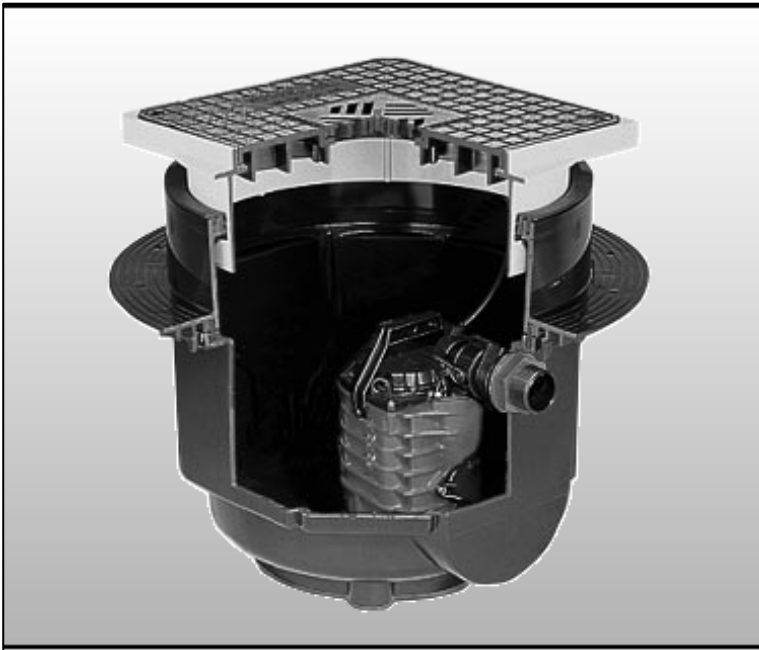


INSTALLATION AND OPERATING INSTRUCTIONS

KESSEL – *Aqualift*[®]S Pumping System

For above or below ground installation
(sewage free wastewater only)



**Art.nos. 28500 / 28550 /
28530 / 28540 / 28541**

Product advantages

- Upper section vertically adjustable, tiltable and twistable to match slopes / elevations / tile patters
- Available with groundwater protection seal
- Additional inlets easily installed
- Available with twin pumps for higher wastewater volumes



Certification no. Z-53.3-310

The installation and service of this unit should be carried out by a licensed professional servicer

Company - Telephone No.

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(Subject to technical amendments)

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1. General

1.1 Application

The KESSEL *Aqualift*[®] S wastewater pumping system is to be installed where wastewater (not containing raw sewage) is required to be lifted to reach the existing sewer level.

1.2 Product description

The KESSEL *Aqualift*[®] S wastewater pumping system is a high power, small size pumping system designed for various installations where sewage free water / wastewater needs to be lifted to pre-specified elevations. The use of high quality, impact resistant plastics along with corrosion resistant steels make the *Aqualift*[®] S and durable, long lasting pumping system which can resist the acids and aggressive chemicals as well as hot and cold temperatures (up to 95C or 203F) often found in household wastewater applications. Another notable advantage is the ease of installation and maintenance of the product.

The KESSEL *Aqualift*[®] S system is available in the following variations:

1. For underground installation (in the slab):

Order Numbers 28500 / 28550 / 28530 as well as 28502 / 28503 and 28504 in combination with 83050 / 83051 / 83052 / 83053 / 83054 / 83055 / 83060 and 83061. These units consist of a pump chamber with integrated sealing flange, vertically adjustable upper section and a load class A (1.5 metric tons) cover (either in black, light grey or recessed for tile application).

2. Deeper underground installation (in the slab):

Order Numbers 28502 / 28503 / 28504 in combination with 83012 AS/BS for installation depths between 595 and 720mm or 83031 AS/BS for installation depths between 750 and 875mm. These units consist of a pump chamber, intermediate section, vertically adjustable upper section and a load class A (1.5 metric tons) cover (either in black, light grey or recessed for tile application).

