说明。其表现形式各有不同：

- 涉及到人身安全问题的安全说明以一个信号词作为开端，配套使用相应的**符号**并使用灰色作为背景色。

危险

危险类型和危险源！

危险产生的影响以及避免危险说明。

- 涉及到物资损失问题的安全说明也以一个信号词作为开端，但是**没有**符号。

小心

危险类型和危险源！

影响或信息。

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，甚至导致全损。
- **提示！**
  操作产品时有用的注意事项

图标

本说明书中使用了以下图标：


电击危险


爆炸危险


个人防护装备：戴安全头盔


个人防护装备：穿劳保鞋


个人防护装备：戴防护手套


个人防护装备：戴护目镜


个人防护装备：佩戴口罩


安排两人运输


实用注意事项

文本说明

✓ 前提条件

1. 操作步骤/细目列举
   ⇒ 注意事项/指导
   ▶ 结果

参见项的标识

章节或表格的名称在引号“ ”内。页码在方括号[ ]内。

2.2 工作人员资格鉴定

- 工作人员必须了解当地现行的事故防范规定。
- 工作人员已阅读安装及操作说明并且理解其中内容。
- 电气作业：受过培训的专业电工

是指接受过相关培训，具备所需知识和经验，能够发现并且规避电力危险的人员。

- 安装/拆卸工作：受过培训的卫生设施系统技术专家
  固定件和抗浮装置，塑料管连接
- 维护工作：专业人员（受过培训的卫生设施系统技术专家）
  污水造成的危害，提升系统的基础知识，EN 12056要求

儿童和行为能力受限的人

- 未满 16 周岁：禁止使用本产品。
- 未满 18 周岁：在（监管人员）监督下使用！
- 身体、感官或精神上能力不足的人员：禁止使用本产品！

2.3 电气作业

- 电气作业由专业电工负责执行。
- 将产品断电并采取安全措施防止意外接通。
- 通电时注意遵守当地相关法规。
- 注意遵守当地能源供应公司的相关规定。
- 将电气连接方式等知识告知相关人员。
- 告知相关人员如何关闭产品。
- 遵守本安装及操作说明以及铭牌上给出的技术参数。
- 将产品接地。
- 安装开关设备时，注意使其具有防溢流特性。
- 更换损坏的接线电缆。请咨询客户服务部。

2.4 监控设备

安装方必须准备下列监控设备：

断路器

断路器的规格和开关属性取决于所连接产品的额定电流。注意遵守当地相关法规。

漏电断路器 (RCD)

- 根据当地能源供应公司的规定安装漏电断路器 (RCD)。
- 如果人员可能接触到产品和导电液体，则安装漏电断路器 (RCD)。

2.5 运输

- 遵从当地有关作业安全和事故防范措施的现行法律法规。
- 将产品运送至托盘或管接头处。
- 始终通过蓄水罐（管接头）提升产品！
  - 在出水口或连接管处提升会损坏产品。
- 重量大于50 kg（110 lbs）的产品必须由两个人一起运输。一般建议安排两名人员进行运输。
- 使用提升设备时注意以下几点：
  - 提升装置：吊带
  - 数量：2
  - 固定点：管接头
  - 检查提升装置是否已牢固地固定好。

2.6 安装/拆卸工作

- 遵从当地有关作业安全和事故防范措施的现行法律法规。
- 将产品断电并采取安全措施防止意外接通。

- 锁闭入口和排放压力管。
- 密闭空间保持通风顺畅。
- 在密闭空间内作业时，为安全起见，必须有第二个人在场。
- 在密闭的室内或建筑内有毒气体或窒息气体会不断聚集。遵守工作规程要求的保护措施，例如随身携带气体报警设备。
- 彻底清洁产品。
  警告！ 穿着不当和使用易燃的清洁剂会引起火灾危险！
  清洁塑料件时可能会产生静电。有着火危险！仅穿着防静电服装，不使用易燃的清洁剂。

2.7 运行期间

- 打开入口管道和压力管中的所有闸阀！
- 最大入口流量小于系统的最高输出量。
- 请勿打开检视窗！
- 确保通风和排气！

2.8 维护工作

- 维护工作只能由专业人员（受过培训的卫生设施系统技术专家）进行。
- 将产品断电并采取安全措施防止意外接通。
- 彻底清洁产品。
  警告！ 穿着不当和使用易燃的清洁剂会引起火灾危险！
  清洁塑料件时可能会产生静电。有着火危险！仅穿着防静电服装，不使用易燃的清洁剂。
- 锁闭入口和排放压力管。
- 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。
- 一旦发生流体和工作介质泄露事故，立即收集泄漏物并按照当地现行法规进行废弃处理。

2.9 运营者的责任

- 为工作人员提供以其母语写成的安装及操作说明。
- 为工作人员提供必要的培训，确保其能胜任指派的工作。
- 提供防护装备。保证工作人员穿戴防护装备。
- 使产品上安装的安全和信息标志牌长期保持清晰可读状态。
- 使工作人员了解设备的功能原理。
- 标记并封锁工作区域。

3 应用/使用

3.1 规定用途

在家用空间内收集和泵送：

- 不含粪便的污水

如果泵送含油脂的污水，必须安装隔油池！

根据 (DIN) EN 12050 进行废水泵送

水泵符合 EN 12050-2 的要求。

应用

- 当排放点在回流水位之下时用于排水，确保不会回水。
- 如果污水无法通过自然回落进入下水道系统。
- 安装在建筑物内部

使用极限

不允许的操作方式和过大负荷会导致通过地漏出现溢流。严格遵守以下使用极限：

- 每小时最大入口流量：

- DrainLift BOX-32/8E:1300 l (343 US.liq.gal)
- DrainLift BOX-32/11E:1200 l (317 US.liq.gal)
- DrainLift BOX-40/11E:870 l (230 US.liq.gal)
- DrainLift BOX-32/8D:2400 l (634 US.liq.gal)
- DrainLift BOX-32/11D:2200 l (581 US.liq.gal)
- DrainLift BOX-40/11D:1620 l (428 US.liq.gal)
- DrainLift BOX-32/8DS:3000 l (793 US.liq.gal)
- DrainLift BOX-32/11DS:3100 l (819 US.liq.gal)
- DrainLift BOX-40/11DS:1740 l (460 US.liq.gal)

- 排放管路中的最大压力：1.7 bar (25 psi)
- 流体温度：
  - DrainLift BOX-32...：3...35 °C（37...95 °F），运行3分钟的最高流体温度：60 °C（140 °F）
  - DrainLift BOX-40...：3 ~ 40 °C（37 ~ 104 °F）
- 环境温度：3 ~ 40 °C（37 ~ 104 °F）

仅适用于隐藏落地式安装：

- 最大地下水压：0.4 bar（罐底以上6 psi/4 mWs）

3.2 未按规定使用

危险

导入爆炸性流体会导致爆炸！

严禁以纯粹的形态导入易燃易爆的流体（汽油、煤油等）。爆炸导致生命危险！提升系统不是针对这类流体设计出的产品。

不允许通入以下流体：

- 含有粪便的污水
- 高于回流水位，能够通过自由回落排水的排水物中流出的污水。
- 粗石、灰尘、垃圾、玻璃、沙子、石膏、水泥、石灰、灰泥、纤维材料、纺织品、纸巾、湿抹布（无纺布、湿厕纸等）、尿布、板纸、粗纸、合成树脂、焦油、厨房垃圾、脂、油
- 屠宰场垃圾、动物尸体处理垃圾和畜牧业垃圾（粪水等）
- 侵蚀性、腐蚀性和有毒流体，如重金属、杀菌剂、杀虫剂、酸液、碱液、盐水、游泳池水等
- 含有过量清洁剂、消毒剂、洗涤剂和去污剂的流体，以及包含过量泡沫的流体
- 饮用水

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 产品说明

4.1 结构类型

4.1.1 隐藏落地式安装

适于建筑物内隐藏落地式安装的紧凑型全自动污水提升系统。

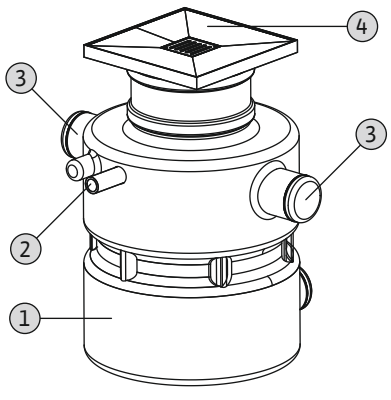


Fig. 1: 隐藏落地式安装概览

1	蓄水罐
2	压力连接
3	入口和排气连接
4	带地漏的高度可调的挡板

4.1.2 落地式安装

适于建筑物内落地式安装的紧凑型全自动污水提升系统。

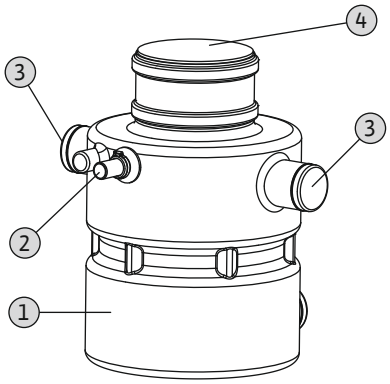


Fig. 2: 落地式安装概览

1	蓄水罐
2	压力连接
3	入口和排气连接
4	挡板（下水道主管套管密封塞）

4.1.3 集水箱

带无沉积物内室的塑料气密、防水集水箱。两个偏移180°的DN 100接口，用于入口、排气和电缆布线。压力连接与两个接口呈侧向偏移90°。为了便于进行设备的维护，将挡板用作检视窗。

4.1.4 使用的水泵

根据不同的型号，污水提升系统配备了以下污水潜水泵：

- BOX-32/8...:Drain TMW 32/8
- BOX-32/11...:Drain TMW 32/11
- BOX-32/11HD...:Drain TMW 32/11HD
- BOX-40/11...:Rexa MINI3-V04.11/M06 ... -A
- BOX-40/11 ... **DS** ...:Rexa MINI3-V04.11/M06 ... -P

潜水泵预先安装在集水箱中。

Drain TMW 32

污水泵带集成式紊流器（Twister 旋流功能）、开放式多通道叶轮和垂直螺纹连接。水泵壳体、滤网和叶轮采用复合材料制成。1~电机（表面冷却），集成有运行电容器和自切换式电机过热保护装置。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。接线电缆带浮子开关和插头（CEE 7/7）。

Twister 旋流功能确保在水泵抽吸区域形成连续的湍流。湍流防止沉淀物下沉和附着。这样可使泵井保持清洁，避免产生异味。

Drain TMW 32HD

污水泵带集成式紊流器（Twister 旋流功能）、开放式多通道叶轮和垂直螺纹连接。水泵壳体、滤网和叶轮采用复合材料制成。1~电机（表面冷却），集成有运行电容器和自切换式电机过热保护装置。电机外壳和轴采用高品质不锈钢(AISI 316L)。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。接线电缆带浮子开关和插头（CEE 7/7）。

Twister 旋流功能确保在水泵抽吸区域形成连续的湍流。湍流防止沉淀物下沉和附着。这样可使泵井保持清洁，避免产生异味。

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插头（CEE 7/7）。

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插头（CEE 7/7）。

4.1.5 液位控制装置

DrainLift BOX ... E和DrainLift BOX ... D

液位控制通过安装在水泵上的浮子开关进行。“水泵开/关”的开关水位通过浮子开关的电缆长度预设。

DrainLift BOX ... DS

液位控制通过蓄水罐中独立的浮子开关和一个开关设备进行。开关设备已经过预设。切换点“水泵开”通过浮子开关的电缆长度预设。切换点“水泵关”通过开关设备中设定的空转时间来确定。开关设备具有以下功能：

- 系统故障信号（SSM）和系统运行信号（SBM）
- 单泵故障信号（ESM）和单泵运行信号（EBM）
- 高水位警报
  额外的浮子开关可作为附件订购。
- 集成的蜂鸣器，电池供电
  9 V电池包含在供货范围内。

4.2 功能原理

单泵系统：Wilo-DrainLift BOX... E

产生的污水通过进水管导入集水箱中进行收集。如果水位达到接通液位，会通过安装的浮子开关装置接通水泵，将收集到的污水泵送到连接的压力管中。如果达到了关闭液位，水泵将立刻关闭。

双泵系统：Wilo-DrainLift BOX... D（主/备用水泵）

产生的污水通过进水管导入集水箱中进行收集。如果水位达到接通液位，会通过安装的浮子开关装置接通水泵，将收集到的污水泵送到连接的压力管中。如果达到了关闭液位，水泵将立刻关闭。
如果主泵损坏，则通过备用水泵完成泵送过程。

双泵系统：Wilo-DrainLift BOX... DS（交替运行）

产生的污水通过进水管导入集水箱中进行收集。如果水位达到接通液位，会通过一个浮子开关接通水泵，将收集到的污水泵送到连接的压力管中。如果达到了关闭液位，水泵在设定的空转时间过后关闭。每个泵送过程结束后，进行一次水泵更换。如果一台水泵损坏，将自动启动另外一台水泵。

为了实现　更高的运行可靠性，可在蓄水罐中再安装一个浮子开关。该浮子开关可用来确定高水位。如果达到了高水位，则：

- 开关设备上发出声音和视觉警告。
- 强制启动两台水泵。
- 系统故障信号激活。

一旦降到高水位以下，备用水泵将在空转时间过后关闭，并自动应答警告信息。主泵将继续按常规水泵循环运行。

4.3 运行模式

运行模式 S3：断续周期工作方式

这种运行模式描述运行时间与停机时间成比例关系的一种开关循环。规定的数值（比如 S3 25%）是运行时间。开关循环持续 10 分钟。
如果规定两个数值（比如 S3 25%/120s），则第一个数值是运行时间。第二个数值是开关循环的最长持续时间。

系统不是为连续运行而设计的！最大流量适用于断续周期工作方式 S3！

4.4 使用变频器运行

运行时不允许使用变频器。

4.5 型号代码

示例：	**Wilo-DrainLift BOX-32/11HD DS O**
BOX	适用于无粪便污水的污水提升系统
32	所安装水泵的压力连接公称直径
11	最大扬程，单位 m
HD	HD = 用于运输腐蚀性流体的水泵
D	提升系统的规格： • E =单泵系统 • D =双泵系统
S	水泵控制器： • 无=水泵带浮子开关 • S =开关设备带浮子开关
O	安装方式： • O =落地式安装 • U =隐藏落地式安装

