Operating Manual

Abyzz

Made in Germany

A100

venotec.

GmbH

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26180 Rastede
Deutschland

www.venotec.de

Valid as of: 04.02.2014

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Preface

Thank you for buying an *Abyzz*® pump! By buying this powerful product, you have acquired a highly efficient, fully variable pump that was developed and manufactured in Germany to meet the most stringent quality and performance requirements. This manual aims to help you to start using the product and to make the required settings.

In order to reap the benefits of this product for as long as possible, please read this manual carefully and observe our recommendations.

Should the quality of the product not meet your expectations, please contact the dealer who sold you the pump or contact us directly. We recommend that you use the provided form to register your product with us so that we can provide you with the best possible service. Please make sure that the **serial number** on your product remains legible and be ready to provide us with this number if asked.

Legend

This symbol indicates particularly important information.

Abyzz

Scope of delivery

1   *Abyzz A100* pump with 2m cable including pump stand
1   *Abyzz A100* driver
1   *Abyzz* connecting cable (for *Abyzz* peripheral devices)
1   *Abyzz* mains cable
1   Registration form
1   Owners manual

Function description

The core component of the *Abyzz® A100* pump is a three-phase synchronous motor driven by sine waves. The high efficiency of the motor combined with the low motor voltage makes it ideal for energy saving and safety pump appliances. Integrated bearing flushing provides optimum protection against calcination and ensures low-maintenance operations.

The materials used are designed to have a long lifetime and meet the highest requirements and quality standards. Our products are developed and manufactured in Germany. Thus, they deserve this label:

<div align="center">

"Made in Germany"

</div>

The electronic control unit has optimum operating properties. In particular, these properties include the following:

- Variable speed range (0 - 100%)
- Programmable control unit including Abyzz *BOOST*MODE®
- Dry run protection
- Soft startup
- Bus-enabled interface*
- Lockable plug contacts
- Temperature protection
- Overcurrent protection
- Current limitation
- Low-noise operation
- Long lifetime
- Minimal power loss (especially low loss of heat into water).

Abyzz

Abyzz peripheral devices and connection options

The *Abyzz* connecting cable required for the connection of peripheral devices forms part of the scope of delivery of the pump*. If you do not use any peripheral devices, please secure both connections using the provided caps to prevent corrosion and the penetration of dust.

Abyzz control system (ACS):

The *ACS* allows you to control several (currently up to 8) *Abyzz* pumps. You can program in different profiles to generate waves, tides, or other flow patterns, for example.

In addition, the *ACS* allows you to centrally operate and monitor all bus-enabled *Abyzz* products. For example, operating data, alarms, temperatures, and so on are displayed centrally on the *ACS* display.

There are two D-sub connectors on the bottom of the *Abyzz A200 pump driver* for this purpose. The connection labelled "Master" is always connected in the direction of the *ACS* and the connection labelled "Slave" is always connected in the direction of the next *Abyzz* pump.

Abyzz interface (AInt):

The *Abyzz interface* allows you to integrate your *Abyzz* pumps into existing control systems (PLC, aquarium computer, etc.).

They simply require a 0 - 10 V output. Once the *Abyzz interface* is connected up, the internal programming of the driver is deactivated and the speed of the pump is regulated using the set direct current voltage. The pump's monitoring and protection functions and the display of operating data remain activated but the driver keyboard is deactivated.

If you are interested in this component, please contact your specialist dealer.

Warnings

- You must disconnect the mains plug before working on the pump!

- Caution - high voltage: It is prohibited to expose the electronic components of the product. This must only be done by the manufacturer!

- Do not disconnect the motor supply line from the driver at any time during operations!

- Only connect parts that clearly belong together!

- Make sure that supply lines, connectors, and the driver are kept dry and protect the components from damage.

- Do not work on cabling or the driver if you have wet hands.

- Do not use the product if any of the people in the vicinity are in the water or if anyone is in contact with the water.

