Notification

of extension of the validity of the general construction approval of 18th April 2011

Approval body for construction products and construction types
Structural engineering testing authority

A public body sponsored jointly by federal and regional Government

Member of EOTA, UEAtc and WFTAO

Date: 13.**07.2015**

Reference no.: **III 55-1.53.2-9/14**

Approval number:
Z-53.2-388

Period of validity
from: **1st August 2015**
to: **1st August 2020**

Applicant:
Kessel AG
Bahnhofstrasse 31
85101 Lenting

Subject of approval:

Backwater pump with the designations Pumpfix® F Standard and Pumpfix® F Comfort

This notification extends the period of validity of general construction approval no. Z-53.2-388 of 18th April 2011, modified by notification of 22nd May 2015.
This notification consists of one page. It is only valid in conjunction with the aforementioned general construction approval and may only be used together with this approval.

Rudolf Kersten
Head of Division

Certified
[Seal: German Institute for Construction Technology]

I hereby certify the above translation from the original German document to be correct and complete to the best of my knowledge and belief.

Tübingen, 4th June 2019

Mark Bangert
72074 Tübingen

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Rudolf Kersten
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Mark Bangert
72074 Tübingen

Tübingen, 4th June 2019

[DIBT Logo]

Notification

of the modification of the general construction approval of 18th April 2011

Approval body for construction products and construction types
Structural engineering testing authority

A public body sponsored jointly by federal and regional Government

Member of EOTA, UEAtc and WFTAO

Approval number:
Z-53.2-388

Period of validity
from: **22nd May 2015**
to: **31st July 2015**

Applicant:
Kessel AG
Bahnhofstrasse 31
85101 Lenting

Subject of approval:

Backwater pump with the designations Pumpfix® F Standard and Pumpfix® F Comfort

This notification extends the period of validity of general construction approval no. Z-53.2-388 of 18th April 2011. This notification consists of two pages and an appendix. It is only valid in conjunction with the aforementioned general construction approval and may only be used together with this approval.

II SPECIAL PROVISIONS

The special provisions of the general construction approval are modified as follows:

1. The previous provisions of Section 2.1.4 - **Hydraulic and Electrical Characteristic Values** are herewith replaced by the following:

2.1.4 Hydraulic characteristic values

The hydraulic efficiency of the pumps corresponds to the pump curve specified in Appendix 1 to this notification.

The pump characteristic values are to be determined and checked in accordance with the specifications of DIN EN ISO 9906[1].

2. The previous provisions of Section 3 - **Provisions for Design, Measurement and Execution** are herewith supplemented with the following:

On the basis of the hydraulic pump characteristic values (see paragraph 2.1,4) and individual case-related power curve to be determined, verification must be provided that the resulting delivery height H_P of the pump corresponds to at least the total delivery height H_{tot} on the basis of Section 6.2 in DIN EN 12056-4[2].

As a supplement to the provisions specified there it must be ensured that the resulting delivery height H_P does not exceed the height difference between the water level in the backwater pump and the height of the backed-up water.

Rudolf Kersten
Head of Division

Certified
[Seal: German Institute for Construction Technology]]

DIN EN ISO 9906 Rotodynamic pumps – Hydraulic performance acceptance tests - Grades 1, 2 and 3 (ISO 9906:2012); German version EN ISO 9906:2012; Edition: 2013-03

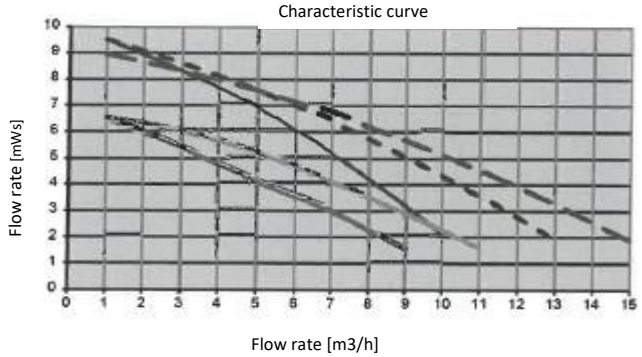
[2] DIN EN 12056-4 Gravity drainage systems inside buildings -Part4: Waste water lifting plants layout and calculation; German version EN 12056-4:2000; edition:2001-01

[DIBT Logo]

Notification dated 22nd May 2015 of changes to
General construction approval
No. Z. 53.2-388 dated 18th April 2011