4.6 技术数据

不同型号的技术数据概览

型号	BOX-32/8E	BOX-32/8D	BOX-32/8DS	BOX-32/11E	BOX-32/11D	BOX-32/11DS	BOX-40/11E	BOX-40/11D	BOX-40/11DS
电源连接	1~230 V/50 Hz			1~230 V/50 Hz			1~230 V/50 Hz		
功耗[P_1]	450 W			750 W			930 W		
电机额定功率[P_2]	370 W			550 W			600 W		
最大扬程	7 m	7 m	7 m	10 m	10 m	10 m	11 m	11 m	11 m
最大流量	8.5 m³/h	8 m³/h	8 m³/h	11.5 m³/h	11 m³/h	11 m³/h	14 m³/h	14 m³/h	14 m³/h
启动方式	直接			直接			直接		
运行模式	S3 25%	S3 25%	S3 25%	S3 25%	S3 25%	S3 25%	S3 20%	S3 20%	S3 20%
流体温度	3…35 °C			3…35 °C			3…40 °C		
运行3分钟的最高流体温度	60 °C			60 °C			–		
环境温度	3…40 °C			3…40 °C			3…40 °C		
颗粒通径	10 mm			10 mm			40 mm		
总容积	113 l			113 l			113 l		
开关量	26 l	24 l	30 l	24 l	22 l	30 l	29 l	27 l	29 l
至插头的电缆长度	10 m	10 m	1.5 m	10 m	10 m	1.5 m	5 m	5 m	1.5 m
至开关设备的电缆长度	–	–	10 m	–	–	10 m	–	–	5 m
插头	CEE 7/7 (Schuko)			CEE 7/7 (Schuko)			CEE 7/7 (Schuko)		
压力连接	40 mm			40 mm			40 mm		
入口连接	110 mm (DN 100)			110 mm (DN 100)			110 mm (DN 100)		
排气连接	110 mm (DN 100)			110 mm (DN 100)			110 mm (DN 100)		
隐藏落地式安装的重量	26 kg	31 kg	36 kg	28 kg	35 kg	40 kg	33 kg	45 kg	50 kg
落地式安装的重量	20 kg	25 kg	30 kg	22 kg	29 kg	34 kg	27 kg	39 kg	44 kg

4.7 供货范围

DrainLift BOX … E
- 带内置管道的塑料集水坑
- 带止回阀的管道
- 带浮子开关和插头的水泵
- 含软管夹的压力软管（内径：40 mm/1.5 in）
- 用于密封蓄水罐盖板以及用作反虹吸弯管的O形圈
- **隐藏落地式安装**
  - 带瓷砖框架和地漏的蓄水罐盖板
  - 施工防尘盖
- **落地式安装**
  - 蓄水罐盖板（下水道主管套管密封塞）
  - 用于抗浮装置的地脚螺栓
- 安装及操作说明

DrainLift BOX … D
- 带内置管道的塑料集水坑
- 带止回阀和Y形管的管道
- 两台带浮子开关和插头的水泵
- 含软管夹的压力软管（内径：40 mm/1.5 in）
- 用于密封蓄水罐盖板以及用作反虹吸弯管的O形圈
- **隐藏落地式安装**
  - 带瓷砖框架和地漏的蓄水罐盖板
  - 施工防尘盖
- **落地式安装**
  - 蓄水罐盖板（下水道主管套管密封塞）
  - 用于抗浮装置的地脚螺栓
- 安装及操作说明

DrainLift BOX … DS
- 带内置管道的塑料集水坑
- 带止回阀和Y形管的管道
- 两台带插头的水泵

- 含软管夹的压力软管（内径：40 mm/1.5 in）
- 用于密封蓄水罐盖板以及用作反虹吸弯管的O形圈
- **隐藏落地式安装**
  - 带瓷砖框架和地漏的蓄水罐盖板
  - 施工防尘盖
- **落地式安装**
  - 蓄水罐盖板（下水道主管套管密封塞）
  - 用于抗浮装置的地脚螺栓
- 带浮子开关和插头的开关设备
- 9 V 蓄电池
- 安装及操作说明

4.8 附件

- 轴环 – 用于隐藏落地式安装时防止地下水进入。
- 警报器 – 用于检测泄漏。
- 浮子开关 – 用于检测高水位。
- 隔膜泵 – 用于紧急清空。
- 截止阀

5 运输和存放

5.1 交货

- 收到货物之后，立刻检查货物有无缺陷（有无损坏、是否完整）。
- 如有缺陷，标注在运单上！
- 在到货当天，将发现的损坏情况告知运输公司或者生产商。
- 如果不在当天通知，就会丧失索赔权利。

5.2 运输

- 穿戴防护装备！遵守工作规程。
  - 防护手套：4X42C (uvex C500 wet)
  - 安全鞋：防护等级 S1 (uvex 1 sport S1)
- 将产品运送至托盘或管接头处。
- 始终通过蓄水罐（管接头）提升产品！
  - 在出水口或连接管处提升会损坏产品。
- 重量大于50 kg（110 lbs）时必须由两个人一起运输。
- 始终将产品垂直放置在托盘上。
- 防止产品打滑。捆扎时要注意确保塑料部件不变形。
- 防止安装的开关设备和插头进水。
- 为了避免损坏管道和管道连接，在运输过程中要始终保持产品直立。

5.3 存放

小心

渗入湿气导致全损

液体进入接线电缆会损坏电缆和水泵！切勿将接线电缆端部浸入液体中，存放时须将其牢牢封住。

- 将提升系统放置在坚固的基底上并固定好，防止其翻倒或滑脱！
- 存放条件：
  - 存放温度范围：–15 °C至+60 °C（5至140 °F），最大空气湿度：90%，非冷凝。
  - 建议：5至25 °C（41至77 °F），相对空气湿度：40%至50%。
- 将集水箱排空。
- 将接线电缆捆扎成卷并固定在提升系统上。
- 拆除现有的开关设备并按照生产商的规定存放。
- 牢牢封住所有敞开的套管。安装室盖并封住地漏。
- 切勿在执行焊接作业的室内存放提升系统。因为焊接时形成的气体或辐射可能侵蚀弹性体零件。
- 避免提升系统受到阳光直射。高温可能导致蓄水罐和安装的水泵受损！

6 安装及电气连接

6.1 工作人员资格鉴定

- 电气作业：受过培训的专业电工
  是指接受过相关培训，具备所需知识和经验，能够发现并且规避电力危险的人员。
- 安装/拆卸工作：受过培训的卫生设施系统技术专家
  固定件和抗浮装置，塑料管连接

6.2 安装方式

- 在建筑物内部

不支持下列安装方式：

- 在建筑物外部

6.3 运营者的责任

- 遵守本地现行的事故防范规定和安全规定。
- 使用提升设备时遵守在悬挂物之下工作的所有法律法规。
- 提供防护装备。保证工作人员穿戴防护装备。
- 确保安放位置畅通无阻。
- 按照当地适用的法规进行安装。
- 检查现有的咨询文件（安装图、安放位置、入口条件）是否齐全和正确。
- 根据咨询文件铺设和准备管路。
- 电源连接应该具有防溢流特性。

6.4 安装

小心

错误运输会造成物资损失！

单独一人无法运输和放置提升系统。存在提升系统损坏的危险！始终安排两人运输提升系统并在安装位置对齐。

- 穿戴防护装备！遵守工作规程。
  - 防护手套：4X42C (uvex C500 wet)
  - 安全鞋：防护等级 S1 (uvex 1 sport S1)
- 准备安放位置：
  - 干净，无大颗粒固体物
  - 干燥
  - 不上冻
  - 良好的照明
- 运行空间保持通风顺畅。
- 地漏周围至少留出60 cm（2 ft）的自由空间。
- 准备用于安装接线电缆的可伸缩带。
- 按规定铺设所有接线电缆。接线电缆不得引发任何危险（绊倒危险，运行中损坏）。检查电缆横截面和电缆长度对于选择的铺设方式来说是否足够。
- 安装的开关设备不具有防溢流特性。在足够高的位置安装开关设备。注意正确操作！
- 如果是落地式安装，请安装一个抗浮装置。遵循安装指南。

6.4.1 关于管道的注意事项

在运行过程中，管道承受不同的压力。此外还会出现压力峰值（例如在关闭止回阀时），根据具体运行情况而定，生成的压力可能是输送压力的数倍。这些不同的压力施加在管路和管接头上。为了确保安全无误地运行，请检查管路和管接头的以下参数，并根据要求进行布置：

- 管路是自承重的。
  不得有任何压力或拉力作用在提升系统上。
- 管道和管接头的耐压性
- 管接头的抗拉强度（= 纵向力锁合的连接）
- 连接管路时避免张力和振动。

6.4.2 准备用于安装的提升系统

安装提升系统前请进行以下工作：

- 检查水泵位置。
- 检查液位控制装置。
- 打开连接套管。
- 安装附件：
  - 迷你浮子开关
    必须为高水位警报额外安装一个迷你浮子开关。
  - 轴环
    注意！如要密封不透水的混凝土（白色槽），必须在蓄水罐颈部额外安装一个轴环（可作为附件订购）！

检查水泵位置

由厂方负责水泵的安装和定位。运输可能导致水泵扭转，从而影响浮子开关的正常运作。因此，在安装前要检查水泵的位置是否正确，必要时根据图示进行调整。

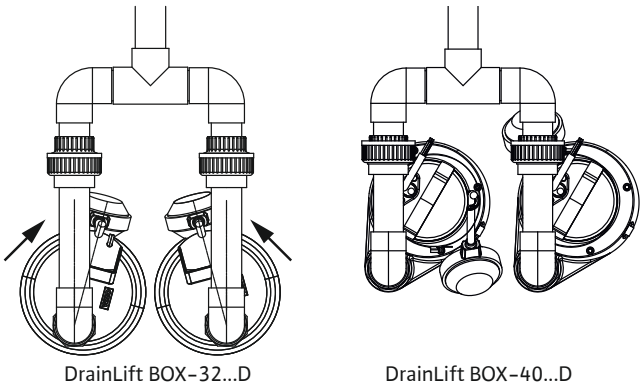


Fig. 3: 水泵位置，无开关设备

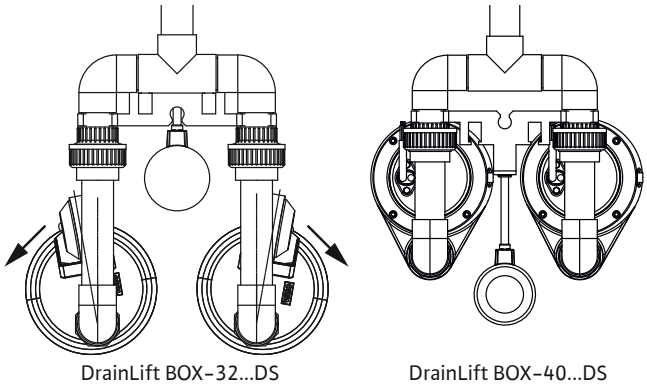


Fig. 4: 水泵位置，带开关设备

检查液位控制装置的设置

小心

由于浮子开关对中不正确导致的故障！

为了正常运作，浮子开关必须有足够的空间来浮动，而且浮子必须平放在水面上。因此，要确保水泵和浮子找正对中！

液位控制装置由厂方负责安装和设置。运输可能导致液位控制装置从其固定位置滑脱，造成提升系统故障。因此，在安装前要检查浮子开关的固定状态和电缆长度，必要时进行调整。

无开关设备的单泵和双泵系统

- DrainLift BOX-32/..
  - 液位检测通过安装在水泵上的浮子开关进行。
  - 浮子开关电缆固定在水泵的电缆夹上。
  - 电缆长度决定了开关水位。
- DrainLift BOX-40/..
  - 液位检测通过安装在水泵上的浮子开关进行。
  - 浮子开关电缆通过一个电缆夹和一个软管夹固定在水泵电机上。
  - 电缆长度决定了开关水位。

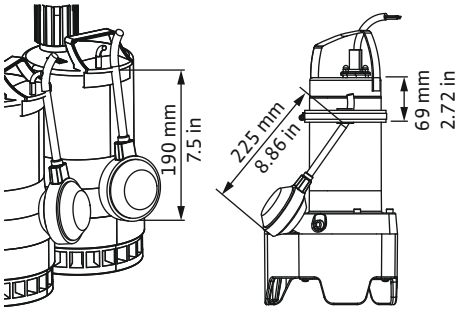


Fig. 5: 浮子开关的固定和设置，无开关设备

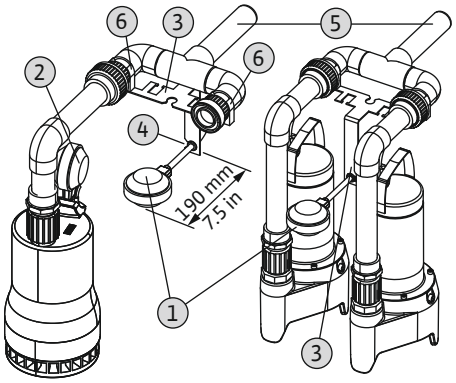


Fig. 6: 浮子开关的固定和设置，带开关设备

带开关设备的双泵系统

1	用于液位控制装置的浮子开关
2	安装的浮子开关，固定在“开”的位置
3	浮子开关支架
4	浮子开关电缆的固定点
5	排放管
6	浮子开关支架的固定件

液位检测通过一个独立的浮子开关进行。浮子开关固定在浮子开关支架上，浮子开关电缆固定在浮子开关支架的横向支架上：

- Wilo-DrainLift BOX-32/... DS：
  - 浮子开关固定在水泵的电缆夹上。
  - 安装的水泵浮子开关必须固定在“开”的位置。
  - 浮子开关的支架沿管道方向安装！
- Wilo-DrainLift BOX-40/... DS：
  - 浮子开关的支架沿蓄水罐中心方向安装！