Both of the above variations are available with

1. single pump with float switch
2. single pump with probe
3. twin pumps with probe

3. Above ground (free standing) twin pump installation:

Order Numbers 28540 and 28451. These units consist of a pump chamber with odour tight cover. Pumps are operated by a probe switch. During normal conditions the pumps will activate alternately and during times of higher wastewater volumes both pumps will operate simultaneously. In the case that one pump malfunctions or is defective, the other pump will operate.

2. Installation

Before installing the KESSEL *Aqualift*[®] S system be sure that all the necessary parts are available and that none of them have been damaged during shipping.

2.1 Underground installation (in the slab):

Align the pump housing horizontally, if necessary, attach side inlets. This can be done by drilling into the flat areas of the housing, and, if necessary also the intermediate and upper section, with KESSEL saw tooth cutter 50100. Maximum diameter in intermediate section 100 mm, in upper section 50 mm. After this, insert an elastomer seal of suitable size in the hole and push in the inlet pipe (Figs.1/2). To simplify assembly, a 50 mm nom. dia. pipe elbow is supplied.

IMPORTANT: do not drill these inlet bores close to the float or automatic level sensing probe, or the pump may be switched on and off intermittently.

A cable duct must be provided on site (Fig. 3) for the electric wiring. The tube can either be inserted into the cable entry point provided on the intermediate section, or connected by drilling a hole in the housing at a convenient point (Figs. 1 / 2).

Place the molded lip seal supplied in the groove on the intermediate section, grease it and attach the upper section. The telescopic upper section enables the KESSEL *Aqualift*[®] S to be adjusted continuously until the required installation depth is obtained. Floors sloping at up to 5 ° can be accommodated, and the cover can be aligned with, for example, a tile pattern (Fig. 4).

Fig. 1

Fig. 2


Fig. 3

Fig. 4

Fig. 5

Note: after final alignment, cutouts must be provided in the upper section at the cable entry point and where additional inlet holes have been made.

A vent line of 50 mm nom dia pipe needed if the rainwater-proof cover plate is used. Connect all pipes/empty tubes to the unit and set the housing in the concrete floor.

 KESSEL

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2. Installation

Installing covers with alternative surfaces:

In the case of covers with alternative surfaces it is possible to lay tiles or natural stone slabs in the cover, so that it matches the surrounding flooring.

Products such as those available from PCI, Schornhurg, Deitermann and other suppliers can be used to lay the tiles, to avoid laying and adhesion problems, we recommend the following procedure:

Laying tiles:

- a) Apply a coat of primer, e.g. PCI 303, to the cover plate. Allow it to dry, then lay the tiles, for instance with PCI flexible mortar. This method is particularly suitable for thin tiles, since filler can be applied to reach the desired height.
- b) Lay the tiles with PCI Silcolerm S (self-adhesive silicone) or similar, this permits a thinner layer of adhesive when thicker tiles are being laid.

Laying natural stone slabs: (marble, granite, agglomerate marble)

- a) Apply a coat of primer to the cover plate, e.g. PCI 303 and lay the slabs with PCI Carralit or similar.
- b) Lay the natural stone slabs with PCI Carraferm (special silicone for natural stone) or similar.

The application areas are similar to those for tiles.

2.2 Deeper underground installation (in the slab):

Install the KESSEL *Aqualift*[®] S as described in Chapter 2.1. Drill a hole of 50 mm nom dia. at a suitable point for the cable tube, attach the accompanying seal and insert the cable tube as described.

In the case of the set for an installed depth of 750-875 mm, the upper edge of the adapter element acts as a seal. It only needs to be greased before inserting the upper section. Inlets to the adapter can be provided in any suitable nominal diameter, however, the function of the level sensing probe must not be affected. If a cover plate with rainwater seal is used, a 50 mm nom: dia. vent line is needed.

2.3 Above ground installation (free standing): (Order Nos. 28540, 28541)

The version for free installation is supplied ready to use and has only to be connected to the drain installed on site.