- Check the product for damage before use. Never use a product that you know is damaged.

- Connect Abyzz products only to to a suitable, properly installed earthed wall socket that is fused with a circuit breaker as per DIN VDE 0100T739 (residual current circuit breaker).

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Proper use and general information

This product is intended for the conveyance of fluids (seawater, freshwater, brackwater, chlorine water, and other non-aggressive fluids with a temperature of +2ºC to +40ºC. The appendix includes a list of parts that come into contact with the medium being conveyed; in the case of media not specified above, please check the compatibility of the medium being used with the specified components prior to use.

The product can convey clean water or dirty water with a particle size of up to 1mm. If using dirty water, you must regularly clean the pump and use a preliminary filter to protect it. In particular, clean the internal flushing channel. Abrasive components increase the wear rate. Resulting damage is not covered by the guarantee.

The pump is not a self-priming pump and must therefore always be installed below the water level.

Please observe all generally valid national and international requirements when installing the pump.

The maximum working pressure may not exceed 0,8 bar.

Prior to being placed into storage, the product must be thoroughly cleaned with freshwater and appropriate cleaning agents (e.g. vinegar), since otherwise residue might settle inside.

During use, please make sure that the intake duct is sufficiently protected to prevent animals or foreign objects reaching the pump and causing damage.

When laying the piping, make sure that there is sufficient compensation of temperature fluctuations in the pipes.

Use a sufficiently large pipe diameter (an internal diameter of at least 40 mm on the intake side and of at least 25 mm on the pressure side).

Installation of driver

Moounting:

The product must not be installed outside. The mounting wall must be dry and protected from splashes of water and damp. A suitable power outlet should be available at an appropriate distance. Please keep a distance from ceilings of at least 30cm.

Wiring:

When laying the wires, make sure that no drips of water can reach the electronics via the wires.

Please note that due to the driver switch-on current, you must not switch on multiple drivers on the same fuse at the same time. Do not use multi-socket strips and do not exceed the permitted connected load of your supply line under any circumstances.

Ambient temperature and cooling:

The product can be used at ambient temperatures of between 2°C and +40°C.

To ensure sufficient cooling, the driver should be **at least 30 cm** away from any other objects (walls, ceilings, cable ducts, pipes etc.). The cooling element must not be covered. We recommend that you do not expose the driver to any additional heat source (heating system, lighting, sunlight) and ensure sufficient ventilation if using it in cupboards or on racks.

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Electrical connection:

The *Abyzz A100* requires a connection of 90...230V/50...60Hz.

The component must be connected to a suitable, properly installed earthed wall socket that is fused with a circuit breaker as per DIN VDE 0100T739 (residual current circuit breaker). We recommend that you do not connect more than 4 controllers to a supply line (16A fuse). The product has a mains switch, which is located on the connector element. The IEC connector on the Abyzz mains cable has a lock to prevent it from falling out. Press the red lock/unlock button on the IEC plug (fig. 1b) and then pull out the plug.

Fig. 1: *Connector view of driver*

Installation of pump

The *Abyzz* pump can be immersed to a depth of 2 metres or installed in a dry position, both either horizontally or with outlets down.

On the intake side, make sure that the water can flow in freely and protect the intake by means of a screen suitable for keeping coarse particles, sand, filter cotton fibres etc.) away from the impeller wheel. When laying the piping, make sure that there is at least 20cm of straight pipe on the intake side to allow the water to enter on a straight course. This measurement optimizes the product's efficiency and significantly reduces noise. For even more efficiency, use sufficient pipe diameters for large pipe systems (recommended: 63mm on the intake side, 50mm on the pressure side).

When using adhesive fittings, use an adhesive suitable for ABS and PVC.