注意！为使浮子开关正常运作，浮子必须沿蓄水罐中心方向浮起。确保浮子开关支架的正确对中！

打开连接套管

打开以下连接套管：

- 入口：DN 100
- 排气：DN 100

1. 用锯子从外侧锯开套管约15 mm（0.5 in）。
2. 将连接套管去毛刺。
   ▶ 连接套管已打开。

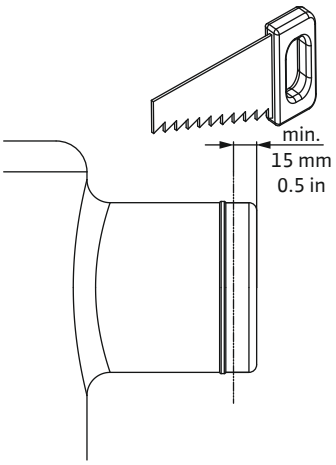


Fig. 7: 准备接口

安装高水位警报的迷你浮子开关（仅限型号“DS”）

要使用高水位警报，必须额外安装一个迷你浮子开关。迷你浮子开关可作为附件订购。

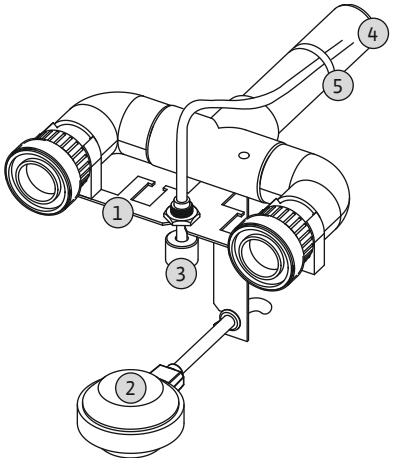


Fig. 8: 高水位检测

1	浮子开关支架
2	用于液位控制装置的浮子开关
3	用于高水位警报的迷你浮子开关
4	排放管
5	浮子开关电缆的固定件

✓ 准备工作已完成。
✓ 水泵位置已设置完成。
✓ 液位控制装置已设置完成。

1. 将螺母从螺纹衬套上松开。螺母和螺纹衬套末端之间的距离约为5 mm（0.2 in）。
2. 将螺纹衬套插入浮子开关支架上的长孔。
3. 重新拧回螺母，以此将迷你浮子开关固定在浮子开关支架上。
4. 用电缆扎带将浮子开关电缆固定在排放管上。
   ▶ 迷你浮子开关已安装完毕。

隐藏落地式安装：安装轴环

如要密封不透水的混凝土（白色槽），必须在蓄水罐颈部安装一个轴环，用来密封混凝土和蓄水罐之间的区域。轴环可作为附件订购。

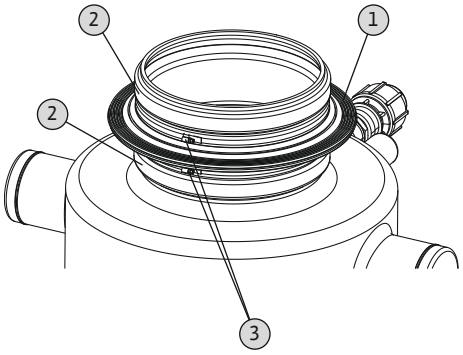


Fig. 9: 安装轴环

1	轴环
2	密封圈
3	夹紧环

✓ 确保蓄水罐颈部清洁干燥。

✓ 轴环完好无损。

✓ 注意生产商说明书！

1. 将第一个夹紧环插至蓄水罐颈部。
2. 将轴环管拉到蓄水罐颈部，置于两个密封圈之间。
   ⇒ 使用润滑剂以方便安装！
3. 将第一个夹紧环插入轴环的下部凹槽并牢牢拧紧。
4. 将第二个夹紧环插至蓄水罐颈部，并将其插入轴环的上部凹槽。
5. 牢牢拧紧第二个夹紧环。
   ► 轴环已安装完毕。

6.4.3 隐藏落地式安装的工作步骤

提升系统的安装步骤如下：

- 准备工作。
- 挖出凹陷部分。
- 安装提升系统。
  铺设接线电缆，连接管路，回填凹陷部分。
- 安装挡板并重置基底。
- 结束工作。

6.4.3.1 准备工作

- 提升系统拆包装。
- 移除紧固机构。
- 检查供货范围。
- 检查所有部件的状态是否正常。
  小心！ 不得安装损坏的部件！损坏的部件会导致系统故障！
- 将附件放在一边，以备日后使用。
- 选择安放位置：
  – 在建筑物内部。
  – 不得靠近起居室和卧室区域。
  – 凹陷部分的深度和直径。
  小心！ 请勿安装于泥炭池底中！泥炭池底会损坏蓄水罐！

6.4.3.2 挖出凹陷部分

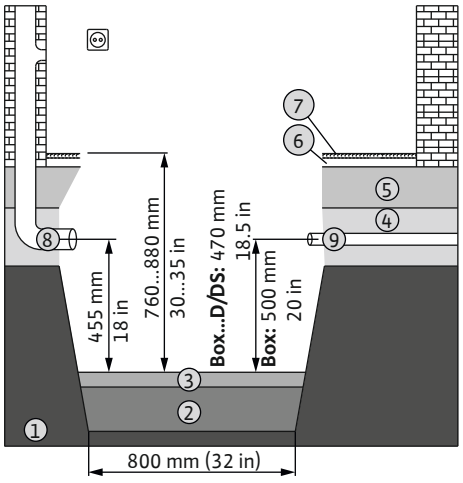


Fig. 10: 挖出凹陷部分

1	土壤
2	基床层
3	平衡层
4	填充材料
5	混凝土层
6	无缝地面
7	瓷砖地板
8	排气/电缆管
9	压力管路

✓ 准备工作已完成。

1. 请在注意以下几点的情况下挖出凹陷部分：
   ⇒ 集水坑高度
   ⇒ 接口位置
   ⇒ 基床层约200 mm（8 in）
   ⇒ 平衡层约100 mm（4 in）
   ⇒ 挡板的最大高度调节。

2. 专业地浇铸并压实由可承重矿物混合物制成的基床层（Dpr 97%）。
3. 浇铸沙平衡层并水平抹平。
4. 准备好施工现场的管路。

6.4.3.3 安装提升系统（地下）

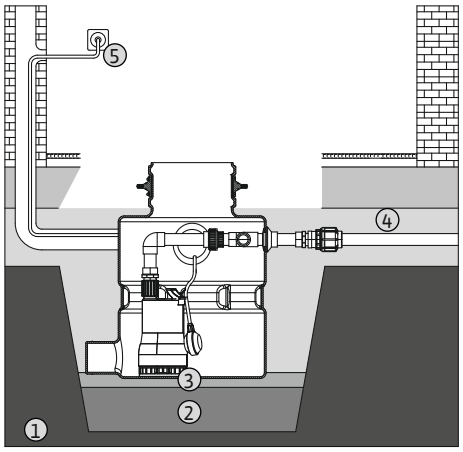


Fig. 11: 安装提升系统

1	土壤
2	基床层
3	平衡层
4	填充材料
5	电源连接，无开关设备的型号

✓ 已准备好用于安装的提升系统。
✓ 安排两人在现场。
✓ 有以下安装材料：
2×下水道主管套管，用于DN 100连接套管。
1×软管段，带2×管夹（在供货范围内）。
1×反虹吸弯管，用于电缆套管
填充材料：无锋利边缘的沙子/砾石，粒度0–32 mm（0–1¼ in）

1. 将下水道主管套管插至进水管和排气/电缆管。
2. 在DN 100套管处吊起提升系统，将其降入凹陷部分。
3. 将连接套管与管道对中。
4. 将提升系统振动至平衡层中。
5. 将接线电缆捆绑并使用电缆扎带固定在排放管上。
注意！ 为了在必要时能够将水泵或浮子开关从蓄水罐中抬起，必须在集水坑中保留一个电缆圈（约1 m/3 ft）！
小心！ 接线电缆不得阻碍浮子开关的移动！如果浮子开关不能自由移动，设备运行就会出现功能故障。
6. 使用拉线将所有接线电缆（用于水泵和浮子开关）通过排气管引至外部。
注意！ 在通向运行空间的过渡处安装一个反虹吸弯管！
7. 将下水道主管套管推至DN 100套管上，从而形成入口和排气连接。
8. 将软管段推至压力连接上。
9. 1.插入管夹，将软管段固定在压力连接上。**小心！ 最大拧紧扭矩：5 Nm (3.7 ft·lb)！**
10. 2.插入管夹。
11. 将软管段连接到排放管上，并用第2个管夹将软管段固定在施工现场的排放管上。
小心！ 最大拧紧扭矩：5 Nm（3.7 ft·lb）！
注意！ 为了防止发生从公共排水管回流的情况，请将排放管路设计成“管路回线”。管路回线下边缘必须位于当地规定的回流水位（通常为街道高度）最高点处！
12. 根据相关规定进行密封性检测。
13. 使用填充材料，保持与周围相同高度进行分层（层厚不超过200 mm/8 in）回填凹陷部分，直至下层密封圈，并进行专业压实（Dpr. 97%）。
在回填过程中，持续检查提升系统的垂直和稳定位置及蓄水罐的变形情况。手动直接在蓄水罐壁上进行压实（铲斗、手持式捣固器）。

► 提升系统已正确安装。

6.4.3.4 安装挡板并重置基底

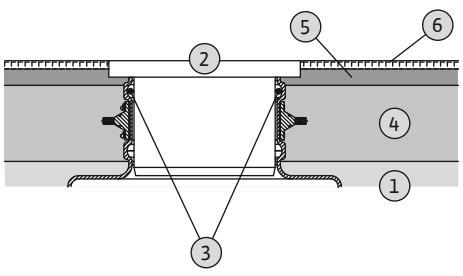


Fig. 12: 安装蓄水罐盖板

1	填充材料
2	带瓷砖框架的蓄水罐盖板
3	上密封圈上的O形圈
4	混凝土层
5	无缝地面层
6	地砖铺设

✓ 提升系统已安装。
✓ 凹陷部分已使用填充材料回填。
✓ 轴环已安装（在使用防水混凝土时必须安装）

1. 将O形圈插入蓄水罐颈部的上密封圈处。
2. 使用润滑剂润湿O形圈。
3. 从瓷砖框架中取出地漏。
4. 将带瓷砖框架的蓄水罐盖板导入蓄水罐颈部。
5. 将瓷砖框架的上边缘对齐运行空间的瓷砖上边缘，并固定蓄水罐盖板。
   小心！ 注意O形圈处于正确位置！
6. 重置基底：回填混凝土和无缝地面层。
   注意！ 在混凝土和无缝地面层硬化后，使用合适的材料回填现有的空洞！
7. 重新铺设瓷砖。
   ► 提升系统已安装完成。

6.4.3.5 结束工作

注意

功能测试结束后再安装地漏！

使用硅酮将地漏固定在瓷砖框架上。如果在硅酮固化后拆下地漏，必须完全清除旧的硅酮，然后重新安装地漏。

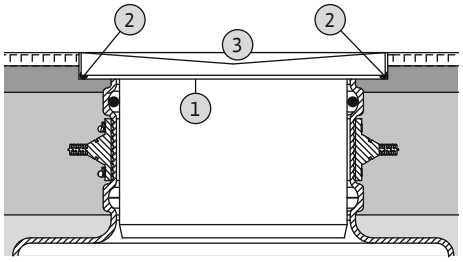


Fig. 13: 安装地漏

1	瓷砖框架
2	硅胶珠
3	地漏

✓ 瓷砖工作已完成。
✓ 已执行功能测试。
1. 在瓷砖框架周围注入硅胶珠。
2. 使硅酮短暂干燥（最多5分钟）。
3. 将地漏插入瓷砖框架并轻轻按压。
4. 等待24小时后再在地漏上行走。
   ► 地漏已安装完毕。

6.4.4 落地式安装的工作步骤

提升系统的安装步骤如下：

- 准备工作。
- 安装提升系统。
  铺设接线电缆，连接管路，安装抗浮装置。
- 提升系统拆包装。
- 移除紧固机构。
- 检查供货范围。
- 检查所有部件的状态是否正常。
  小心！ 不得安装损坏的部件！损坏的部件会导致系统故障！
- 将附件放在一边，以备日后使用。
- 选择安放位置：
  – 在建筑物内部。
  – 水平且坚固的基底（如混凝土、无缝地面等）
  – 不得靠近起居室和卧室区域。
- 注意安装和连接尺寸。

6.4.4.1 准备工作

6.4.4.2 安装提升系统（地下）

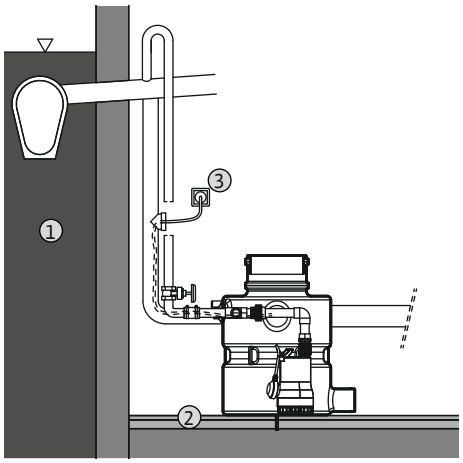


Fig. 14: 安装提升系统

1	土壤
2	基底
3	电源连接，无开关设备的型号

✓ 已准备好用于安装的提升系统。

✓ 安排两人在现场。

✓ 有以下安装材料：
2×下水道主管套管，用于DN 100连接套管。
1×软管段，带2×管夹（在供货范围内）。
1×反虹吸弯管，用于电缆套管
1×固定基础，用于抗浮装置（在供货范围内）

✓ 套管DN 100已打开。

1. 将提升系统放置在预定的水平且洁净的基底位置上。
2. 将连接套管与管道对中。
3. 将接线电缆捆绑并使用电缆扎带固定在排放管上。
注意！ 为了在必要时能够将水泵或浮子开关从蓄水罐中抬起，必须在集水坑中保留一个电缆圈（约1 m/3 ft）！
小心！ 接线电缆不得阻碍浮子开关的移动！如果浮子开关不能自由移动，设备运行就会出现功能故障。
4. 使用拉线将所有接线电缆（用于水泵和浮子开关）通过排气管引至外部。
注意！ 在通向运行空间的过渡处安装一个反虹吸弯管！
5. 将下水道主管套管推至DN 100套管上，从而形成入口和排气连接。
6. 将软管段插至压力连接上。
7. 将软管夹推至压力连接上。
8. 将软管段插至压力管路上。
9. 用软管夹将软管段固定在压力连接和施工现场的的排放管上。**小心！ 最大拧紧扭矩：5 Nm（3.7 ft·lb）！**
注意！ 为了防止发生从公共排水管回流的情况，请将排放管路设计成“管路回线”。管路回线下边缘必须位于当地规定的回流水位（通常为街道高度）最高点处！
10. 将抗浮装置安装在软管段上，并用合适的膨胀螺栓将其固定在基底上。
11. 根据相关规定进行密封性检测。
12. 将O形圈放置在蓄水罐颈部。
13. 将挡板（下水道主管套管密封塞）插入蓄水罐颈部，封住提升系统。