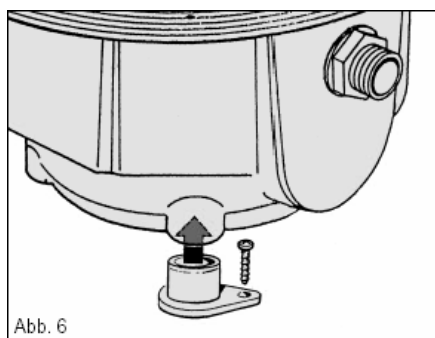


Fig. 6

To ensure that the siphon functions correctly, a vent line (50 mm nom. dia, for regular operation, 70 mm nom, dia. for connection to a grease trap) must be installed. Screw the housing to the floor with the four mounting elements provided. This is also an aid to noise insulation.

2. Installation

2.4 Installing the pump(s):

To prevent damage in transit, the pumps are packed separately and must be installed before the unit is started up, as described in Chapter 3.2.

2.5 Installing the probe:

Slacken off the slicing nut at the threaded probe connection and set the probe to the desired height. The tip of the probe should be at least 50 mm (2 in) from the base of the tank or vessel.

2.6 Installing with groundwater problems:

If the KESSEL *Aqualift*[®] S has to be installed in rising groundwater, it can be sealed without difficulty. A layer of the sealing material is clamped between the plastic counter-flange (Order Nos. 83018 and the pressure-seal flange on the main body, and lightened into position with the screws provided. Any sealing sheet used on the construction site is suitable. For installation in a watertight vat or tank, KESSEL can also supply a suitable natural rubber (NK/SBR) sealing sheet (800 mm dia. Order Nos. 83019) into which the screw holes have already been punched. For siphon units installed at a greater depth (see Chapter 2.2), KESSEL supplies a matching stainless steel flange (Order Nos. 83021) with a suitable NK/SBR sealing sheet (Order Nos. 83022). If for example a watertight concrete vat has to be drilled into in order to attach inlet pipes, cable ducts etc., these interruptions must also be rendered watertight.

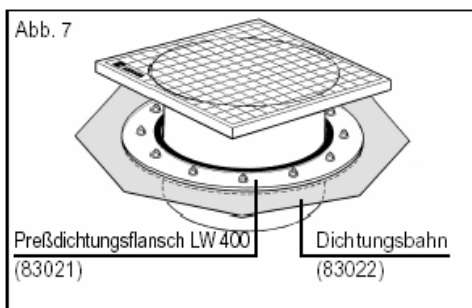


Fig. 7

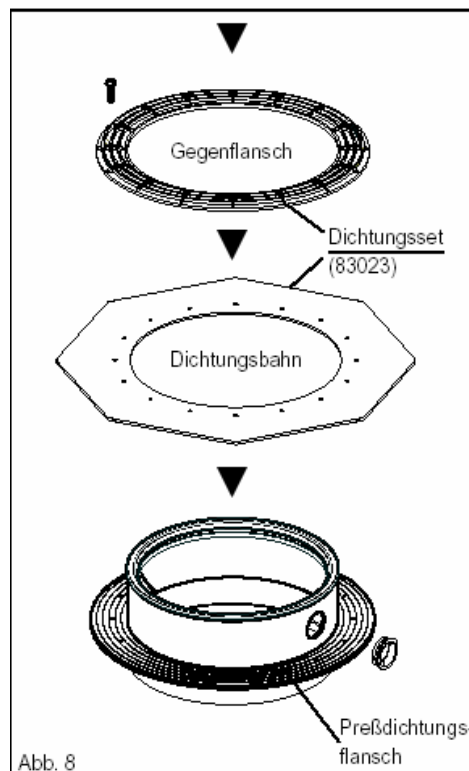


Fig. 8

Preßdichtungsflansch	= Pressure sealin flange
Dichtungsbahn	= Sealing sheet
Gegenflansch	= Counter flange
Dichtungsset	= Sealing set