Pump performance diagram

Lifting system technical data	SPZ1000		SPZ800		GPF1000		GPF800		GPF1300	
Power type	Alternating current		Alternating current		Alternating current		Alternating current		Alternating current	
Voltage	230V		230V		230V		230V		230V	
Power	4.9A		4.2A		5.6A		4.4A		6.4A	
Motor rating P1/P2	1200W/690W		970W/560W		1270W/730W		1000W/580W		1400W/840W	
Rotary speed	2800min^{-1}		2800min^{-1}		2800min^{-1}		2800min^{-1}		2800min^{-1}	
Engine protection	Thermally in motor		Thermally in motor		Thermally in motor		Thermally in motor		Thermally in motor	
Operating mode	S3 – 50% /S1*		S3 – 50% /S1*		S3 – 50% /S1*		S3 – 50% /S1*			
* optional										
Response curve										
SPZ1000										
Max. quantity conveyed Q [m3/h]	1.0	3.0	5.0	7.0	9.0	**10.0**				
Backwater height H [mWs]	9.5	8.3	6.9	5.2	3.2	2.1				
SPZ800										
Max. delivery rate Q [m3/h]	1.0	3.0	5.0	7.0	9.0					
Backwater height H [mWs]	6.5	5.4	4.1	3.0	1.5					
GPF1000										
Max. output [m3/h]	1.0	3.0	5.0	7.0	9.0	11.0	**13.0**			
Backwater height H [mWs]	9.5	8.6	7.6	6.4	5.1	3.6	1.9			
GPF800										
Max. output Q [m3/h]	1.0	3.0	5.0	7.0	**9.0**	**11.0**				
Backwater height H [mWs]	6.5	6.0	5.2	4.1	2.9	1.6				
GPF1300										
Max. output Q [m3/h]	1.0	3.0	5.0	7.0	**9.0**	**11.0**	**13.0**	**15.0**		
Backwater height H [mWs]	9.0	8.3	7.6	6.7	**5.7**	**4.5**	**3.3**	**1.9**		



Backwater pump system with the designation Pumpfix R F Standard and Pumpfix R F Comfort	Appendix 1
Description of equipment	

[DIBT Logo]

General construction approval

Approval body for construction products and construction types
Structural engineering testing authority

A public body sponsored jointly by federal and regional government

Member of EOTA, UEAtc and WFTAO

Date: 18.04.2011

Reference no.: III 55-1.53.2-5/10

Approval number:
Z-53.2-388

Period of validity:
from: **18th April 2011**
to: **31st July 2015**

Applicant:
Kessel AG
Bahnhofstrasse 31
85101 Lenting

Subject of approval:
Backwater pump system (1kW)
Pumpfix R F Standard and
Pumpfix R F Comfort

The above subject of approval is hereby granted general construction approval.
This general construction approval comprises six pages and six appendices.
This general construction approval replaces the general construction approval of 17th August 2005, modified and extended by resolutions of 17th April 2009 and 18th August 2010.

I	**GENERAL PROVISIONS**
1	General construction approval is verification of the usability and applicability of the subject of approval in terms of regional building regulations.*
2	Insofar as demands are made in the general construction approval on the special expert knowledge and experience of the persons entrusted with the manufacture of building products and designs in accordance with the regional regulations corresponding to Section 17 Paragraph 5 of the Prototype Building Regulations, it should be noted that this special expert knowledge and experience can be verified by equivalent proof from other Member States of the European Union. This may also apply for equivalent proof submitted in the context of the Agreement on the European Economic Area (EEA) or other bilateral agreements.
3	General construction approval is not a substitute for the statutorily prescribed approvals, agreements and certificates required for the performance of building projects.
4	General construction approval is granted regardless of the rights of third parties and in particular private industrial property rights.
5	Manufacturers and vendors of the subject of approval must make available copies of the general construction approval to the user of the subject of approval regardless of any further regulations in the Special Conditions, and point out that the general construction approval must be available at the place of use. Copies of the general construction approval are to be made available to the authorities involved on request.
6	The general building approval may only be duplicated as a whole. The publication of extracts requires the approval of the German Institute for Structural Engineering. The texts and drawings of promotional literature must not contradict the general building approval. Translations of the general building approval must contain the reference "Translation of the original German version not certified by the German Institute for Structural Engineering."
7	General construction approval may be cancelled at any time. The regulations of the general construction approval can be subsequently supplemented and modified, particularly if new technical findings make this necessary.

II	**SPECIAL PROVISIONS**
1	Subject of approval and area of use
	The Pumpfix® F backwater pump system serves to drain drainage points below the backwater level. The system consists of the closures, drives and an integrated pump. The nominal diameters of the inlet and outlet are DN 100, DN 125 and DN 150. The Pumpfix® F backwater pump system is manufactured in Standard and Comfort variants. The Pumpfix® F Standard contains a combination of automatic closure and emergency closure; the Pumpfix® F Comfort contains an electrically operated automatic closure. The backwater pump system may only be used in horizontal pipes and free-standing or as a built-in variant in the base plate. In normal use, the integrated non-return flap of the Pumpfix® F Standard variant is opened by the waste water pressure and the waste water can be drained unimpeded into the sewer. In case of backwater from the sewer the non-return flap is closed tight by the backwater pressure and thus prevents waste water from entering the living and cellar rooms which are at risk from backwater. This function is performed by sensors and the motor drive of the flap in the Pumpfix® F Comfort variant. Waste water is drained off whilst backwater is present via an integrated pump with a cutting wheel system. The electrical output is 1 kW. If backwater accumulates whilst the non-return flap is closed this can initially no longer drain away, but as soon as a certain level is reached by the accumulating waste water the pump is switched on by an optical sensor. A switching device with an integrated SDS self-diagnosis system and battery buffering automatically checks the function of the sewage pump and the sensor at weekly intervals. A corresponding alarm message is produced in case of malfunctions or incorrect installation. The pump is run automatically once a week to guarantee reliable function in case of longer pump downtimes. The pump draws in waste water, breaks up solid material with the cutting wheel system and transports the waste water into the sewer via an integrated pressure pipe against the backwater pressure. The conditions set out in DIN EN 12056-4[1] apply to installation. Contrary to the last paragraph of Section 4 of the aforementioned standard, the drainage points connected to the backwater pump system may be used. The prescriptions apply to drainage points for rainwater in accordance with DIN 1986-100[2] Section 13.1.3. Rooms and material assets and also the health of residents are only adequately protected in case of backwater if the backwater pump system is regularly checked and maintained in accordance with the manufacturer's specifications.
2	**Regulations for the building product**
2.1	**Properties and composition**
2.1.1	**General**
	The dimensions, design and other specifications in accordance with Appendices 1 to 3 are to be complied with. The inlet and outlet nozzles must permit connections for standardised waste water pipes or approved adaptors.