► 提升系统已正确安装。

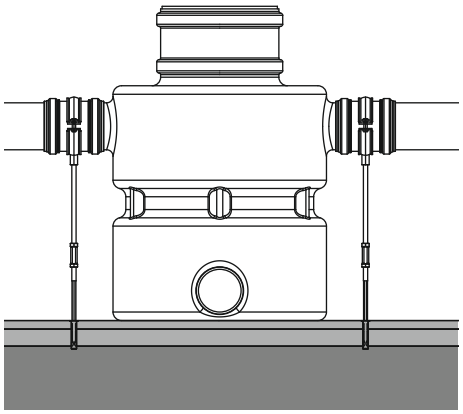


Fig. 15: 安装抗浮装置

6.5 电气连接

危险

触电导致生命危险！

执行电气作业时不按规定操作，会发生电击致死事故！
- 由专业电工负责执行电气作业！
- 遵守当地相关法规！

- 电源连接符合水泵铭牌上的信息。
- 按照当地法规的要求布设接线电缆。
- 连接电源插座，使其可防溢流。

对于带开关设备的“DS”型号，还要注意以下几点：
- 根据开关设备上的芯线布局连接所有接线电缆（水泵和液位控制装置）。

- 按照当地法规的要求进行接地。
  针对该地线接口，接地电缆横截面必须符合当地规定。
- 安装开关设备，使其可防溢流。

6.5.1 在电源侧的保险丝

断路器

断路器的规格和开关属性取决于所连接产品的额定电流。注意遵守当地相关法规。

漏电断路器 (RCD)

- 根据当地能源供应公司的规定安装漏电断路器 (RCD)。
- 如果人员可能接触到产品和导电液体，则安装漏电断路器 (RCD)。

6.5.2 电源连接

Wilo-DrainLift BOX... E/Wilo-DrainLift BOX... D

提升系统的水泵配备了Schuko插头。在施工现场提供一个或两个Schuko插座（根据当地规定），用于连接到电源。

Wilo-DrainLift BOX... DS

开关设备配有一个Schuko插头。在施工现场提供一个Schuko插座（根据当地规定），用于连接到电源。

6.5.3 带开关设备的“DS”型号

“DS”型号配备一个开关设备。开关设备由厂方预设完毕，具有以下功能：

- 根据液位控制
- 电机保护
- 高水位警报

提升系统安装完毕后，将水泵和液位控制装置连接到开关设备上。关于开关设备的连接，以及所有关于单个功能的进一步信息，请遵守开关设备的安装及操作说明。

6.5.4 使用变频器运行

运行时不允许使用变频器。

7 试运行

小心

集水坑内的损坏！

粗颗粒污染会造成集水坑内的损坏。试运行前要清除集水坑内的粗颗粒污染。

注意

注意阅读详细说明文档

按照整套设备的安装及操作说明执行试运行操作！

注意遵守所连接产品（传感器、水泵）的安装及操作说明以及设备文档！

7.1 工作人员资格鉴定

- 操作/控制：操作人员接受了整个系统功能原理的指导

7.2 运营者的责任

- 在提升系统上或者指定位置放置安装及操作说明。
- 为工作人员提供以其母语写成的安装及操作说明。
- 保证所有工作人员均已阅读安装及操作说明书并且理解其中内容。
- 所有安全装置和紧急停机开关回路都处于激活状态，并经检查确认功能正常。
- 提升系统适合于在规定的工作条件下使用。

7.3 操作

Wilo-DrainLift BOX... E/BOX... D

每台水泵都直接通过安装的浮子开关进行控制。插头插入插座后，相应的水泵即在自动模式下处于运行就绪状态。

小心

错误操作开关设备导致功能故障！

插入插头之后，开关设备在断电前最后设置的运行模式下启动。插入插头之前，请先阅读开关设备的安装及操作说明，了解开关设备的操作。

通过开关设备操作提升系统。已针对提升系统的应用对开关设备进行了预设。关于操作开关设备和各个指示图标，请遵守开关设备的安装及操作说明。

7.4 使用极限

不允许的操作方式和过大负荷会导致通过地漏出现溢流。严格遵守以下使用极限：

- 每小时最大入口流量：
  - DrainLift BOX-32/8E:1300 l (343 US.liq.gal)
  - DrainLift BOX-32/11E:1200 l (317 US.liq.gal)
  - DrainLift BOX-40/11E:870 l (230 US.liq.gal)
  - DrainLift BOX-32/8D:2400 l (634 US.liq.gal)
  - DrainLift BOX-32/11D:2200 l (581 US.liq.gal)
  - DrainLift BOX-40/11D:1620 l (428 US.liq.gal)
  - DrainLift BOX-32/8DS:3000 l (793 US.liq.gal)
  - DrainLift BOX-32/11DS:3100 l (819 US.liq.gal)
  - DrainLift BOX-40/11DS:1740 l (460 US.liq.gal)
- 排放管路中的最大压力：1.7 bar (25 psi)
- 流体温度：
  - DrainLift BOX-32...：3...35 °C（37...95 °F），运行3分钟的最高流体温度：60 °C（140 °F）
  - DrainLift BOX-40...：3 ~ 40 °C（37 ~ 104 °F）
- 环境温度：3 ~ 40 °C（37 ~ 104 °F）

仅适用于隐藏落地式安装：

- 最大地下水压：0.4 bar（罐底以上6 psi/4 mWs）

7.5 测试运行

在提升系统进入自动模式前，执行一次测试运行。通过测试运行检查系统功能是否正常。

✓ 提升系统已安装。

✓ 未安装地漏或套管密封塞。

1. 开启提升系统：将插头插入插座中。
   ⇒ **Wilo-DrainLift BOX... E/BOX... D**：提升系统处于自动模式。
   ⇒ **Wilo-DrainLift BOX... DS**：检查开关设备的运行模式。开关设备必须在自动模式下工作。
2. 打开入口侧和出口侧的止回阀。
   ⇒ 集水箱将缓慢注水。
3. 通过液位控制装置接通和断开提升系统。
   ⇒ 执行两次完整的泵送操作才能完成测试运行。
   ⇒ 泵送时，水泵不得进入开合操作。
   Wilo-DrainLift BOX... E/BOX... D：如果开合操作持续时间超过1秒，请重新调整浮子开关的电缆长度。
   Wilo-DrainLift Box... DS：如果开合操作持续时间超过1秒，请在开关设备处调整空转时间。
4. 关闭入口处的截止阀。
   ⇒ 不得再接通提升系统，因为不再有流体流入。如果提升系统重新接通，则止回阀不密封。请联系客户服务部！
5. 再次打开入口处的截止阀。
   ▶ 提升系统在自动模式下工作。

测试运行成功后，必须重新安装地漏或套管密封塞！

7.6 空转时间

空转时间在出厂时预设为 3 s。必要时可以调整空转时间：

- 增加每个泵送过程的有效容积。

- 通过集成的清淤装置，尽量抽吸蓄水罐底部的沉淀物。
- 开合操作可避免压力冲击。

阅读开关设备的安装及操作说明，以设置空转时间！

小心！如果更改了空转时间，注意运行模式。运行模式规定了激活持续时间和休止状态时间！

8 运行

提升系统默认以自动模式运行，通过内置的液位控制装置进行开关。

✓ 试运行已执行。

✓ 已成功执行测试运行。

✓ 已了解提升系统的操作和功能原理。

1. 开启提升系统：将插头插入插座中。
2. “DS”型号：在开关设备上选择自动模式。
   ► 提升系统在自动模式下运行，并通过液位进行控制。

9 停止运行/拆卸

9.1 工作人员资格鉴定

- 操作/控制：操作人员接受了整个系统功能原理的指导
- 电气作业：受过培训的专业电工
  是指接受过相关培训，具备所需知识和经验，能够发现并且规避电力危险的人员。
- 安装/拆卸工作：受过培训的卫生设施系统技术专家
  固定件和抗浮装置，塑料管连接

9.2 运营者的责任

- 遵守本地现行同业工伤事故保险联合会的事故防范规定和安全规定。
- 提供必要的防护装备并确保工作人员佩戴防护装备。
- 密闭空间保持通风顺畅。
- 如果出现有毒气体或窒息气体汇集的情况，立刻采取对策！
- 在密闭空间内作业时，为安全起见，必须有第二个人在场。

9.3 停止运行

提升系统被关闭，而非完全停止运转。这样提升系统可以随时重新投入运行。

污水中可能会滋生细菌，从而导致感染。作业时要穿戴以下防护装备：

- 防护手套：4X42C (uvex C500 wet)
- 护目镜：uvex skyguard NT
- 呼吸保护面罩：3M 6000 系列半面罩，带过滤器 6055 A2

✓ 已拆下地漏或套管密封塞。

✓ 已穿戴防护装备。

✓ 如果必须手动抽送出提升系统，要用手操作水泵上的浮子开关。为此，小心地从上方探入蓄水罐并操作浮子开关。**危险！挤伤或割伤肢体！切勿探入吸水口中。叶轮可能会挤伤或割伤肢体！**

1. 关闭入口管中的截止阀。
2. 将集水箱排空。
   Wilo-DrainLift BOX... E/BOX... D：向上旋转水泵的浮子开关。一旦泵送流体被抽出，立即释放浮子开关。
   Wilo-DrainLift Box... DS：以手动模式开启提升系统。
3. 使用一根软管，通过蓄水罐开口彻底冲洗水泵、浮子开关和蓄水罐。
4. 将集水箱排空。根据污染程度，多次重复步骤3和4。
5. **Wilo-DrainLift BOX... DS：**将开关设备切换到待机模式。
6. 关闭提升系统。
   从插座中拔出插头。确保提升系统不会意外重启！
7. 关闭压力管路中的截止阀。
8. **隐藏落地式安装**：再次装回地漏并用硅酮密封（参见“结束工作”）。
   落地式安装：使用相应的密封安装套管密封塞。
   ► 提升系统停止运行。

10 维护和维修

只能由专业人员（例如客户服务）进行维护和维修。保养间隔遵照 EN 12056-4：

- 用于商业运营时，每季度维护一次

- 多户住宅中使用时，每隔半年维护一次
- 单户住宅中使用时，每年维护一次

记录所有保养和维修工作。这些记录需要专业人员和运营者签字。

完成保养工作后，执行测试运行。

10.1 工作人员资格鉴定

- 电气作业：受过培训的专业电工
  是指接受过相关培训，具备所需知识和经验，能够发现并且规避电力危险的人员。
- 维护工作：专业人员（受过培训的卫生设施系统技术专家）
  污水造成的危害，提升系统的基础知识，EN 12056要求

10.2 拆卸水泵用于维护作业

为了便于对水泵执行维护作业，请将水泵从蓄水罐中提出。

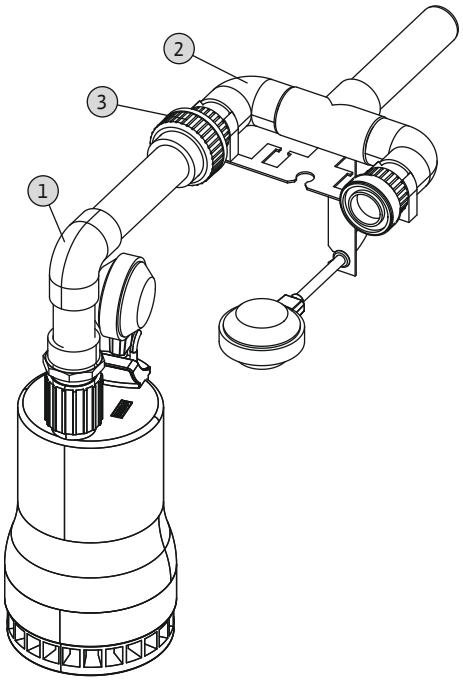


Fig. 16: 拆卸水泵

1	通向水泵的排放管
2	蓄水罐内的排放管
3	排放管螺栓

✓ 提升系统已停止运行。

✓ 已拆下地漏。

✓ 已穿戴防护装备。

1. 从上方探入蓄水罐。
2. 松开螺栓。
3. 将带排放管的水泵从蓄水罐中提出。
   注意！接线电缆损坏！将水泵缓慢地从蓄水罐中提出，并注意接线电缆。如果接线电缆过短，请勿将水泵从蓄水罐中提出。连接电缆的损坏将导致彻底毁坏！

11 故障、原因和排除方法

故障	原因和排除方法
水泵不进行泵送	4、5、6、7、8、9、10、11、12、16、17、18
流量过低	1、3、7、9、12、13、14
电耗过高	1、4、5、8、14
扬程过小	1、3、5、7、9、12、13、14、17
水泵运行不安静/噪声大	1、3、10、13、14、15、17

1. 入口或叶轮堵塞
   ⇒ 去除入口、蓄水罐和/或水泵的沉积物→联系客户服务。
2. 内部部件磨损（如叶轮、轴承）
   ⇒ 更换磨损的部件→联系客户服务
3. 工作电压过低
   ⇒ 安排检查电源连接→联系专业电工
4. 浮子开关堵塞
   ⇒ 检查浮子开关的可活动性
5. 电机不启动，因为没有电压
   ⇒ 检查电气连接→联系专业电工
6. 入口堵塞
   ⇒ 清洁入口
7. 电机绕组或电气管路损坏

⇒ 安排检查电机和电气连接→联系客户服务

8. 止回阀堵塞
   ⇒ 清洁止回阀→联系客户服务
9. 蓄水罐内水位剧烈降低
   ⇒ 检查液位控制装置并更换→联系客户服务
10. 液位控制装置的信号变送器损坏
    ⇒ 检查信号变送器，必要时更换→联系客户服务
11. 压力管中的滑阀未打开或打开程度不够
    ⇒ 将滑阀完全打开
12. 泵送流体中的空气或气体含量不合规定
    ⇒ 客户服务
13. 电机中的径向轴承损坏
    ⇒ 客户服务
14. 设备振动
    ⇒ 检查管路的弹性连接→必要时联系客户服务
15. 绕组温度监控装置由于绕组温度过高而关闭
    ⇒ 冷却之后，电机自动重启。
    ⇒ 绕组温度监控导致频繁关闭→联系客户服务
16. 水泵排气装置堵塞
    ⇒ 清洁水泵的排气管路→联系客户服务
17. 泵送流体温度过高
    ⇒ 让流体冷却下来

12 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！**

13 废弃处置

13.1 防护服

穿过的防护服必须根据当地现行的指令废弃处置。

13.2 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。

Table of contents

1 General information

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.
- Observe all product specifications.
- Observe the markings on the product.

The language of the original operating instructions is German. All other languages of these instructions are translations of the original operating instructions.

1.2 Copyright

1.3 Subject to change

Wilo shall reserve the right to change the listed data without notice and shall not be liable for technical inaccuracies and/or omissions. The illustrations used may differ from the original and are intended as an example representation of the device.