2. Installation

2.7 Installation example

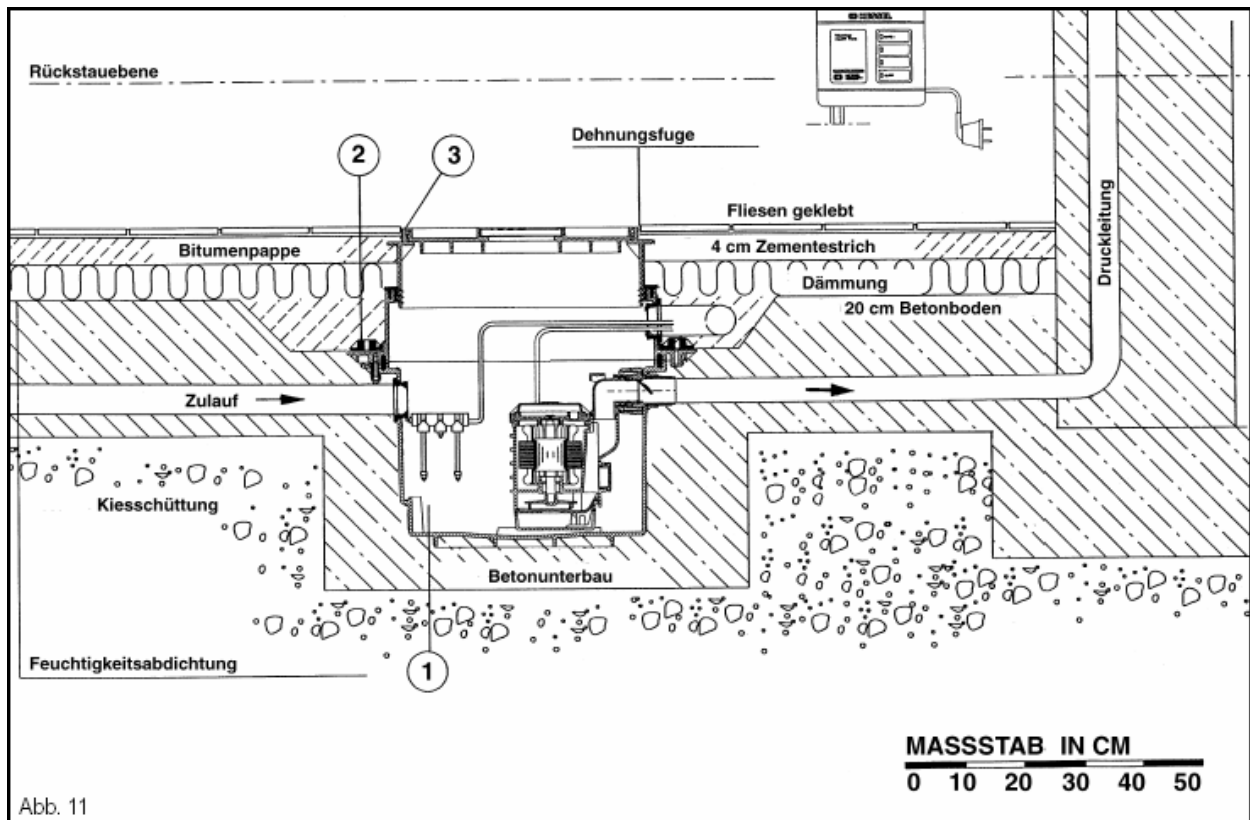


Fig. 11

1. KESSEL *Aqualift*[®] S Tronic
2. Pressed seal flange
3. Telescopic upper section

Rückstauenebene	= Backwater level
Dehnungsfuge	= Flexible joint
Fliesen geklebt	= Floor tiles
Bitumenpappe	= Bituminous carton
4 cm Zementestrich	= 4 cm cast floor
Dämmung	= Insulation
Druckleitung	= Pressure pipe
20 cm Betonboden	= 20 cm concrete floor
Zulauf	= Inlet
Kiesschüttung	= Gravel base
Betonunterbau	= Concrete base
Feuchtigkeitsabdichtung	= Moisture protection seal
Maßstab in cm	= Dimension (cm)

3. Cleaning and maintenance

3.1 Removal:

If the quick release catch is opened (only one hand needed the pump can be removed quickly and without the use of special tools. The check valve in the housing's pressure slab pipe prevents any waste water still in the discharge line from flowing back into the system.