1 DIN EN 12056-4:2001-01 Gravity drainage systems inside buildings; Part 4: Wastewater lifting plants, layout and calculation

2 DIN 1986-100 Drainage systems on private ground - Part 100: Specifications in relation to DIN EN 752 and DIN EN 12056: 2008-0 edition

	All parts which come into contact with waste water and damp air must be made of corrosion-resistant materials or be corrosion-protected.
2.1.2	Backwater closures
	Backwater closures must automatically seal the pipe in case of backwater and they must permit waste water drainage after the backwater has drained away. The pump should pump before a backwater height of 100 mm is reached. The effectiveness of the backwater closure is tested by subjecting the backflow preventer to counter pressure of 0.1 bar. The water which percolates through is collected and the volume of this water may not exceed 500 ml within a period of 5 minutes.
2.1.3	Switching device
	The systems must have a switching device for automatic control and a fault indication system. In case of power failure, a message using battery power must be possible. The system's electrical equipment must comply with the current relevant VDE regulations. Insofar as the systems are set up in ventilated rooms and are not floodable, they must comply with at least protection type IP 44 in accordance with DIN EN 60529[3].
2.1.4	Hydraulic and electrical characteristic values
	The hydraulic and electrical characteristic values of the pump are to be determined by means of measurements in accordance with ISO 9906[4] to Stage 2. The pump must be run continuously for at least 5 minutes before the first measurement is taken. The measurement points should be sufficiently close together to be able to verify the measurement values specified by the manufacturer without any doubt. Using the Q-H curve, a check should be made as to whether the minimum flow rate of 0.7 m/s in the vicinity of the pressure pipe (0 37 mm) (see Appendix 3) and the minimum delivery height of 4 m are complied with.
2.2	Labelling
	The backwater pump system must be labelled by the manufacturer with the conformity mark in accordance with regulations on national conformity marks. The system may only be labelled if the requirements of Section 2.3 are fulfilled. The system must also additionally be labelled with the following information: - Year of manufacture - Production plant - DN (specification of the nominal diameter)
2.3	**Compliance certificate**
2.3.1	General
	Confirmation of the compliance of the backwater pump system with the requirements of this general construction approval must be provided for every production plant by means of a compliance certificate based on in-factory production controls and regular external monitoring including an initial test of the backwater pump system in accordance with the following provisions. The manufacturer must call in an approved monitoring body to issue the compliance certificate and carry out the external monitoring including the necessary product tests.

3 DIN EN 60529:2000-09 Degrees of protection provided by enclosures (IP code)
4 ISO 9906:1999-12 Rotodynamic pumps – hydraulic performance acceptance tests - Grades 1 and 2

	The German Institute for Construction Technology is to be given a copy of the compliance certificate by the issuing body for information. The German Institute for Construction Technology is also to be given a copy of the initial test report for information.
2.3.2	**In-factory production controls**
	In-factory production controls are to be set up and run in every production plant. In-factory production control is understood to mean the continuous monitoring of production to be carried out by the manufacturer to ensure that the construction products produced comply with the provisions of this general construction approval. The in-factory production controls should include the following measures as a minimum: - Description and checking of the initial material and its constituent parts - Verification and tests which are to be performed on the finished product. The compliance of every backwater pump system with the requirements in accordance with Sections 2.1.1, 2.1.3 and 2.2 is to be checked. Checks are to be performed on every 100th system and at least once per month of production for compliance with the requirements of Sections 2.1.2 and 2.1.4. The results of the in-factory production controls are to be recorded. The records must contain the following information as a minimum: - Description of the construction product or the initial material and its constituent parts - Type of control or test - Date of manufacture and testing of the construction product or the initial material or constituent parts - The results of controls and tests and, if appropriate, a comparison with the requirements - Signature of the person responsible for in-factory controls These records are to be stored for at least five years and provided to the body responsible for external monitoring. They are to be submitted to the German Institute for Structural Engineering and the competent highest building supervisory authority on request. In case of inadequate test results, the manufacturer must take the necessary measures to rectify the defect without delay. Construction products which do not meet requirements are to be handled in such a manner that there is no possibility of confusing them with products which do comply with the requirements. The relevant test is to be repeated without delay after rectification of the defect insofar as this is technically possible and necessary as proof that the defect has been rectified.
2.3.3	**External monitoring**
	The in-factory controls in every production plant are to be checked regularly and at least once a year by external monitoring. An initial test of the system is to be performed as part of this external monitoring. Random sample tests are to be performed for the external monitoring. Both sample-taking and tests are the responsibility of the approved monitoring body. The results of certification and external monitoring are to be kept for at least five years. They are to be submitted to the German Institute for Structural Engineering and the competent highest building supervisory authority on request.