Installation outside pond:

Find a suitable installation location where there will not be too much of a loss of power as a result of bends, corners, and the running of cables. Wherever possible, use bends instead of sharp corners and connect the pump as flexibly as possible with flexible connection parts (e.g. suitable silicone house from a specialist dealer) in order to prevent connection line vibrations, which might result in leaks on screwed or adhesive joints over time.
These measures are optimum precautions for ensuring trouble-free, low-noise operations.

Installation in pond:

Place the pump in the filter sump and connect it to your piping system as flexibly as possible to prevent noise and vibrations.

Commissioning

Once it has been properly installed, the *Abyzz* pump can be placed into operation. To do so, connect the motor connection cable with the driver. The plug is coded and can only be connected in one position. The plug used meets the highest impermeability and safety standards. Screw the plug together to safeguard these properties. Connect the *Abyzz* mains cable with the driver, plug the mains cable into a suitable earth wall socket, and switch on the mains switch (see fig. 1a).

The LED flashes. You can start and stop the pump in any operating mode by pressing the start/stop button.

If the pump is running dry at more than a third of its output, the dry run protection function is activated. This function switches the pump off and reports a fault ("DRYRUN!"). After a few seconds, the pump starts up again automatically and, the dry run fault being rectified, begins working again.

Run-in phase

Despite our best efforts, small production tolerances cannot be avoided when manufacturing the bearings. Their condition can cause noise during the pump run-in phase. However, this is normal, and does not pose a problem in the long term. During the device test following production, the power, concentricity, and noise development of all pumps is tested. The run-in phase can last several days depending on the operating mode. Figure 3 clearly shows the difference between a bearing that has come straight from the factory (left) and a bearing following the run-in phase (right): Following the run-in phase, these operating noises practically disappear.

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Fig. 2: *Bearing stright from factory and following run-in phase*

Description of control elements

Display:

The display tells you about the operating state of the pump. The display switches to idle mode after 3 minutes of inactivity to ensure the maximum possible lifetime and the lowest possible current consumption. Simply press a button to switch the display back on. The overview changes every 2 seconds as follows and displays the following operating data:

- Adjusted power in %
- Driver temperature
- Driver status and ACS adress, if used
- Operating mode
- Actual energy saving
- *BOOST*MODE® adjustment

The text displayed in the first line changes from "Stopped" to "Running" if you increase the speed and switch on the pump.

LED:

The LED flashes to show that the product is working properly.

Keyboard:

The keyboard enables the direct control of the pump and the programming of the pump in the menu.

Abyzz

Operation

In the "Permanent" operating mode (set when delivered), you can use the start/stop button to start or stop the motor. You can adjust the speed using the up and down buttons. If you want to store the new speed permanently, press "M". The set value is then retained by the system. The start/stop setting is stored automatically so that the pump automatically starts in its previous operating mode following an interruption in the operating voltage or if the mains switch is switched off.

If you want to enter the menu to view operating data or to program the pump, press "M".

The menu appears and the current operating mode is displayed. Use the up and down buttons to navigate in the menu. The software status, operating hours, and operating mode are displayed one after the other.

The contrast of the display may be adjusted in the screen „Software & Kontrast" by keeping the „Start/Stop" button pressed and pressing the buttons „up" or „down".

If you want to change the operating mode, press the start/stop button on the operating mode display. You can now use the up and down buttons to change the operating mode. There are the following operating modes:

a) Permanent: The pump runs continuously at a set speed.

b) Wave: The pump switches between two different set speeds at a set interval.

c) Random: The pump changes speed within a range defined by a minimum and maximum value at a set time.

d) Random 2: The pump changes speed within a range defined by a minimum and maximum value at a random time.