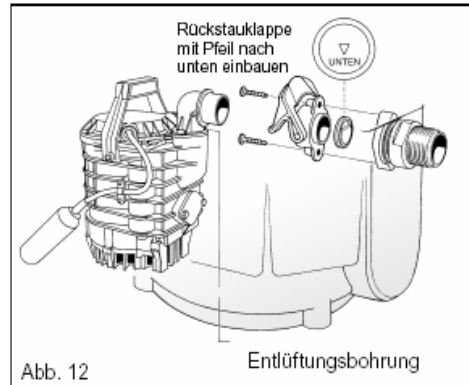


Fig. 12

3.2 Pump installation:

Before installing again, clean all sealing faces. Grease the lip type seal on the discharge side.

Place the pump on the guide in the housing with the two grooves located on the floor ribs, and slide it forwards until the pump pressure pipe can be inserted into the housing discharge union (Fig. 13). Lock the quick-release fastening. Proceed in the same way for the *Aqualift*[®] S Duo siphon unit, but place the inner groove on the guide rib in each case.

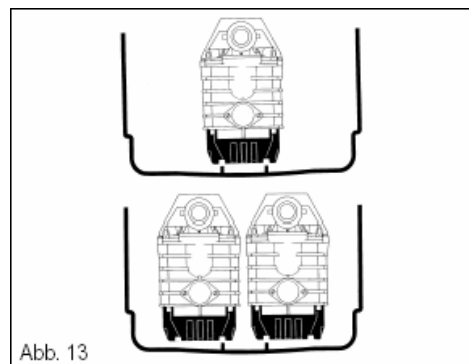


Fig. 13

For the versions with sensor probe control system (Tronic and Duo), pass the probe line through the cable tube as well. Fill the housing with water and check the float switch or the probe level sensor operates correctly. Insert the slotted grid or cover plate.

3.3 Maintenance:

WARNING: before any work is carried out on the pump, DISCONNECT THE POWER SUPPLY PLUG!

Clean the outside of the pump at least twice a year; clean the inlet orifice or rinse through with clean water. To do this, unscrew and remove the intake side strainer, take off the intake cover and clean out the impeller cavity, clean the float switch and level-sensing probes regularly as well, to remove impurities and ensure that level sensing functions correctly. Never open up the pump itself (only authorized specialists should do this), because careless handling could damage the pump seals and allow oil to reach the water or sewage.

3. Cleaning and maintenance

3.4 Maintaining the integral backflow valve:

Take out the pump, after the pump mount has been removed (slacken off the two Phillips head screws, see Fig. 12), the check valve can be taken out and cleaned. This also provides unobstructed access to the pressure line for cleaning.

IMPORTANT: make sure that the check valve is installed again with the arrow pointing down.

WARNING: the KESSEL *Aqualift*[®] S siphon may be used to handle regular household sewage and waste water according to German Industrial Standard 1986, but not faeces or sewage containing faeces, nor flammable or explosive liquids.

Immersed-motor pumps contain oil for lubrication and cooling purposes- If the pump is damaged, the oil could escape and contaminate the medium in which the pump is operating.

Before you run your KESSEL *Aqualift*[®] S immersed pump for the first time, have the following electrical protection measures checked by an expert: earth (ground) connection, neutralization, isolating transformer or fault-current protection circuit. These must comply with the local electricity supply company`s regulations and be in good working order.