3	**Provision for design, dimensioning and implementation**
	For planning, the conditions for the backwater protection of land drainage in accordance with DIN EN 12056-1 to -4[5] in conjunction with DIN 1986-1002 are to be observed. No pipes for rainwater and no objects which are located above the backwater level may be connected. Exceptions are defined in Section 13.1.3 **Drainage points for rainwater** in DIN 1986-1002. The last paragraph of Section 1 of the Special Provisions of this general construction approval applies to the use of the backwater pump system contrary to DIN EN 12056-41. Before installing in existing waste water systems - the attached downpipes and objects must be determined, - the existing pipes must be checked for leakproofness against the maximum possible backwater pressure (the pipes which are subsequently located in the flow direction behind the backwater pump system). In addition, the last-mentioned pipes must be secured against slipping out. The installation location must be easily accessible and a sign with instructions on cleaning intervals must be set up in the installation room. The maintenance and cleaning intervals must be documented.
4	**Provisions for use and maintenance**
	Operating and maintenance instructions are to be supplied with every backwater pump system which contain instructions on maintenance to be performed by the operator. Specialist personnel must check at least twice a year whether the self-diagnosis system including batteries is working and contamination and deposits are to be removed.

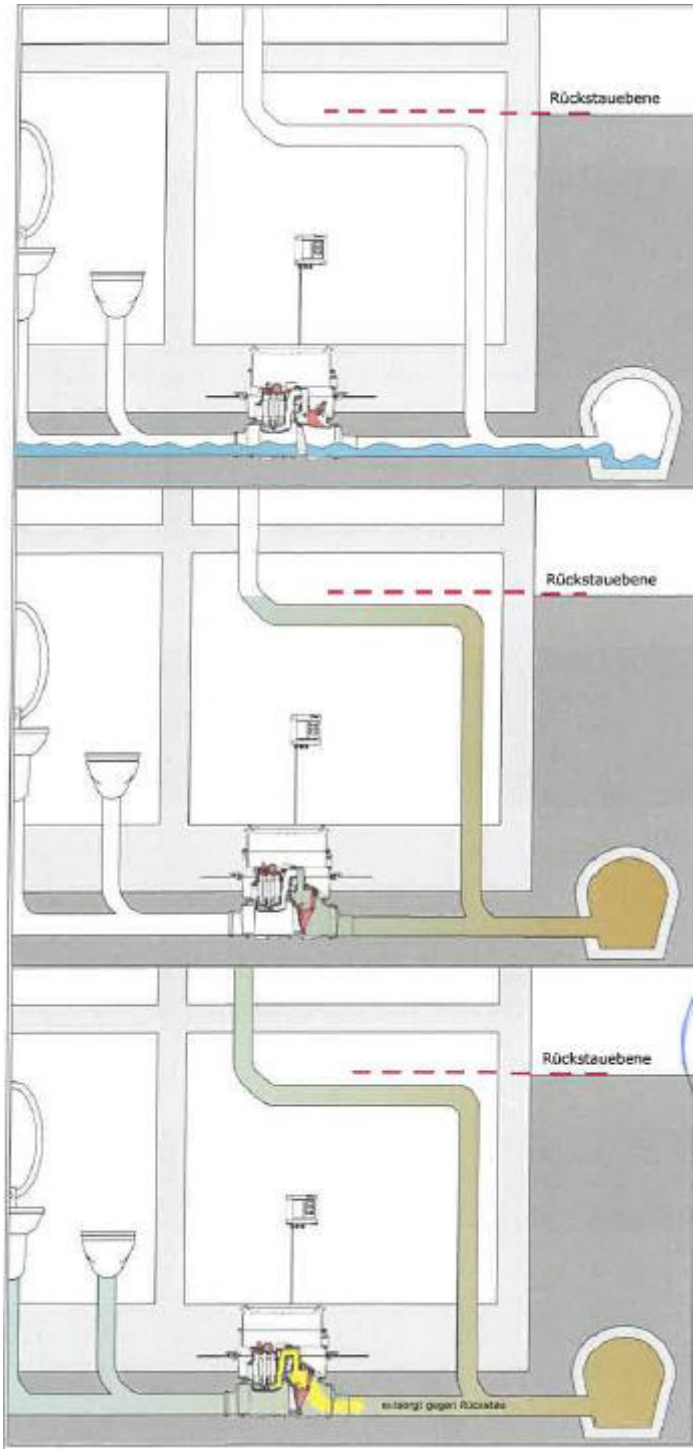
Rudolf Kersten
Head of Division

Certified
[Seal: German Institute for Construction Technology]

[5] DIN EN 12056:2001-01 Gravity drainage systems inside buildings

[DIBT Logo]