1.4 Exclusion from warranty and liability

Wilo shall specifically not assume any warranty or liability in the following cases:

- Inadequate configuration due to inadequate or incorrect instructions by the operator or the client
- Non-compliance with these instructions
- Improper use
- Incorrect storage or transport
- Incorrect installation or dismantling
- Insufficient maintenance
- Unauthorised repairs
- Inadequate construction site
- Chemical, electrical or electrochemical influences
- Wear

2 Safety

This section contains basic information about the individual stages in the life cycle of the pump. Failure to observe this information leads to:

- Danger to persons
- Danger to the environment
- Property damage
- Loss of claims for damages

2.1 Identification of safety instructions

These installation and operating instructions set out safety instructions for preventing personal injury and damage to property. These safety instructions are shown differently:

- Safety instructions relating to personal injury start with a signal word, are **preceded by a corresponding symbol** and are shaded in grey.

DANGER

Type and source of the danger!

Consequences of the danger and instructions for avoidance.

- Safety instructions relating to property damage start with a signal word and are displayed **without** a symbol.

CAUTION

Type and source of the danger!

Consequences or information.

Signal words

- **DANGER!**
  Failure to observe the safety instructions will result in serious injuries or death!
- **WARNING!**
  Failure to follow the instructions can lead to (serious) injuries!
- **CAUTION!**
  Failure to follow the instructions can lead to property damage and a possible total loss.
- **NOTICE!**
  Useful information on handling the product

Symbols

These instructions use the following symbols:


Danger of electric voltage


Danger of explosion


Personal protective equipment: Wear a safety helmet


Personal protective equipment: Wear foot protection


Personal protective equipment: Wear hand protection


Personal protective equipment: Wear safety goggles


Personal protective equipment: Wear mouth protection


Transport by two persons


Useful information

Markups

✓ Prerequisite

1. Work step/list

   ⇒ Notice/instructions

► Result

Identifying cross references

The name of the section or table is in inverted commas [“ ”]. The page number follows in square brackets [ ].

2.2 Personnel qualifications

- Personnel have been instructed on locally applicable regulations governing accident prevention.
- Personnel have read and understood the installation and operating instructions.
- Electrical work: qualified electrician
  Person with appropriate technical training, knowledge and experience who can identify and prevent electrical hazards.
- Installation/dismantling work: trained specialist in plant technology for sanitary facilities
  Fixation and buoyancy safeguards, connection of plastic pipes
- Maintenance work: skilled person (trained specialist in plant technology for sanitary facilities)
  Hazards caused by sewage, basic knowledge of lifting units, requirements of EN 12056

Children and persons with limited abilities

- Persons under the age of 16: Use of this product is prohibited.
- Persons under the age of 18: Supervise them during use of the product (supervisor)!
- Persons with limited physical, sensory or mental capacities: Use of this product is prohibited!

2.3 Electrical work

- Electrical work must be carried out by a qualified electrician.
- Disconnect device from the mains and secure it against being switched on again without authorisation.
- Observe applicable local regulations when connecting to the mains power supply.
- Comply with the requirements of the local energy supply company.
- Train personnel on how to make electrical connections.
- Train personnel on the options for switching off the device.
- Observe the technical information in these installation and operating instructions as well as on the rating plate.
- Earth the device.
- Arrange switchgears so as to be overflow-proof.
- Replace defective connection cables. Contact customer service.

2.4 Monitoring devices

The following monitoring devices must be provided on-site:

Circuit breaker

The size and switching characteristics of the circuit breakers must conform to the rated current of the connected product. Observe local regulations.

Residual-current device (RCD)

- Install a residual-current device (RCD) in accordance with the regulations of the local energy supply company.
- If people can come into contact with the device and conductive fluids, install a residual-current device (RCD).

2.5 Transport

- Locally applicable laws and regulations on work safety and accident prevention must be complied with.
- Transport product on a pallet or at the pipe sockets.
- Only lift the product by the tank (pipe sockets)!
  - The product will be damaged if lifted by the discharge port or the connection pipes.
- Units weighing 50 kg (110 lbs) and over must be transported by two persons. It is generally recommended that two persons transport the unit.
- If lifting equipment is used, observe the following points:
  - Lifting gear: Transport strap
  - Number: 2
  - Attachment point: Pipe socket
  - Ensure that the lifting gear is securely attached.

2.6 Installing/dismantling

- Locally applicable laws and regulations on work safety and accident prevention must be complied with.
- Disconnect device from the mains and secure it against being switched on again without authorisation.
- Close the inlet and pressure pipe.
- Ensure enclosed spaces have sufficient ventilation.
- When working in enclosed spaces, a second person must be present for safety reasons.
- Toxic or asphyxiating gases may build up in enclosed spaces or buildings. Observe protective measures in accordance with work regulations, e.g. carry a gas detector with you.
- Clean the device thoroughly.
  WARNING! Risk of fire if inappropriate clothing is worn and highly flammable cleaning agents are used!
  Static charging may occur when cleaning plastic parts. There is a risk of fire! Only wear anti-static clothing and do not use highly flammable cleaning agents.

2.7 During operation

- Open all gate valves in the inlet and pressure pipe!
- The maximum inflow must be lower than the maximum output of the system.
- Do not open the inspection openings!
- Ensure aeration and venting!

2.8 Maintenance tasks

- Maintenance work may **only** be carried out by qualified personnel (trained specialists in plant technology for sanitary facilities).

- Disconnect device from the mains and secure it against being switched on again without authorisation.
- Clean the device thoroughly.
  WARNING! Risk of fire if inappropriate clothing is worn and highly flammable cleaning agents are used!
  Static charging may occur when cleaning plastic parts. There is a risk of fire! Only wear anti-static clothing and do not use highly flammable cleaning agents.
- Close the inlet and pressure pipe.
- 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 and dispose of it according to the locally applicable guidelines.

2.9 Operator responsibilities

- Provide installation and operating instructions in a language which the personnel can understand.
- Make sure that the personnel have received the required training for the specified work.
- Provide protective equipment. Ensure that the protective equipment is worn by personnel.
- Ensure that safety and information signs mounted on the device are always legible.
- Train the personnel on how the system operates.
- Demarcate and cordon off the working area.

3 Application/use

3.1 Intended use

For collection and pumping of the following in domestic areas:

- Sewage not containing faeces

A grease separator must be installed for pumping greasy sewage!

Sewage pumping according to (DIN) EN 12050

The pumps meet the requirements of EN 12050-2.

Application

- For the backflow resistant drainage in cases where the discharge point is below the backflow level.
- In cases where sewage cannot be led to the sewer system via a natural fall.
- Installation within a building

Application limits

Improper use and overstraining will cause overflow through the floor drain. The following application limits must be observed:

- Max. intake/h:
  - DrainLift BOX-32/8E: 1300 l (343 US.liq.gal)
  - DrainLift BOX-32/11E: 1200 l (317 US.liq.gal)
  - DrainLift BOX-40/11E: 870 l (230 US.liq.gal)
  - DrainLift BOX-32/8D: 2400 l (634 US.liq.gal)
  - DrainLift BOX-32/11D: 2200 l (581 US.liq.gal)
  - DrainLift BOX-40/11D: 1620 l (428 US.liq.gal)
  - DrainLift BOX-32/8DS: 3000 l (793 US.liq.gal)
  - DrainLift BOX-32/11DS: 3100 l (819 US.liq.gal)
  - DrainLift BOX-40/11DS: 1740 l (460 US.liq.gal)
- Max. pressure in the discharge pipeline: 1.7 bar (25 psi)

- Fluid temperature:
  - DrainLift BOX-32...: 3...35 °C (37...95 °F), max. fluid temperature for 3 mins: 60 °C (140 °F)
  - DrainLift BOX-40...: 3...40 °C (37...104 °F)
- Ambient temperature: 3...40 °C (37...104 °F)

Only applies to concealed floor installation:

- Max. ground water pressure: 0.4 bar (6 psi / 4 mWG above the floor of the tank)

3.2 Improper use

DANGER

Explosion due to use of explosive fluids!

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

The following fluids must **not** be introduced:

- Sewage containing faeces
- Sewage from drainage objects that are located above the backflow level and can be drained by natural fall.
- Debris, ash, garbage, glass, sand, plaster, cement, lime, mortar, fibrous materials, textiles, paper towels, wet-wipes (e.g. fleece cloths, moist toilet paper wipes), nappies, cardboard, coarse paper, synthetic resins, tar, kitchen waste, grease, oil
- Slaughterhouse waste, disposal of slaughtered animals and animal waste (liquid manure, etc.)
- Toxic, aggressive and corrosive media, such as heavy metals, biocides, pesticides, acids, bases, salts, swimming-pool water
- Cleaning agents, disinfectants, dishwashing or laundry detergents in excess amounts, and such which have a high degree of foam formation
- Drinking water

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

4 Product description

4.1 Design

4.1.1 Concealed floor installation

Compact and fully-automatic sewage lifting unit for concealed floor installation within buildings.

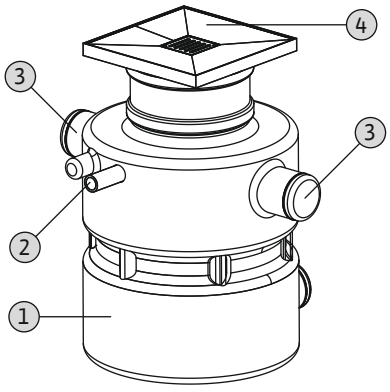
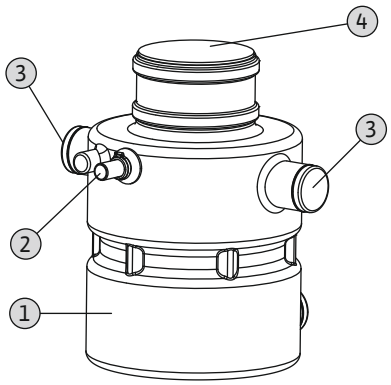


Fig. 1: Overview of concealed floor installation

1	Tank
2	Discharge connection
3	Inlet and ventilation connection
4	Height-adjustable cover with floor drain

4.1.2 Floor-mounted installation

Compact and fully-automatic sewage lifting unit for floor-mounted installation within buildings.



1	Tank
2	Discharge connection
3	Inlet and ventilation connection
4	Cover (cover plug)

Fig. 2: Overview of floor-mounted installation

4.1.3 Collection reservoir

Gas-tight and watertight collection reservoir made from plastic, with deposit-free interior. Two DN 100 connections at a 180° angle to each other for the inlet as well as venting and cable routing. The discharge connection is located at a 90° angle to the other two connections. For easy maintenance of the unit, the cover serves as an inspection opening.

4.1.4 Pumps used

Depending on its type, the sewage lifting unit is equipped with the following submersible sewage pumps:

- BOX-32/8 ...: Drain TMW 32/8
- BOX-32/11 ...: Drain TMW 32/11
- BOX-32/11HD ...: Drain TMW 32/11HD
- BOX-40/11 ...: Rexa MINI3-V04.11/M06 ... -A
- BOX-40/11 ... **DS** ...: Rexa MINI3-V04.11/M06 ... -P

The submersible pumps are pre-installed in the collection reservoir.

Drain TMW 32

Sewage pump with integrated turbulator (twister function), open multi-channel impeller and vertical threaded connection. Pump housing, strainer and impeller made of composite material. 1~ motor (jacket cooling) 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. Connection cable with float switch and fitted plug (CEE 7/7).

The twister function guarantees permanent turbulence within the pump's intake area. The turbulence prevents the settling sediments from sinking and settling. This ensures a clean pump sump and reduces the build-up of odours.

Drain TMW 32HD

Sewage pump with integrated turbulator (twister function), open multi-channel impeller and vertical threaded connection. Pump housing, strainer and impeller made of composite material. 1~ motor (jacket cooling) with integrated operating capacitor and self-switching thermal motor monitoring. Motor housing and shaft made of high-quality stainless steel (AISI 316L). Oil-filled sealing chamber with double sealing: a rotary shaft seal is installed on the motor side, a mechanical seal on the pump side. Connection cable with float switch and fitted plug (CEE 7/7).

The twister function guarantees permanent turbulence within the pump's intake area. The turbulence prevents the settling sediments from sinking and settling. This ensures a clean pump sump and reduces the build-up of odours.

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 plug (CEE 7/7).

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 plug (CEE 7/7).

4.1.5 Level control

DrainLift BOX ... E and DrainLift BOX ... D

The level control takes place via the float switch attached to the pump. The “pump on/off” switching level is determined by the cable length of the float switch.

DrainLift BOX ... DS

The level control takes place via the separate float switch in the tank and a switchgear. The switchgear is preset. The “pump on” switching point is determined by the cable length of the float switch. The “pump off” switching point is defined by the set follow-up time in the switchgear. The switchgear offers the following functions:

- Collective fault signal (SSM) and collective run signal (SBM)
- Individual fault signal (ESM) and individual run signal (EBM)
- High water alarm
  Additional float switch available as an accessory.
- Integrated buzzer, mains-independent
  9 V rechargeable battery included in the scope of delivery.

4.2 Operating principle

Single-pump system: Wilo-DrainLift BOX... E

The sewage produced is channelled into the collection reservoir via the inlet pipe, where it collects. When the water level reaches the switch-on level, the pump is switched on by the attached float switch and the collected sewage is pumped into the connected discharge pipe. When the switch-off level is reached, the pump is immediately deactivated.

Double-pump system: Wilo-DrainLift Box... D (main/standby pump)

The sewage produced is channelled into the collection reservoir via the inlet pipe, where it collects. When the water level reaches the switch-on level, the pump is switched on by the attached float switch and the collected sewage is pumped into the connected pressure pipe. When the switch-off level is reached, the pump is immediately deactivated.
If the main pump malfunctions, pumping is performed by the standby pump.

Double-pump system: Wilo-DrainLift BOX ... DS (alternating operation)

The sewage produced is channelled into the collection reservoir via the inlet pipe, where it collects. When the water level reaches the switch-on level, the pump is switched on by a float switch and the collected sewage is pumped into the connected discharge pipe. When the switch-off level is reached, the pump is deactivated after the set follow-up time. Pump cycling is carried out after every pumping procedure. If one pump malfunctions, the other pump is automatically activated.

For enhanced operational reliability, a further float switch can be installed in the tank. A high water level can be defined using this float switch. When the high water level is reached:

- The switchgear emits audible and visual alarm warning signals.
- Both pumps undergo forced switch-on.
- The collective fault signal is activated.

As soon as the water drops below the high water level, the standby pump is deactivated once the follow-up time has elapsed, and the warning message is acknowledged automatically. The main pump continues to run in the regular pumping cycle.

4.3 Operating modes

Operating mode S3: Intermittent periodic duty

This operating mode defines a switching cycle in a combination of periods of operation and standstill. Specified value (e.g. S3 25 %) relates to the operating time. The switching cycle has a duration of 10 min.
If two values (e.g. S3 25 %/120 s) are specified, the first value relates to the operating time. The second value specifies the max. period of the switching cycle.