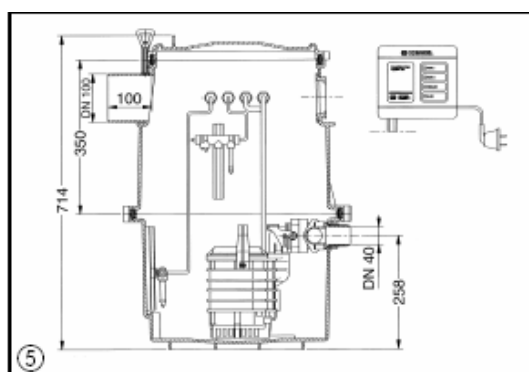
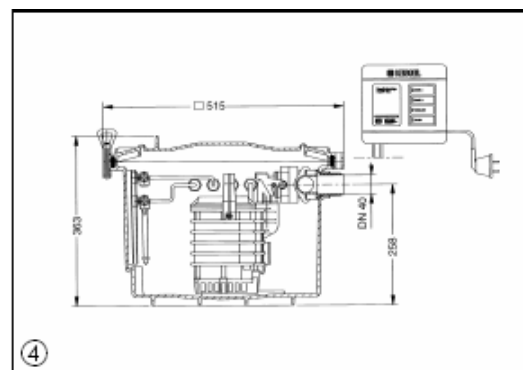
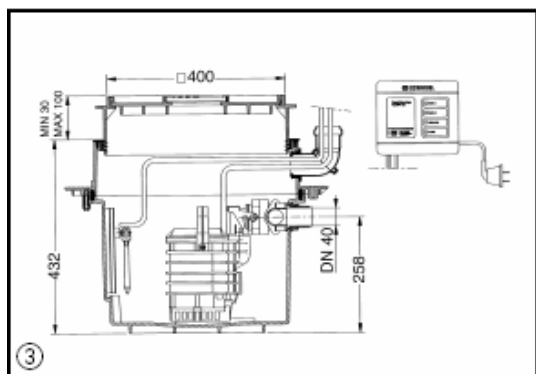
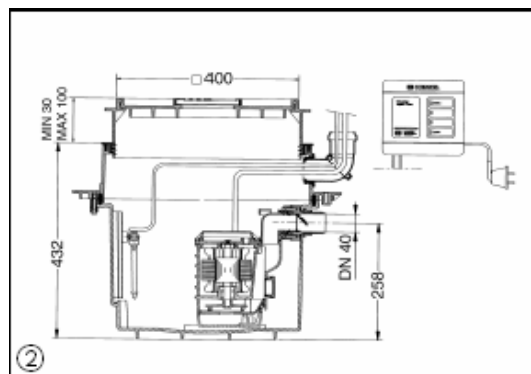
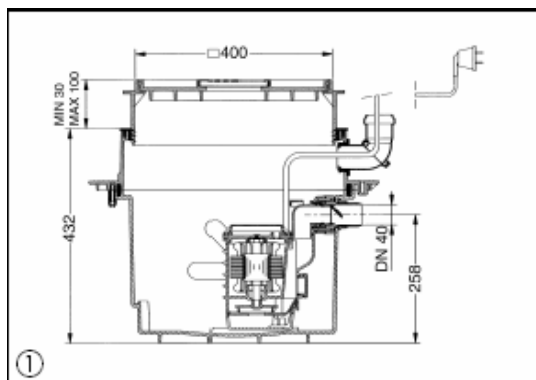
The electrical plug connection must be protected against moisture. If there is a risk of flooding, install the plug connection in a safe area.

WARNING: Use of the pump in swimming pools and garden ponds and their protection zones is permitted only if these have been constructed in accordance with VDE 0100 § 49d electrical equipment regulations.

In case of doubt, consult your electrical installation specialist.