Once you have selected the operating mode, press the start/stop button. You are then asked to enter the required data (minimum and maximum power, time interval). Confirm each setting by pressing the start/stop button. When you are finished, the settings are saved automatically and the system returns to the overview.
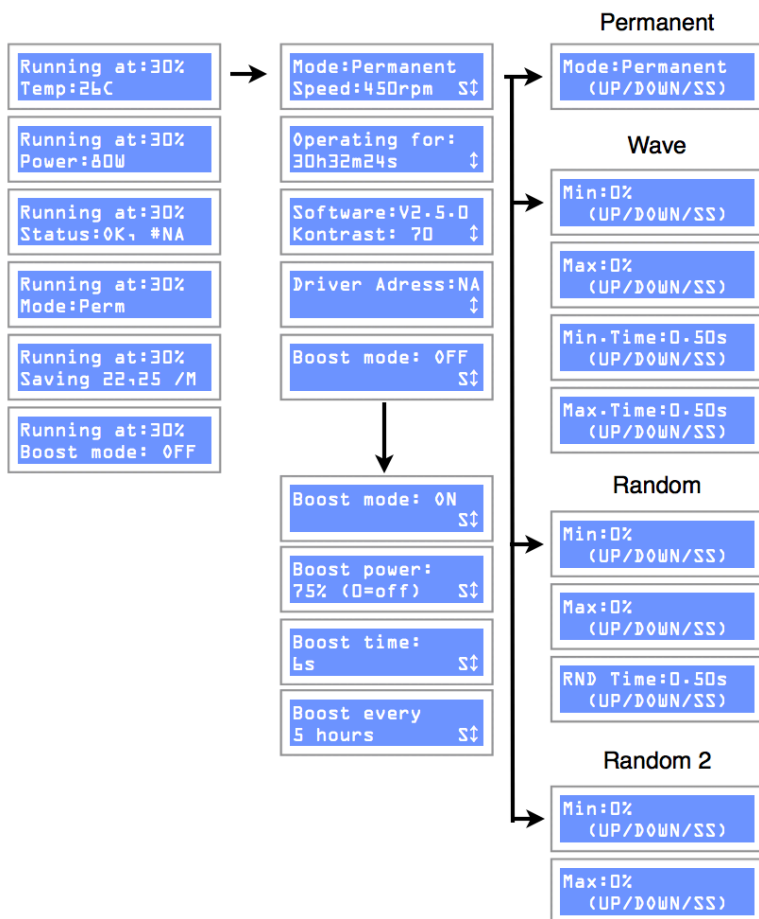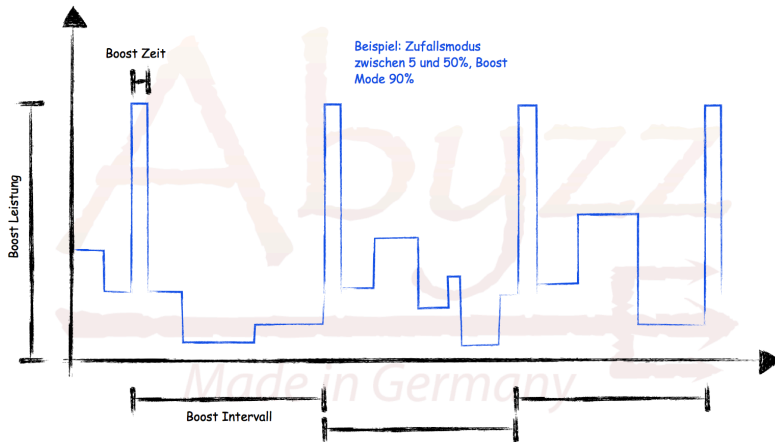
Permanent

```
Running at:30%        Mode:Permanent        Mode:Permanent
Temp:26C              Speed:450rpm   S↕       (UP/DOWN/SS)
```

Wave

```
Running at:30%        Operating for:        Min:0%
Power:80W             30h32m24s      ↕        (UP/DOWN/SS)
```

```
Running at:30%        Software:V2.5.0       Max:0%
Status:OK, #NA        Kontrast: 70   ↕        (UP/DOWN/SS)
```

```
Running at:30%        Driver Adress:NA      Min.Time:0.50s
Mode:Perm                            ↕        (UP/DOWN/SS)
```

```
Running at:30%        Boost mode: OFF       Max.Time:0.50s
Saving 22.25 /M                      S↕       (UP/DOWN/SS)
```