General Construction Approval
No. Z-53.2-388 of 18th April 2011



Normal operation:
Gravity drainage
without pump operation

Protection against backwater:
Backwater pendulum flap
closes mechanically

Drainage with backwater:
Waste water is pumped against the
backwater

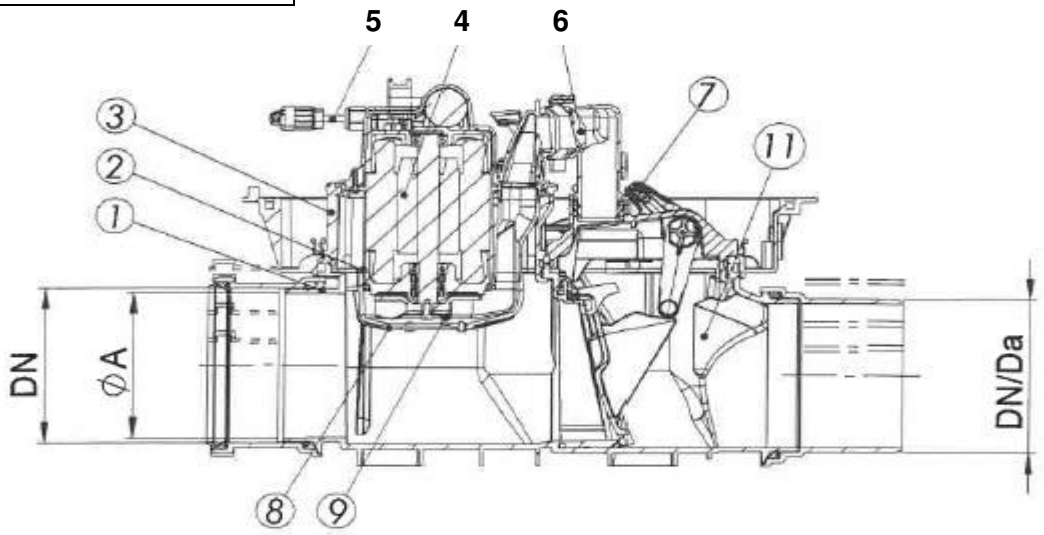
Pumpfix ® F Standard and Comfort backwater pump system (1kW)	Appendix 1
Schematic diagram	

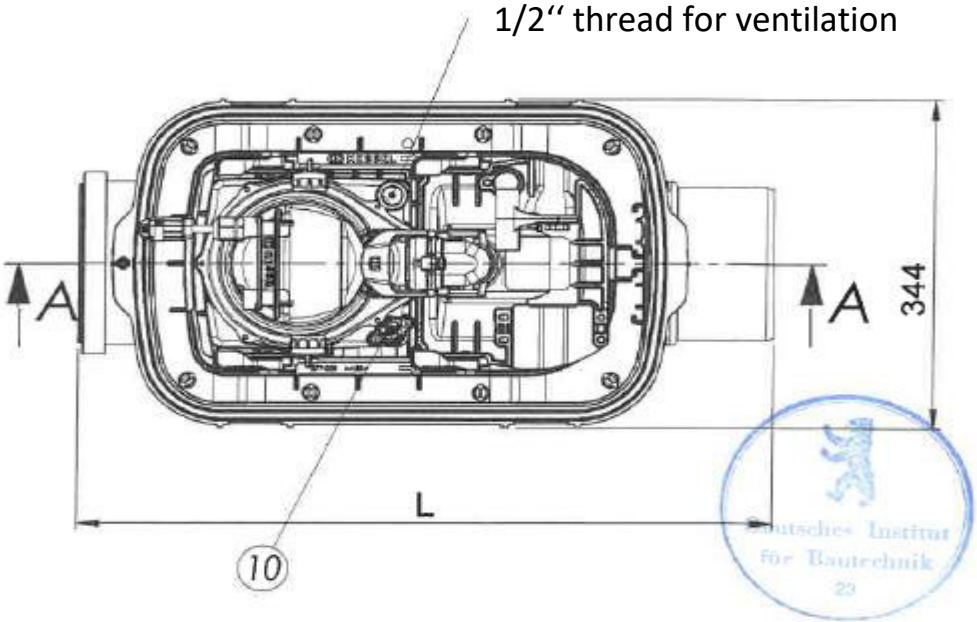
[DIBT Logo]

General Construction Approval
No. Z-53.2-388 of 18th April 2011

Item	Designation
1	Main casting
2	Stator housing
3	Pumpfix cover
4	Pump motor
5	Control cable to switching device
6	Small non-return flap
7	Hand lever
8	Pump housing
9	Cutting device
10	Optical sensor
11	Large non-return flap

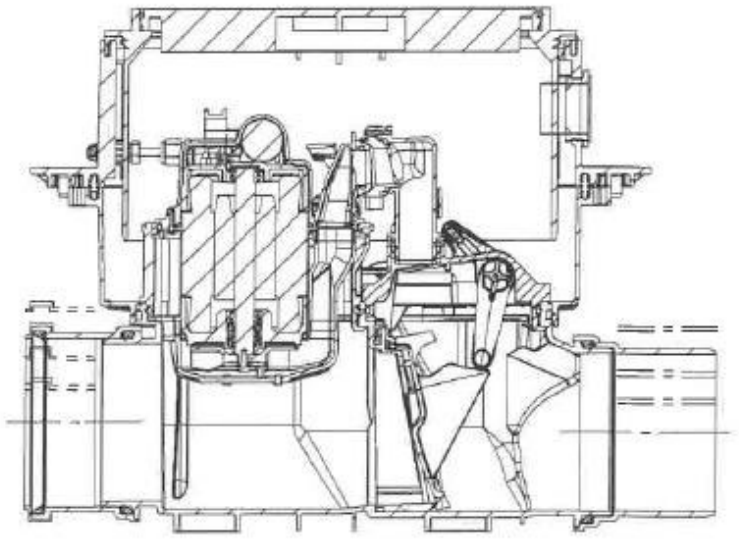
DN/Da	ØA	ØB	L
100/110	150	118	643
125/125	150	118	646
150/160	150	118	657