4. Technical Data

4.1. Dimensioned drawings:

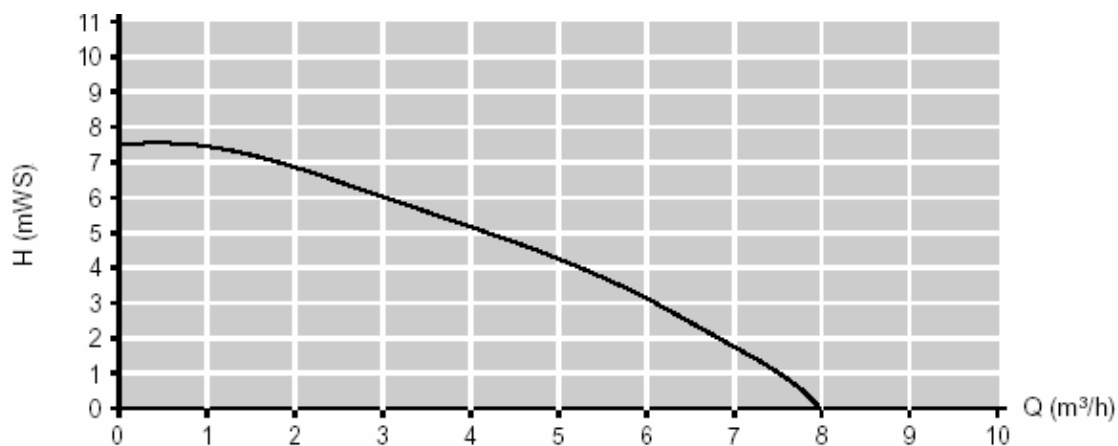


1. *Aqualift*[®] S sewage and waste water siphon for under floor installation (28500)
2. *Aqualift*[®] S Tronic sewage and waste water siphon for under floor installation (28550)
3. *Aqualift*[®] S Duo sewage and waste water siphon for under floor installation (28530)
4. *Aqualift*[®] S Duo sewage and waste water siphon for above floor installation (28540)
5. *Aqualift*[®] S Duo sewage and waste water siphon for under floor installation (28541)

4. Technical Data

4.2 Power curve:

Volume Q (m ³ /h)	0	2,0	3,0	4,0	5,1	6,0	6,8	7,5	8
Height H (mWS)	7,5	7,0	6,0	5,0	4,0	3,0	2,0	1,0	0