The unit is not designed for continuous duty! The max. volume flow applies to intermittent periodic duty S3!

4.4 Operation with frequency converter

Operation on the frequency converter is not permitted.

4.5 Type key

Example:	**Wilo-DrainLift BOX-32/11HD DS O**
BOX	Sewage lifting unit for sewage free of faeces
32	Nominal diameter discharge connection of the installed pump
11	Max. delivery head in m
HD	HD = Pump for aggressive fluids
D	Lifting unit version: • E = Single-pump system • D = Double-pump system
S	Pump control: • Without = Pump with float switch • S = Switchgear with float switch
O	Installation type: • O = Floor-mounted installation • U = Concealed floor installation

4.6 Technical data

Overview of technical data for the various versions.

Version	BOX-32/8E	BOX-32/8D	BOX-32/8DS	BOX-32/11E	BOX-32/11D	BOX-32/11DS	BOX-40/11E	BOX-40/11D	BOX-40/11DS
Mains connection	1~230 V/50 Hz			1~230 V/50 Hz			1~230 V/50 Hz		
Power consumption [P_1]	450 W			750 W			930 W		
Rated power [P_2]	370 W			550 W			600 W		
Max. delivery head	7 m	7 m	7 m	10 m	10 m	10 m	11 m	11 m	11 m
Max. volume flow	8.5 m³/h	8 m³/h	8 m³/h	11.5 m³/h	11 m³/h	11 m³/h	14 m³/h	14 m³/h	14 m³/h
Activation type	direct			direct			direct		
Operating mode	S3 25%	S3 25%	S3 25%	S3 25%	S3 25%	S3 25%	S3 20%	S3 20%	S3 20%
Fluid temperature	3…35 °C			3…35 °C			3…40 °C		
Max. fluid temperature for 3 mins	60 °C			60 °C			-		
Ambient temperature	3…40 °C			3…40 °C			3…40 °C		
Free ball passage	10 mm			10 mm			40 mm		
Gross volume	113 l			113 l			113 l		
Switching volume	26 l	24 l	30 l	24 l	22 l	30 l	29 l	27 l	29 l
Cable length to plug	10 m	10 m	1.5 m	10 m	10 m	1.5 m	5 m	5 m	1.5 m
Cable length to switchgear	-	-	10 m	-	-	10 m	-	-	5 m
Plug	CEE 7/7 (shockproof plug)			CEE 7/7 (shockproof plug)			CEE 7/7 (shockproof plug)		
Discharge connection	40 mm			40 mm			40 mm		
Inlet connection	110 mm (DN 100)			110 mm (DN 100)			110 mm (DN 100)		
Ventilation connection	110 mm (DN 100)			110 mm (DN 100)			110 mm (DN 100)		
Concealed floor installation weight	26 kg	31 kg	36 kg	28 kg	35 kg	40 kg	33 kg	45 kg	50 kg
Floor-mounted installation weight	20 kg	25 kg	30 kg	22 kg	29 kg	34 kg	27 kg	39 kg	44 kg

4.7 Scope of delivery

DrainLift BOX ... E

- Plastic chamber with installed pipework
- Pipework with non-return valve
- Pump with float switch and plug
- Pressure hose (inside diameter: 40 mm/1.5 in) incl. hose clips
- O-ring to seal tank cover and as anti-syphon trap
- **Concealed floor installation**

  - Tank cover with tile frame and floor drain
  - Shell cover
- **Floor-mounted installation**
  - Tank cover (cover plug)
  - Fixation material for buoyancy safeguards
- Installation and operating instructions

DrainLift BOX ... D
- Plastic chamber with installed pipework
- Pipework with non-return valve and Y-piece
- Two pumps with float switch and plug
- Pressure hose (inside diameter: 40 mm/1.5 in) incl. hose clips
- O-ring to seal tank cover and as anti-syphon trap
- **Concealed floor installation**
  - Tank cover with tile frame and floor drain
  - Shell cover
- **Floor-mounted installation**
  - Tank cover (cover plug)
  - Fixation material for buoyancy safeguards
- Installation and operating instructions

DrainLift BOX ... DS
- Plastic chamber with installed pipework
- Pipework with non-return valve and Y-piece
- Two pumps with plug
- Pressure hose (inside diameter: 40 mm/1.5 in) incl. hose clips
- O-ring to seal tank cover and as anti-syphon trap
- **Concealed floor installation**
  - Tank cover with tile frame and floor drain
  - Shell cover
- **Floor-mounted installation**
  - Tank cover (cover plug)
  - Fixation material for buoyancy safeguards
- Switchgear with float switch and plug
- 9 V rechargeable battery
- Installation and operating instructions

4.8 Accessories

- Collar – to stop ground water from seeping into the concealed floor installation.
- Alarm switchgears – to detect leakages.
- Float switch – to detect high water levels.
- Diaphragm pump – for emergency draining.
- Stop valve

5 Transportation and storage

5.1 Delivery

- After receiving the shipment, check it immediately for defects (damage, completeness).
- Defects must be noted on the freight documentation.
- Defects must be notified to the transport company or the manufacturer on the day of receipt of shipment.
- Subsequently notified defects can no longer be asserted.

5.2 Transport

- Wear protective equipment! Observe the work regulations.
  - Protective gloves: 4X42C (uvex C500 wet)
  - Safety shoes: Protection class S1 (uvex 1 sport S1)
- Transport product on a pallet or at the pipe sockets.
- Only lift the product by the tank (pipe sockets)!
  - The product will be damaged if lifted by the discharge port or the connection pipes.
- Units weighing 50 kg (110 lbs) and over must be transported by two persons.
- Always set the product down vertically on the pallet.
- Secure the product against slipping. When lashing, make sure that the plastic parts do not deform.
- Protect attached switchgears and plugs from water ingress.
- To avoid damage to the pipework and pipe adaptors, always keep the product vertical during transport.

5.3 Storage

CAUTION

Total damage due to moisture ingress

The ingress of moisture into the connection cable damages the cable and the pump! Never immerse the ends of the connection cable in fluid. Seal them tightly during storage.

- Place the lifting unit securely on a firm surface and secure it against slipping and falling over!
- Storage conditions:
  - Maximum: -15 to +60 °C (5 to 140 °F), max. humidity: 90 %, non-condensing.
  - Recommended: 5 to 25 °C (41 to 77 °F), relative humidity: 40 to 50 %.
- Drain the collection reservoir completely.
- Coil the connection cable and attach to the lifting unit.
- Remove the existing switchgear and store it according to the manufacturer's instructions.
- Tightly seal all open pipe sockets. Attach the chamber cover and close the floor drain.
- Do not store the lifting unit in spaces where welding work is carried out. The resulting gases or radiation can corrode the elastomer parts.
- Protect the lifting unit from direct exposure to sunlight. Extreme heat can damage the tank and the built-in pumps!

6 Installation and electrical connection

6.1 Personnel qualifications

- Electrical work: qualified electrician
  Person with appropriate technical training, knowledge and experience who can identify and prevent electrical hazards.
- Installation/dismantling work: trained specialist in plant technology for sanitary facilities
  Fixation and buoyancy safeguards, connection of plastic pipes

6.2 Installation types

- Inside buildings

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

- Outside buildings

6.3 Operator responsibilities

- Observe locally applicable accident prevention and safety regulations.
- Observe all regulations for working under suspended loads when using lifting equipment.
- Provide protective equipment. Ensure that the protective equipment is worn by personnel.
- Ensure free access to the installation location.
- Carry out the installation work according to locally applicable regulations.
- Check that the available consulting documents (installation plans, installation location, inflow conditions) are complete and accurate.
- Lay and prepare the pipes according to the consulting documents.
- Mains connection is overflow-proof.

6.4 Installation

CAUTION

Material damage due to incorrect transport!

It is not possible to transport and to position the lifting unit alone. There is a risk of material damage to the lifting unit! Always transport the lifting unit and align it at the installation location with two persons.

- Wear protective equipment! Observe the work regulations.
  - Protective gloves: 4X42C (uvex C500 wet)
  - Safety shoes: Protection class S1 (uvex 1 sport S1)
- Prepare the installation site:
  - Clean, free of coarse solids
  - Dry

- Frost-free
- Well lit

- Ensure operating space has sufficient ventilation.
- Ensure a clearance area of min. 60 cm (2 ft) around the floor drain.
- Provide threading strip for the installation of the connection cables.
- All connection cables must be laid properly. The connection cables must not pose any risk (i.e. tripping, damage during operation). Check whether the cable cross-section and the cable length are sufficient for the selected installation type.
- The mounted switchgear is not overflow-proof. Install the switchgear at an adequate height. Ensure good operation!
- In case of a floor-mounted installation, install buoyancy safeguards. Note the installation instructions.

6.4.1 Note on pipework

The pipework is subjected to different pressures during operation. Pressure peaks can also occur (e.g. when closing the swing check valve) which may be several times higher than the pump pressure, depending on the operating conditions. These different pressures put a strain on the piping and the pipe adaptors. In order to ensure safe and faultless operation, the piping and pipe adaptors must be checked based on the following parameters and designed according to the requirements:

- Pipes are self-supporting.
  No tensile or compressive forces must act on the lifting unit.
- Pressure resistance of pipework and pipe adaptors
- Tensile strength of the pipe adaptors (= longitudinal force fit connection)
- Connect the pipes free of stress and vibrations.

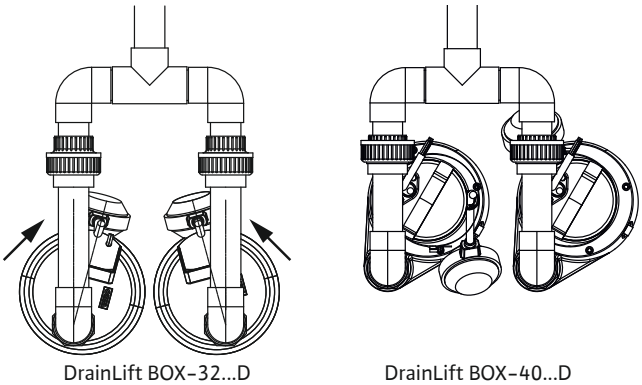
6.4.2 Preparing the lifting unit for installation

Prior to installation of the lifting unit, complete the following tasks:

- Check the position of the pumps.
- Check the level control.
- Open the connection port.
- Install accessories:
  - Mini float switch
    An additional mini float switch must be installed for the high water alarm.
  - Collar
    NOTICE! If watertight concrete (white tub) is sealed, an additional collar (available as an accessory) must be installed on the neck of the tank!

Checking the position of the pumps

The pumps are mounted and positioned in the factory. The pumps may shift during transport, which would impair proper function of the float switches. For this reason, check that the pumps are in the correct position before installation, and if necessary correct according to the illustrations.



DrainLift BOX-32...D DrainLift BOX-40...D

Fig. 3: Position of the pumps, without switchgear

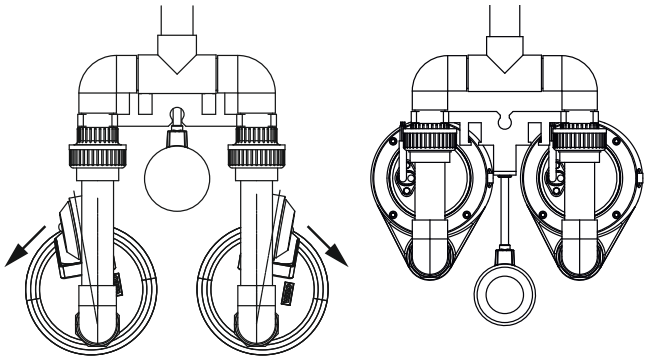


Fig. 4: Position of the pumps, with switchgear

Checking the setting on the level control device

CAUTION

Incorrect alignment of the float switches may lead to malfunction!

To function properly, the float switches must have sufficient space to float and lie flat on the surface of the water. Therefore, ensure correct alignment of the pumps and floaters!

The level control device is factory-mounted and factory-set. The level control device may slip from its mount during transport and lead to malfunction of the lifting unit. Therefore, check the attachment and the cable length of the float switches prior to installation and adjust if necessary.

Single- and double-pump system without switchgear

- DrainLift BOX-32/..
  - Level measurement is conducted by the pump's attached float switch.
  - The float switch cable is fixed to the pump's cable terminal.
  - The length of the cable defines the switching level.
- DrainLift BOX-40/..
  - Level measurement is conducted by the pump's attached float switch.
  - The float switch cable is attached to the pump motor via a cable clamp and a hose clip.
  - The length of the cable defines the switching level.

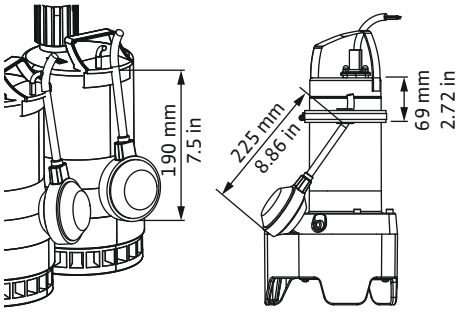


Fig. 5: Attaching and setting the float switches, without switchgear

Double-pump system with switchgear

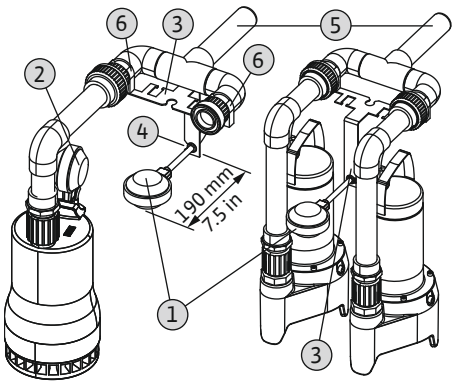


Fig. 6: Attaching and setting the float switches, with switchgear

1	Float switch for level control
2	Attached float switch, fixed in the "ON" position
3	Float switch holder
4	Float switch cable attachment point
5	Discharge pipe
6	Float switch holder attachment

The level is recorded by a separate float switch. The float switch is attached to the float switch holder, while the float switch cable is attached to the cross brace of the float switch holder:

- Wilo-DrainLift BOX-32/... DS:
  - The float switch is attached to the pump's cable terminal.
  - The pump's attached float switch must be fixed in the "ON" position.
  - The float switch holder is attached towards the pipework!
- Wilo-DrainLift BOX-40/... DS:
  - The float switch holder is attached towards the middle of the tank!

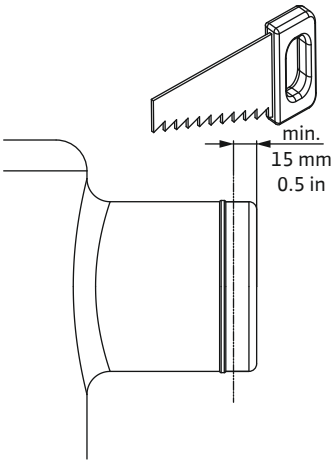


Fig. 7: Preparing the connections

NOTICE! For the float switch to work properly, the floater must float towards the centre of the tank. Make sure that the float switch holder is aligned correctly!