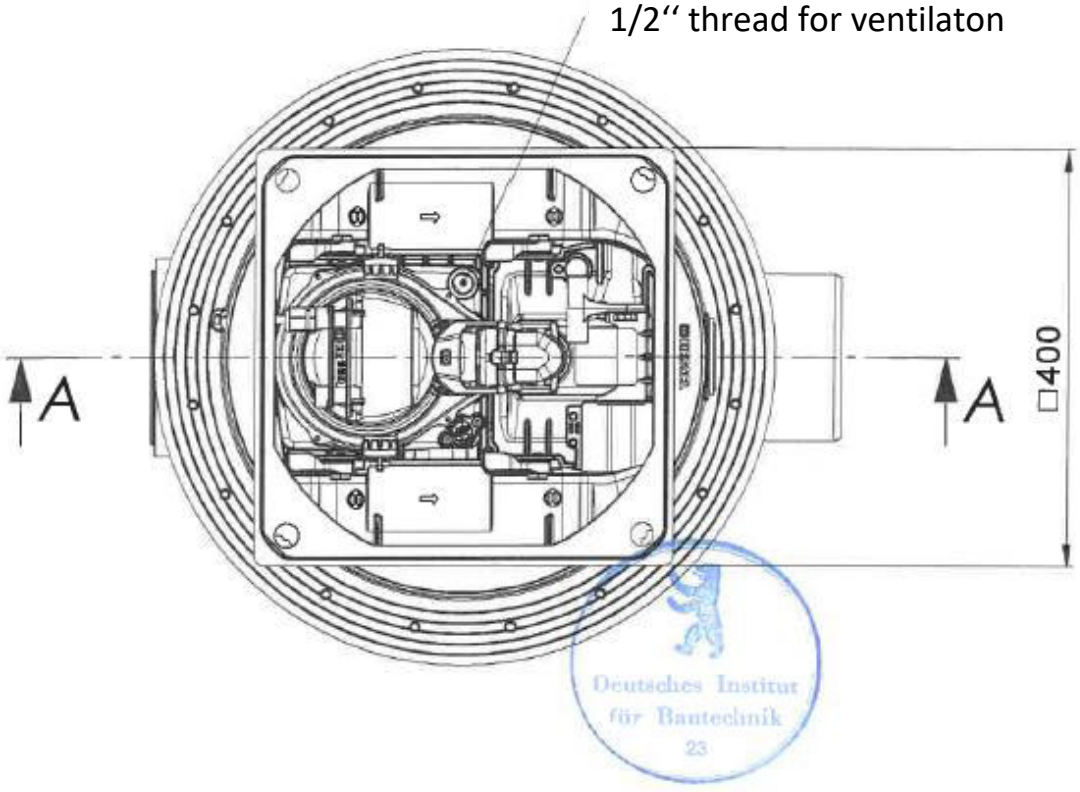




Pumpfix ® F Standard and Comfort backwater pump system (1kW)	Appendix 2
Free-standing	

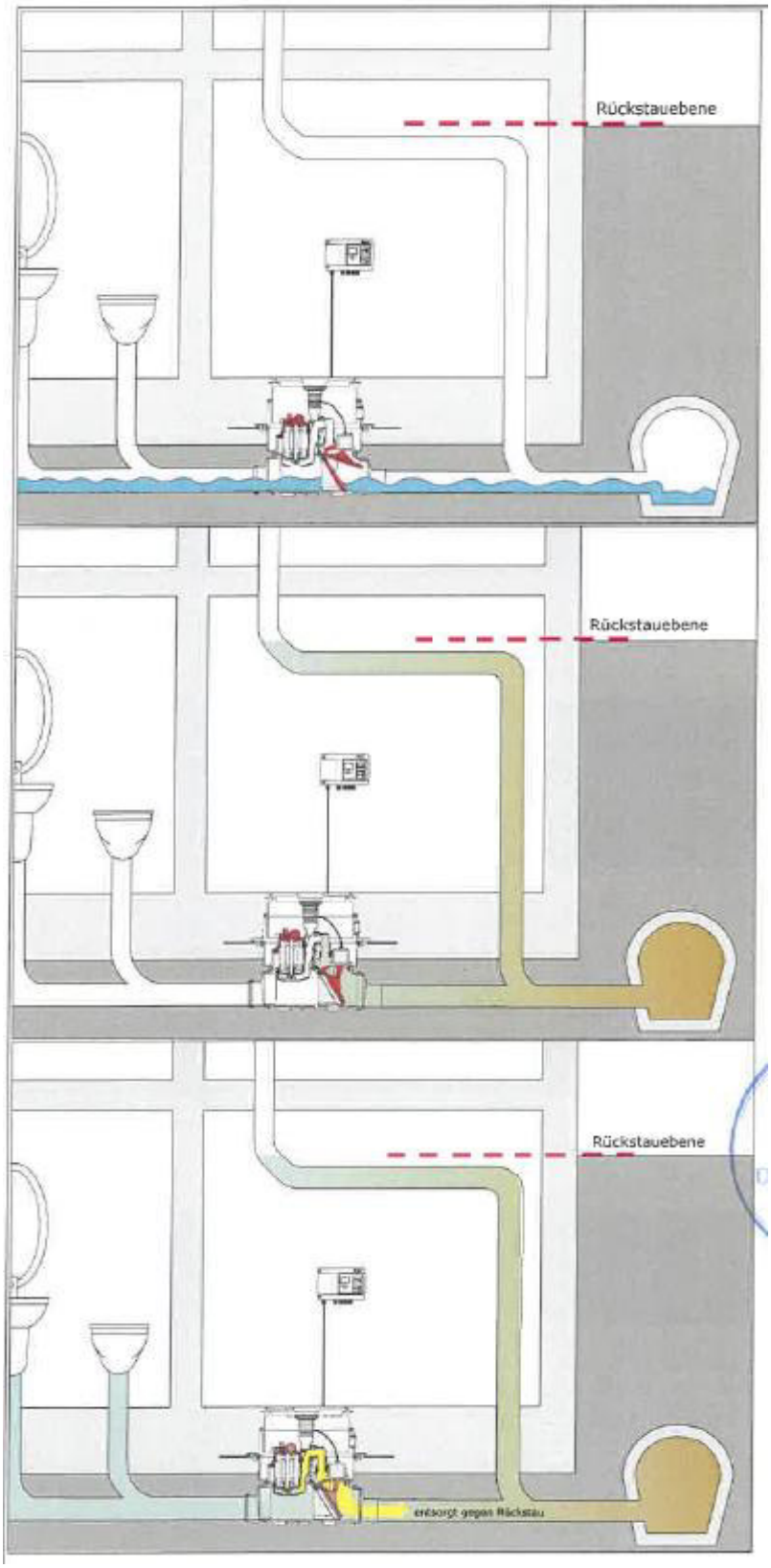
General Construction Approval
No. Z-53.2-388 of 18th April 2011