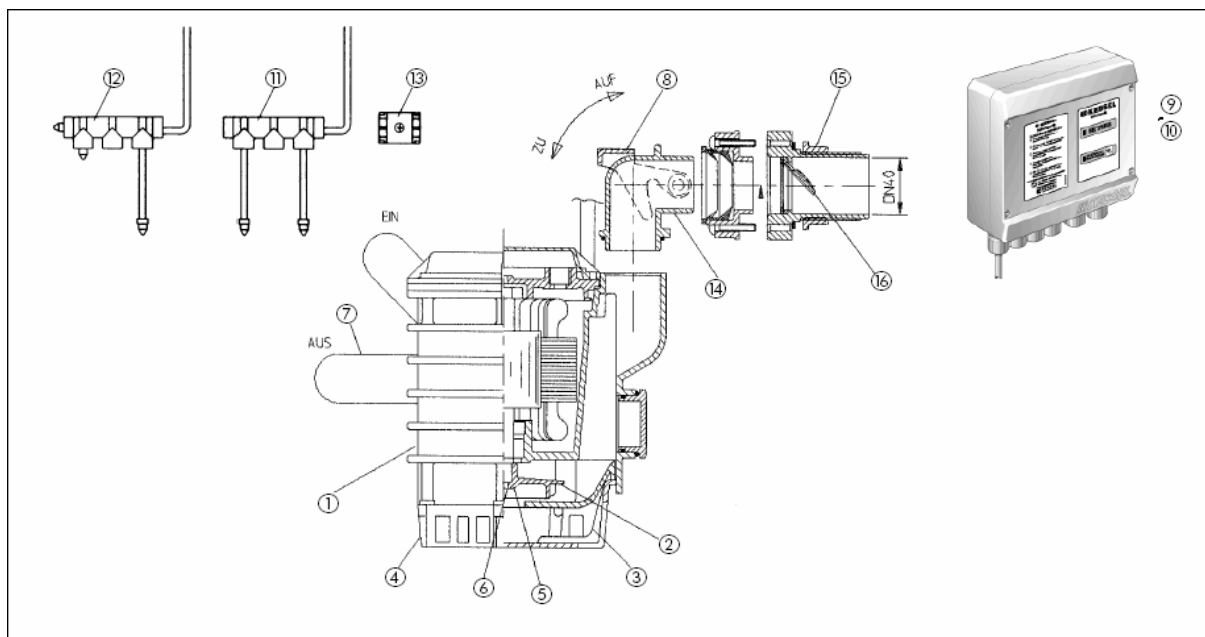


Current type	Voltage	Current	Motor power P ₁ / P ₂	Revolutions	Motor protection	Protection
AC	230 V	2.12 A	430 W / 320 W	2800 min ⁻¹	integrated in motor	grounded plug

5. Troubleshooting

Malfunction	Possible cause	Remedial action
Pump does not run	<ul style="list-style-type: none"> ▶ Mains power supply interrupted ▶ Fuse blown ▶ Power supply cable damaged ▶ Defective float switch ▶ Vent hole blocked 	Check mains power supply Renew fuse Have repaired (only by KESSEL representative) Renew complete float switch (with cover) or have repaired by KESSEL service representative Clean the vent hole
Impeller is jammed	Impurities, solids and other coarse material have collected between the impeller and the intake flange	Clean the pump (see chapter 3)
Reduced discharge rate	<ul style="list-style-type: none"> ▶ Intake strainer is blocked ▶ Worn intake filter ▶ Worn impeller 	Clean the pump (see chapter3) Renew intake filter Renew the impeller

6. Replacements Parts



Item	Description	Part no.	Qty 28500	Qty 28550	Qty 28530	Qty 28540	Qty 28541
1a	Pump, 500 W, with float	28501a	1				
1b	Pump, 500 W, without float	28552a		1	2	2	2
2	Impeller	099-005	1	1	2	2	2
3	Intake cover	099-015	1	1	2	2	2
4	Intake strainer	099-007	1	1	2	2	2
5	Hex screw, M6x12	099-058	1	1	2	2	2
6	Slotted washer, 6.4 pattern J	099-084	1	1	2	2	2
7	Float switch, complete	28012	1				
8	One-hand catch	157-014	1	1	2	2	2
9	Switch unit for automatic level control	20100		1			
10	Switch unit for duo siphon	20400			1	1	1
11	Probe, single				127-034	127-034	127-037
12	Probe, triple / quadruple			127-033	127-047	127-047	127-036
13	Probe mount	127-008		1	2	2	2
14	Pump union	190-014	1	1	2	2	2
15	Nut, R 1 ½ "	157-011	1	1	1	1	1
16	Check valve	134-039	1	1	2	2	2

7. Guarantee

1. In the case that a KESSEL product is defective, KESSEL has the option of repairing or replacing the product. If the product remains defective after the second attempt to repair or replace the product or it is economically unfeasible to repair or replace the product, the customer has the right to cancel the order / contract or reduce payment accordingly. KESSEL must be notified immediately in writing of defects in a product. In the case that the defect is not visible or difficult to detect, KESSEL must be notified immediately in writing of the defect as soon as it is discovered. If the product is repaired or replaced, the newly repaired or replaced product shall receive a new warranty identical to that which the original (defective) product was granted. The term defective product refers only to the product or part needing repair or replacement and not necessarily to the entire product or unit. KESSEL products are warranted for a period of 24 months. This warranty period begins on the day the product is shipped from KESSEL to its customer. The warranty only applies to newly manufactured products. Additional information can be found in section 377 and 378 of the HGB.

2. Wear and tear on a product will not be considered a defect. Problems with products resulting from improper installation, handling or maintenance will also not be considered a defect.

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Everything for drainage



- Backwater valves and cleanouts
- Polymer and cast iron drains
- Volatile liquid traps
- Lifting stations, pumps, warning and control units
- Rainwater management systems
- Grease separators
- Oil/fuel and coalescence separators
- Inspection chambers
- Custom projects for industrial applications