Opening a connection port

Open the following connection ports:

- Inlet: DN 100
- Venting: DN 100

1. Approx. 15 mm (0.5 in) from the outside, cut open the connection port with a saw.
2. Deburr the connection port.
   ► The connection port is now open.

Installing a mini float switch for high water alarm (only for "DS" version)

An additional mini float switch must be installed for the high water alarm to function. The mini float switch is available as an accessory.

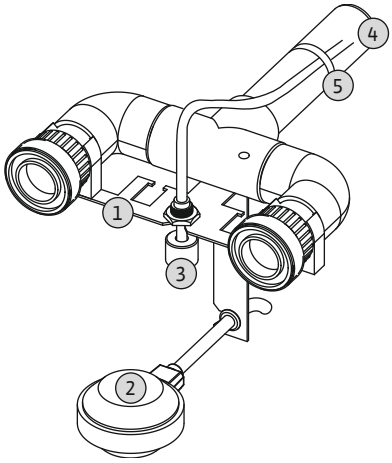


Fig. 8: High water level detection

1	Float switch holder
2	Float switch for level control
3	Mini float switch for high water alarm
4	Discharge pipe
5	Float switch cable attachment

✓ Preparatory tasks completed.
✓ Pumps' position set.
✓ Level control set.

1. Loosen the nut from the threaded bush. Keep approx. 5 mm (0.2 in) distance between the nut and the end of the threaded bush.
2. Insert the threaded bush into the oblong hole on the float switch holder.
3. Retighten the nut to affix the mini float switch to the float switch holder.
4. Fix the float switch cable to the discharge pipe with a cable tie.
   ► The mini float switch is now installed.

Concealed floor installation: Installing the collar

If watertight concrete is used (white tub), a collar must be fixed to the neck of the tank to create a seal between the concrete and the tank. The collar is available as an accessory.

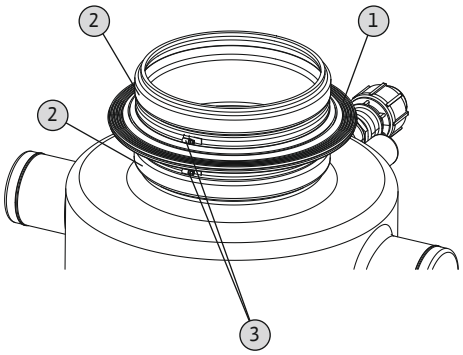


Fig. 9: Installing the collar

1	Collar
2	Sealing bead
3	Clamp

✓ The neck of the tank must be clean and dry.
✓ The collar must not be damaged.
✓ Observe the manufacturer's instructions!

1. Place the first clamp over the neck of the tank.
2. Fit the collar onto the neck of the tank, and place it between the two sealing beads.
   ⇒ Use a lubricant to make installation easier!
3. Introduce the first clamp into the lower groove of the collar and tighten.
4. Place the second clamp over the neck of the tank and introduce it into the upper groove of the collar.
5. Tighten the second clamp.
   ► The collar is now installed.

6.4.3 Concealed floor installation work steps

The lifting unit is installed using the following steps:

- Preparatory tasks.
- Dig a pit.
- Install the lifting unit.
  Lay the connection cable, connect the piping, fill the pit.
- Install the cover and restore the sub-floor.
- Final tasks.

6.4.3.1 Preparatory tasks

- Unpack the lifting unit.
- Remove the securing mechanisms.
- Check the scope of delivery.
- Check all components are in proper working condition.
  CAUTION! Do not install defective components! Defective components can lead to system failures!
- Place accessories to one side and keep them for later use.
- Select installation site:
  - Inside the building.
  - Not in the immediate vicinity of living and sleeping areas.
  - Pit depth and diameter.
    CAUTION! Do not install in peaty soil! Peaty soil leads to destruction of the tank!

6.4.3.2 Excavating the pit

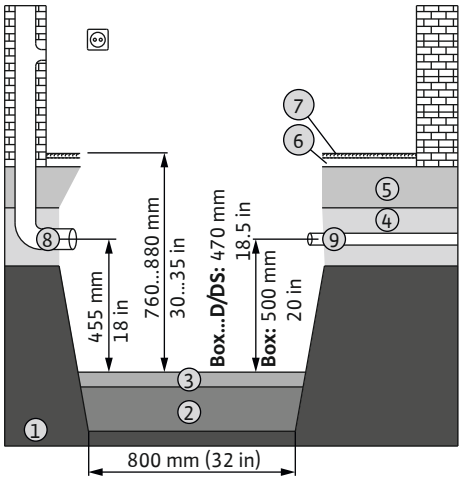


Fig. 10: Dig a pit

1	Ground
2	Underlay
3	Levelling layer
4	Filling material
5	Concrete layer
6	Screed
7	Tiled floor
8	Venting/cable duct
9	Discharge pipeline

✓ Preparatory tasks completed.

1. Dig out the pit, taking the following points into account:
   ⇒ Pump chamber height
   ⇒ Position of the connections
   ⇒ Underlay approx. 200 mm (8 in)
   ⇒ Levelling layer approx. 100 mm (4 in)
   ⇒ Max. height adjustment of the cover.
2. Fill in load-bearing mineral mixture underlay properly and compact (Dpr 97 %).
3. Add a levelling layer of sand and level off.
4. Prepare the on-site piping.

6.4.3.3 Installing the lifting unit (under the floor)

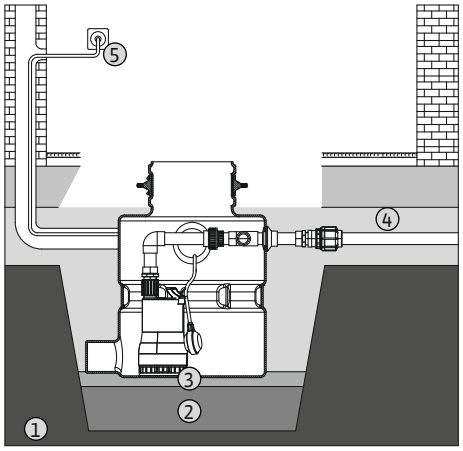


Fig. 11: Lifting unit installation

1	Ground
2	Underlay
3	Levelling layer
4	Filling material
5	Mains connection, version without switchgear

✓ Lifting unit prepared for installation.

✓ Two persons present.

✓ Required installation material:
2x coupling sleeves for DN 100 connection ports.
1x hose section with 2x pipe clamps (included in scope of delivery).
1x anti-syphon trap for cable entry
Filling material: Sand/gravel without sharp edges, grain size 0 – 32 mm (0 – 1¼ in)

1. Place coupling sleeves on the inlet pipe and the ventilation/cable duct.
2. Lift the lifting unit with the DN 100 connection ports and lower it into the pit.
3. Align the connection ports with the pipes.
4. Bed the lifting unit into the levelling layer.
5. Coil the connection cables and attach them to the discharge pipe with a cable tie.
NOTICE! To allow the pumps or float switches to be lifted out of the tank as required, a cable loop (approx. 1 m/3 ft) must remain in the chamber!
CAUTION! The connection cables must not impede the movement of the float switch! If the float switch cannot move freely, this may cause the system to malfunction.
6. All connection cables (for pumps and float switches) should be led outside via the ventilation pipe using a drawing wire.
NOTICE! Install an anti-syphon trap at the transition in the operating space!
7. Slide the coupling sleeves over the DN 100 connection ports to make the inlet and ventilation connections.
8. Place the hose section on the discharge connection.
9. 1. Attach pipe clamp and affix the hose section to the discharge connection. **CAUTION! Max. tightening torque: 5 Nm (3.7 ft·lb)!**
10. 2. Attach pipe clamp.
11. Place the hose section on the discharge pipe and affix hose section to the on-site discharge pipe using the second pipe clamp. **CAUTION! Max. tightening torque: 5 Nm (3.7 ft·lb)!**
NOTICE! To prevent a backflow from the main public sewer, the discharge pipeline must be installed as a "pipe loop". The bottom edge of the pipe loop must be above the locally defined backflow level (usually street level) at its highest point!
12. Perform a leak test in accordance with the applicable regulations.
13. Fill the pit a layer at a time (layer thickness max. 200 mm/8 in) with filling material all the way around to an even height, up to the bottom of the sealing bead and compact properly (Dpr. 97%).
While filling, ensure that the lifting unit remains vertical and stable and watch out for deformation of the tank. Compact by hand directly by the tank wall (shovel, hand rammer).

► The lifting unit is now installed properly.

6.4.3.4 Installing the cover and restoring the sub-floor

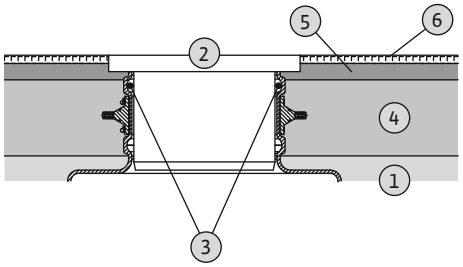


Fig. 12: Installing the tank cover

1	Filling material
2	Tank cover with tile frame
3	O-Ring in the upper sealing bead
4	Concrete layer
5	Screed layer
6	Ceramic tiling

✓ Lifting unit installed.

✓ Pit filled with filling material.

✓ Collar installed (mandatory when watertight concrete used!)

1. Insert the O-Ring in the upper sealing bead in the neck of the tank.
2. Apply a lubricant to the O-Ring.
3. Take the floor drain out of the tile frame.
4. Insert tank cover with tile frame into the neck of the tank.
5. Align the tile frame with the upper surface of the tiles in the operating space and fix the tank cover in place.
   CAUTION! Ensure the O-ring is in the correct position!
6. Restore the sub-floor: Fill in the concrete and screed layer.
   NOTICE! After the concrete and screed have hardened, fill in any hollow spaces with suitable material!
7. Restore the tile flooring.

   ► The lifting unit is now completely installed.

6.4.3.5 Final tasks

NOTICE

Only affix floor drain following function test!

The floor drain is fixed into the tile frame with silicone. If the floor drain is removed after the silicone has set, the old silicone must be removed completely and the floor drain re-installed.

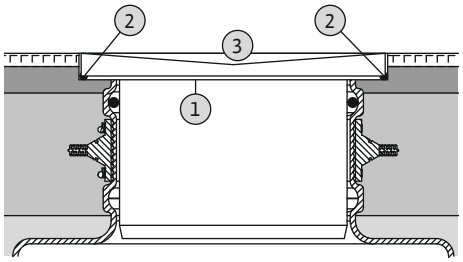


Fig. 13: Installing the floor drain

1	Tile frame
2	Line of silicone
3	Floor drain

✓ Tiling work complete.

✓ Function test carried out.

1. Apply a line of silicone around the tile frame.
2. Allow the silicone to dry briefly (max. 5 mins).
3. Insert the floor drain into the tile frame and lightly press it in.
4. Wait 24 hours before walking on the floor drain.

   ► The floor drain is now installed.

6.4.4 Floor-mounted installation work steps

The lifting unit is installed using the following steps:

- Preparatory tasks.
- Install the lifting unit.
  Lay the connection cable, connect the piping, install buoyancy safeguards.

6.4.4.1 Preparatory tasks

- Unpack the lifting unit.
- Remove the securing mechanisms.
- Check the scope of delivery.
- Check all components are in proper working condition.
  CAUTION! Do not install defective components! Defective components can lead to system failures!
- Place accessories to one side and keep them for later use.

- Select installation site:
  - Inside the building.
  - Flat and firm surface (e.g., concrete, screed, etc.)
  - Not in the immediate vicinity of living and sleeping areas.
- Observe the installation and fitting dimensions.

6.4.4.2 Installing the lifting unit (floor mounted)

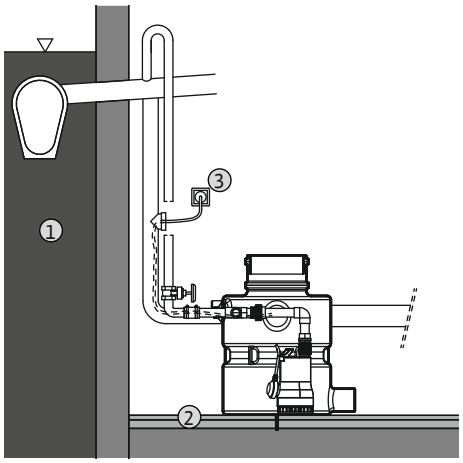


Fig. 14: Lifting unit installation

1	Ground
2	Bearing surface
3	Mains connection, version without switchgear

✓ Lifting unit prepared for installation.

✓ Two persons present.

✓ Required installation material:
2x coupling sleeves for DN 100 connection ports.
1x hose section with 2x pipe clamps (included in scope of delivery).
1x anti-syphon trap for cable entry
1x fixation material for buoyancy safeguards (included in the scope of delivery)

✓ Open DN 100 connection ports.

1. Position the lifting unit at the planned location on a flat and clean surface.
2. Align the connection ports with the pipes.
3. Coil the connection cables and attach them to the discharge pipe with a cable tie.
   NOTICE! To allow the pumps or float switches to be lifted out of the tank as required, a cable loop (approx. 1 m/3 ft) must remain in the chamber!
   CAUTION! The connection cables must not impede the movement of the float switch! If the float switch cannot move freely, this may cause the system to malfunction.
4. All connection cables (for pumps and float switches) should be led outside via the ventilation pipe using a drawing wire.
   NOTICE! Install an anti-syphon trap at the transition in the operating space!
5. Slide the coupling sleeves over the DN 100 connection ports to make the inlet and ventilation connections.
6. Place the hose section on the discharge connection.
7. Push the hose clips on the discharge connection.
8. Place the hose section on the discharge pipeline.
9. Attach hose section with hose clip on discharge connection and on the on-site discharge pipe. **CAUTION! Max. tightening torque: 5 Nm (3.7 ft·lb)!**
   NOTICE! To prevent a backflow from the main public sewer, the discharge pipeline must be installed as a "pipe loop". The bottom edge of the pipe loop must be above the locally defined backflow level (usually street level) at its highest point!
10. Mount the buoyancy safeguards on the hose section and attach to surface with suitable dowels.
11. Perform a leak test in accordance with the applicable regulations.
12. Position the O-ring in the neck of the tank.
13. Put the cover (cover plug) in the neck of the tank and close the lifting unit.

► The lifting unit is now installed properly.