Pumpfix ® F Standard and Comfort backwater pump system (1kW)	Appendix 3
Installation in base plate with floor drainage if appropriate	

General Construction Approval
No. Z-53.2-388 of 18th April 2011



Normal operation:
Gravity drainage
without pump operation

Protection against backwater:
Backwater pendulum flap
closes mechanically

Drainage with backwater:
Waste water is pumped against the backwater

Pumpfix ® F Standard and Comfort backwater pump system (1kW)	
Schematic diagram	Appendix 4

[DIBT Logo]

General Construction Approval
No. Z-53.2-388 of 18th April 2011

Item	Designation
1	Main casting
2	Stator housing
3	Pumpfix cover
4	Pump motor
5	Control cable to switching device
6	Small non-return flap
7	Hand lever
8	Pump housing
9	Cutting device
10	Optical sensor
11	Large non-return flap
12	Motor

DN/Da	ØA	ØB	L
100/110	150	118	643
125/125	150	118	646
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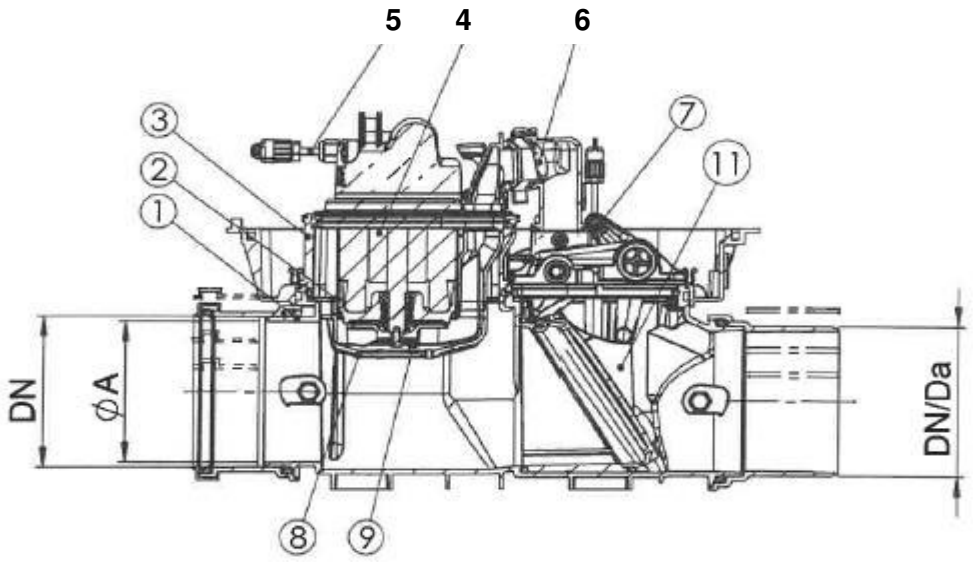
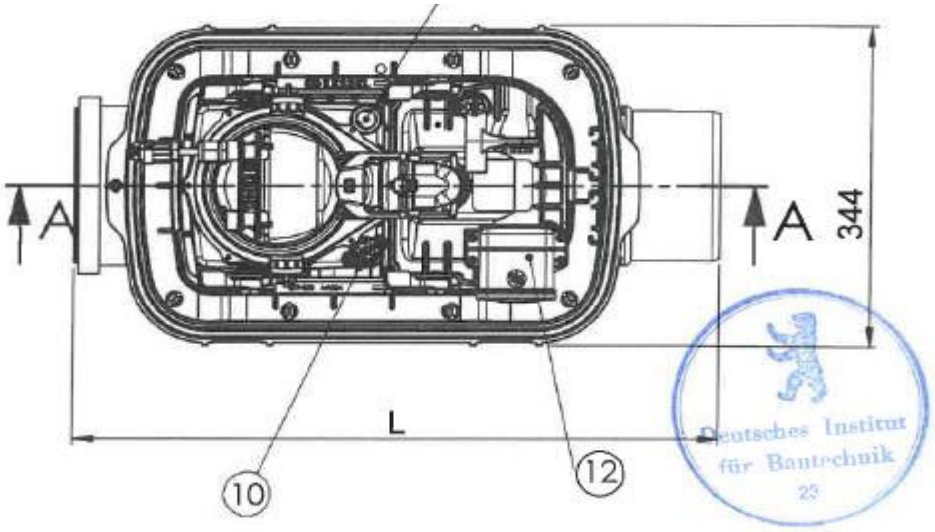
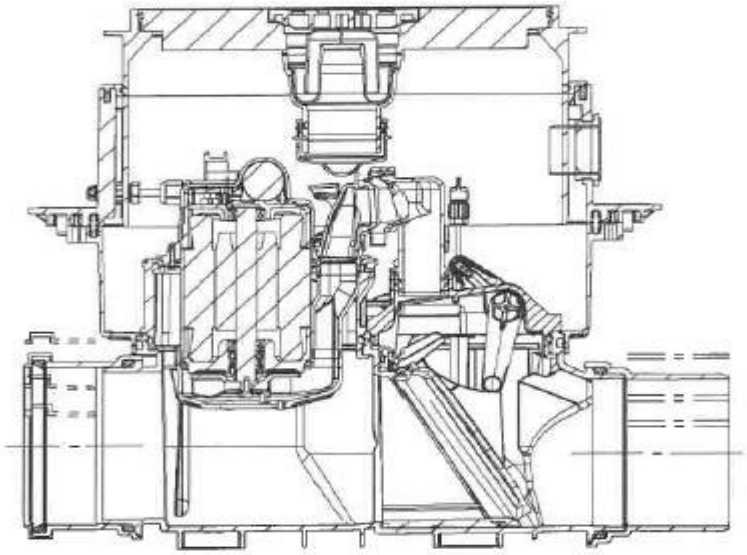


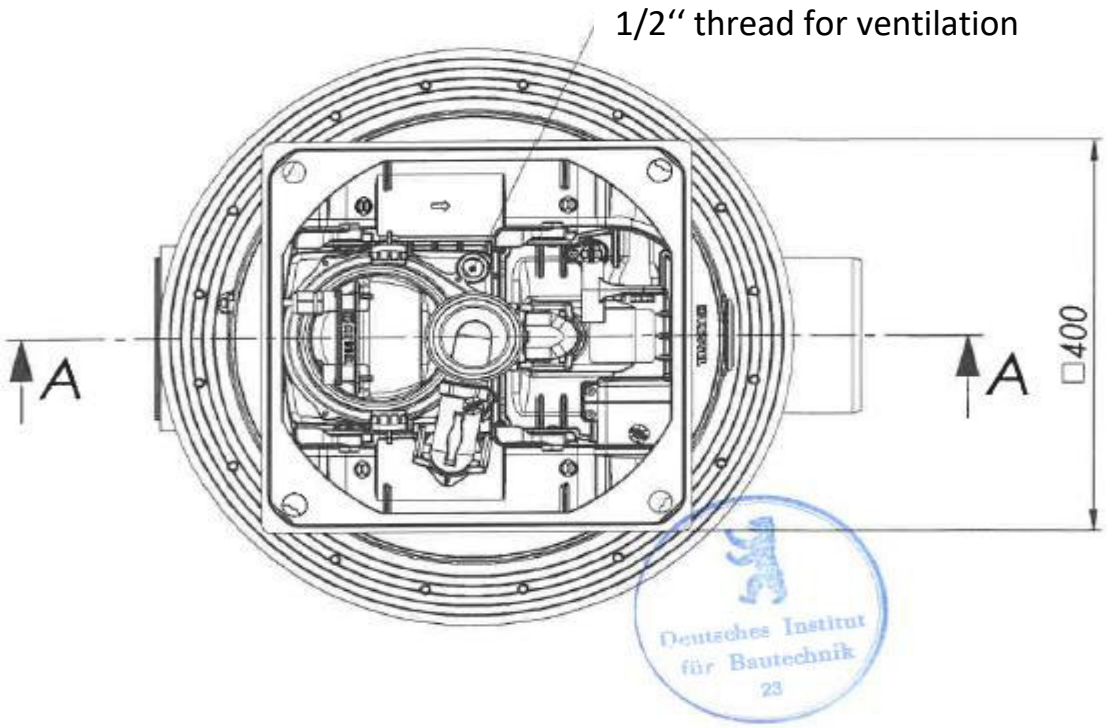
1/2‘‘ thread for ventilation



Pumpfix ® F Standard and Comfort backwater pump system (1kW)	Appendix 5
Free-standing	

General Construction Approval
No. Z-53.2-388 of 18th April 2011





Pumpfix ® F Standard and Comfort backwater pump system (1kW)	Appendix 6
Installation in base plate with floor drainage if appropriate	