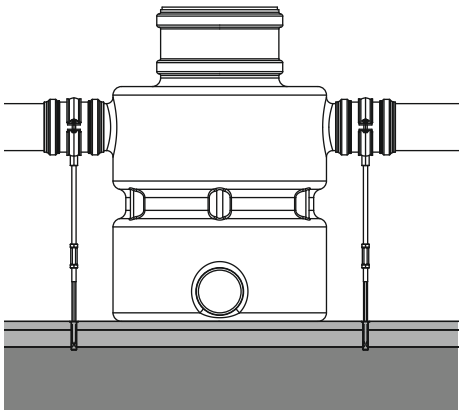


Fig. 15: Assembling the buoyancy safeguards

6.5 Electrical connection

DANGER

Risk of fatal injury due to electrical current!

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!
- Observe local regulations!

- Mains connection corresponds to the information on the pump rating plate.
- Route the connection cables according to the local regulations.
- Arrange the socket for the mains connection so that it is overflow-proof.

For the "DS" version with switchgear, observe the following additional points:

- Connect all connection cables (pumps and level control) according to the conductor assignments on the switchgear.
- Secure the earthing in accordance with local regulations.
  The cross-section of the cable for the protective earth conductor connection must comply with local regulations.
- Attached switchgear is to be arranged overflow-proof.

6.5.1 Fuse on mains side

Circuit breaker

The size and switching characteristics of the circuit breakers must conform to the rated current of the connected product. Observe local regulations.

Residual-current device (RCD)

- Install a residual-current device (RCD) in accordance with the regulations of the local energy supply company.
- If people can come into contact with the device and conductive fluids, install a residual-current device (RCD).

6.5.2 Mains connection

Wilo-DrainLift Box... E/Wilo-DrainLift Box... D

The lifting unit's pumps are equipped with shockproof plugs. For the connection to the mains supply, one or two shockproof sockets (according to applicable local regulations) must be provided by the customer.

Wilo-DrainLift BOX... DS

The switchgear is equipped with a shockproof plug. For the connection to the mains supply, a shockproof socket (according to applicable local regulations) must be provided by the customer.

6.5.3 "DS" version with switchgear

The "DS" version is equipped with a switchgear. The switchgear is pre-set in the factory and features the following functions:

- Level-dependent control
- Motor protection
- High water alarm

After installing the lifting unit, connect the pumps and level control device to the switchgear. For the connection to the switchgear and for all further information on specific functions, consult the switchgear's installation and operating instructions.

6.5.4 Operation with frequency converter

Operation on the frequency converter is not permitted.

7 Commissioning

CAUTION

Damage in the pump chamber!

Coarse contaminants can cause damage to the pump chamber. Remove coarse contaminants from the pump chamber before commissioning.

NOTICE

Observe additional documentation

Carry out the commissioning measures in accordance with the installation and operating instructions for the overall system!

Observe the installation and operating instructions for the connected products (sensors and pumps) as well as the system documentation!

7.1 Personnel qualifications

- Operation/control: Operating personnel, instructed in the functioning of the complete system

7.2 Operator responsibilities

- Providing installation and operating instructions by the lifting unit or at a place specially reserved for it.
- Making the installation and operating instructions available in the language of the personnel.
- Making sure that the installation and operating instructions are read and understood by all personnel.
- All safety devices and emergency cut-outs must be active and checked to ensure that they function properly.
- The lifting unit is suitable for use under the specified operating conditions.

7.3 Operation

Wilo-DrainLift Box... E/BOX... D

The individual pumps are directly controlled by the fitted float switch. After the plug has been inserted into the socket, the respective pump is now ready for operation in automatic mode.

Wilo-DrainLift BOX... DS

CAUTION

Malfunction due to incorrect operation of the switchgear!

When the plug is inserted, the switchgear starts in the last operating mode that was set. In order to be familiar with the operation of the switchgear, the installation and operating instructions for the switchgear must be read before inserting the plug.

The lifting unit is operated by the switchgear. The switchgear is preconfigured for use with the lifting unit. For information on the operation of the switchgear and its individual displays, consult the installation and operating instructions for the switchgear.

7.4 Application limits

Improper use and overstraining will cause overflow through the floor drain. The following application limits must be observed:

- Max. intake/h:
  - DrainLift BOX-32/8E: 1300 l (343 US.liq.gal)
  - DrainLift BOX-32/11E: 1200 l (317 US.liq.gal)
  - DrainLift BOX-40/11E: 870 l (230 US.liq.gal)
  - DrainLift BOX-32/8D: 2400 l (634 US.liq.gal)
  - DrainLift BOX-32/11D: 2200 l (581 US.liq.gal)
  - DrainLift BOX-40/11D: 1620 l (428 US.liq.gal)
  - DrainLift BOX-32/8DS: 3000 l (793 US.liq.gal)
  - DrainLift BOX-32/11DS: 3100 l (819 US.liq.gal)
  - DrainLift BOX-40/11DS: 1740 l (460 US.liq.gal)
- Max. pressure in the discharge pipeline: 1.7 bar (25 psi)
- Fluid temperature:
  - DrainLift BOX-32...: 3...35 °C (37...95 °F), max. fluid temperature for 3 mins: 60 °C (140 °F)
  - DrainLift BOX-40...: 3...40 °C (37...104 °F)
- Ambient temperature: 3...40 °C (37...104 °F)

Only applies to concealed floor installation:

- Max. ground water pressure: 0.4 bar (6 psi / 4 mWG above the floor of the tank)

7.5 Test run

Before the lifting unit starts in automatic mode, conduct a test run. A test run checks the proper functioning of the unit.

✓ Lifting unit installed.

✓ Floor drain or cover plug are removed.

1. Activate the lifting unit: Insert plug into socket.
   ⇒ **Wilo-DrainLift Box... E/BOX... D**: Lifting unit is in automatic mode.
   ⇒ **Wilo-DrainLift BOX... DS**: Check operating mode of the switchgear. The switchgear must operate in automatic mode.
2. Open the shut-off valve on the inlet and discharge sides.
   ⇒ Collection reservoir is filled slowly.
3. Lifting unit is switched on and off using the level control.
   ⇒ To conduct a test run, complete two entire pumping procedures.
   ⇒ When pumping out, the pump must not start slurping operation.
   Wilo-DrainLift Box... E/BOX... D: If slurping operation lasts longer than 1 s, readjust the length of the float switch cable.
   Wilo-DrainLift BOX... DS: If slurping operation lasts longer than 1 s, adjust the switchgear's follow-up time.
4. Close the gate valve in the inlet.
   ⇒ The lifting unit must be activated because there is no more fluid flowing in. If the lifting unit switches on again, the non-return valve is leaky. Contact customer service!
5. Open the gate valve in the inlet again.
   ► Lifting unit operates in automatic mode.

Following a successful test run, the floor drain or the cover plug must be put back on!

7.6 Follow-up time

The follow-up time is pre-set at the factory to 3 seconds. The follow-up time can be adjusted as required:

- Increasing the usable volume per pumping process.
- Extensive suction of settling sediments on base of tank through integrated depth suction.
- Slurping operation for avoiding pressure surges.

To set the follow-up time, read the installation and operating instructions for the switchgear!

CAUTION! Pay attention to the operating mode if the follow-up time is changed. The operating mode indicates the activation period and the downtime!

8 Operation

The lifting unit operates in automatic mode by default and is switched on and off using the integrated level control device.

✓ Commissioning was carried out.

✓ Test run has been completed successfully.

✓ The operation and functioning of the lifting unit are known.

1. Activate the lifting unit: Insert plug into socket.
2. "DS" version: Select automatic mode on the switchgear.
   ► The lifting unit operates in automatic mode and is controlled depending on level.

9 Shut-down/dismantling

9.1 Personnel qualifications

- Operation/control: Operating personnel, instructed in the functioning of the complete system
- Electrical work: qualified electrician
  Person with appropriate technical training, knowledge and experience who can identify and prevent electrical hazards.
- Installation/dismantling work: trained specialist in plant technology for sanitary facilities
  Fixation and buoyancy safeguards, connection of plastic pipes

9.2 Operator responsibilities

- Observe locally applicable accident prevention and safety regulations of trade associations.
- Provide the necessary protective equipment and make sure that the personnel wears it.
- Ensure enclosed spaces have sufficient ventilation.
- Take immediate countermeasures if there is a build-up of toxic or suffocating gases!
- When working in enclosed spaces, a second person must be present for safety reasons.

9.3 Shut-down

The lifting unit is turned off for this, but not completely put out of service. In this way, the lifting unit can be put back into commission at any time.

Bacteria can form in sewage which can lead to infections. Wear the following protective equipment while performing the work:

- Protective gloves: 4X42C (uvex C500 wet)
- Safety goggles: uvex skyguard NT
- Breathing protection: Half mask 3M series 6000 with filter 6055 A2

✓ Floor drain or cover plug removed.

✓ Protective equipment put on.

✓ If the lifting unit must be manually drained, operate the pump's float switch by hand. To do this, carefully reach into the tank from above and activate the float switch.
DANGER! Risk of limbs being crushed or severed! Never reach into the suction port. The impeller can crush or sever limbs!

1. Close the gate valve in the inlet pipe.
2. Drain the collection reservoir.
   Wilo-DrainLift Box... E/BOX... D: Turn the pump's float switch upward. As soon as the fluid has been pumped out, release the float switch.
   Wilo-DrainLift BOX... DS: Activate the lifting unit in manual mode.
3. Thoroughly hose down pumps, float switches and the tank with a hose through the tank opening.
4. Drain the collection reservoir. Repeat steps 3 and 4 as required according to the pollution degree.
5. **Wilo-DrainLift BOX... DS:** Switch the switchgear to standby mode.
6. Switch off the lifting unit.
   Pull the plug out of the socket. Secure the lifting unit against unexpected reactivation!
7. Close the gate valve in the discharge pipeline.
8. **Concealed floor installation**: Reinstall the floor drain and seal it with silicone (see "Final tasks").
   Floor-mounted installation: Install cover plug with corresponding gasket.

   ► The lifting unit is now out of operation.

10 Maintenance and repair

Maintenance and repair work may **only** be carried out by qualified personnel (e.g. customer service). Carry out the maintenance intervals in accordance with EN 12056-4:

- ¼ year in the case of commercial operations
- ½ year for multi-family houses
- 1 year for single-family houses

Keep a record of all maintenance and repair work in a log. The log must be signed by the qualified employee and the operator.

Carry out a test run after completing the maintenance work.

10.1 Personnel qualifications

- Electrical work: qualified electrician
  Person with appropriate technical training, knowledge and experience who can identify and prevent electrical hazards.
- Maintenance work: skilled person (trained specialist in plant technology for sanitary facilities)
  Hazards caused by sewage, basic knowledge of lifting units, requirements of EN 12056

10.2 Removing pumps for maintenance purposes

To carry out maintenance on the pumps easily, lift the pumps out of the tank.

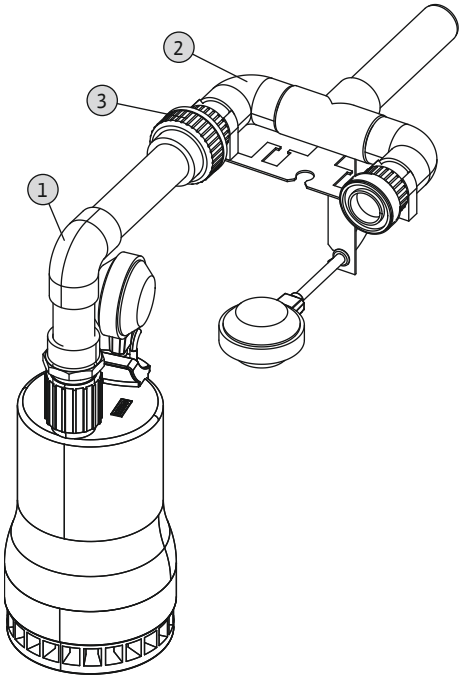


Fig. 16: Removing the pumps

1	Discharge pipe to the pump
2	Discharge pipe in the tank
3	Discharge pipe, screwed connection

✓ Lifting unit decommissioned.

✓ Floor drain removed.

✓ Protective equipment put on.

1. Reach into the tank from above.
2. Loosen the screwed connection.
3. Take pump with discharge pipe out of the tank.
   NOTICE! Damage to the connection cable! Take the pump out of the tank slowly and be careful with the connection cable. Do not remove the pump out of the tank if the connection cable is too short. Damaging the connection cable will lead to irreparable damage!

11 Faults, causes and remedies

Fault	Cause and remedy
The pump does not pump properly	4, 5, 6, 7, 8, 9, 10, 11, 12, 16, 17, 18
Volume flow too low	1, 3, 7, 9, 12, 13, 14
Current consumption too high	1, 4, 5, 8, 14
Delivery head too small	1, 3, 5, 7, 9, 12, 13, 14, 17
Pump does not run quietly/emits loud noises	1, 3, 10, 13, 14, 15, 17

1. Inlet or impeller clogged
   ⇒ Remove deposits from the inlet, reservoir and/or pump → customer service.
2. Wear of inner parts (e.g. impeller, bearing)
   ⇒ Replace worn parts → customer service
3. Operating voltage too low
   ⇒ Have the mains connection checked → electrician
4. Float switch blocked
   ⇒ Check mobility of the float switch
5. Motor does not start because there is no voltage
   ⇒ Check the electrical connection → electrician
6. Inlet blocked
   ⇒ Clean the inlet
7. Motor winding or electric cable defective
   ⇒ Have the motor and electrical connection checked → electrician
8. Non-return valve clogged
   ⇒ Clean non-return valve → customer service
9. Water level dropped too low in the tank
   ⇒ Check level control and replace → customer service
10. Defective level control signal transmitter
    ⇒ Check signal transmitter and replace if necessary → customer service

11. Slide valve in the pressure pipe is not open or not sufficiently open
    ⇒ Fully open the slide valve
12. Impermissible amount of air or gas in fluid
    ⇒ customer service
13. Radial bearing in the motor defective
    ⇒ customer service
14. System-related vibrations
    ⇒ Check elastic connections of the piping ⇒ notify customer service if necessary
15. Winding temperature monitoring switched off due to excessive winding temperature
    ⇒ The motor switches back on automatically after the winding has cooled down.
    ⇒ Frequent switch-off by winding temperature monitoring → customer service
16. Pump ventilation clogged
    ⇒ Clean the pump ventilation line → customer service
17. Fluid temperature too high
    ⇒ Allow the fluid to cool

12 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!**

13 Disposal

13.1 Protective clothing

Used protective clothing must be disposed off in accordance with the locally applicable guidelines.

13.2 Information on the collection of used electrical and electronic products

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

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.

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

- 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 for more information about recycling.

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