Random

```
Running at:30%        Boost mode: ON        Min:0%
Boost mode: OFF                      S↕       (UP/DOWN/SS)
```

```
                      Boost power:          Max:0%
                      75% (0=off)    S↕       (UP/DOWN/SS)
```

```
                      Boost time:           RND Time:0.50s
                      6s             S↕       (UP/DOWN/SS)
```

Random 2

```
                      Boost every           Min:0%
                      5 hours        S↕       (UP/DOWN/SS)
```

```
                                            Max:0%
                                             (UP/DOWN/SS)
```

Fig. 3: *Overview of messages*

A special new feature is the Abyzz *BOOST*MODE®, which makes it possible to set up a short burst to get rid of debris. This burst can be programmed independently to the operating mode chosen.

Fig. 4: *Abyzz BOOST*MODE

In Fig. 4 you see as an example the burst, which is overriding the control of the Abyzz random program.

Maintenance

Caution - extremely strong magnetic field!

- Risk of death to people with pacemakers!
- Keep the impeller away from pacemakers, credit cards, data carriers, or similar objects that are sensitive to magnetic fields.
- Risk of injury due to body parts becoming trapped.
- Do not place any metallic parts near to the impeller.

Abyzz pumps are practically maintenance-free if used properly. If the flow rate drops, there may be particles of dirt that need to be removed in the impeller wheel. Also, slight vibrations can be an indication that the impeller wheel is dirty.

To clean it, separate the pump head from the motor (bayonet coupling, see Fig. 6) and pull out the impeller group.

Fig. 5: *Pump with pump head*

Fig. 6a/b: *Disassembly of pump head*

Fig. 7: *Removing impeller group*

O-rings and rubber parts suffer from unavoidable aging and should be replaced as required. These parts are listed in the spare parts list and can be ordered from Abyzz.

Make sure that the rear bearing is in the correct position inside the motor. If necessary, push the bearing into position with a blunt object (e.g. the handle of a screwdriver). Make sure that the O-ring for the vibration isolation and sealing is in the right position before reassembling the pump.

Carefully place the impeller into the motor block and press the assembly into the bearing seat until the bearing bracket is flush with the flange.

Fig. 8: *O-ring position and assembly*

Place the O-ring on the notch of the pump head and make sure it is properly placed before closing the bayonet flange again.

Fig. 9: *Assembly of pump head*

In systems that are constantly and intensively subjected to limescale (e.g. hard coral ponds), the pump must be regularly descaled.

Tip:
We recommend that you use a weak vinegar solution to clean the pump to avoid damaging it.

Guarantee

In accordance with the implied warranty, we provide a 12-month guarantee. You can also extend the product guarantee period from 12 months to 10 years free of charge within 4 weeks of purchasing the product (date of invoice) after registering your product successfully.

If you have a complaint, please contact us immediately and if needed, send the device back - in its original packaging wherever possible and with proof of purchase - directly to *venotec*. Please note that we cannot accept non-prepaid deliveries. Such deliveries will be sent back without being processed.

The guarantee covers material, functional, and production faults that can occur when using the product as intended. It does not cover damage of wearout or abrasive wear, transport damage, claims for compensation above and beyond compensation for the product itself, or damage resulting from improper use, negligence, incorrect installation, or interventions and changes carried out by unauthorized persons. We expressly exclude such scenarios from our scope of liability. Any secondary damages such as the loss of coral, fish, or water damage caused by pump failure or a lack of intake protection are expressly excluded from guarantee and warranty claims. Calcination inside the pump and any resulting damage to the product or motor, damage by use as not intended and any damage to cables (e.g. chafed cables) are expressly excluded from the warranty. The warranty is invalidated in the following cases: Removed original plugs, use of non-original spare parts, impeller wheel damage resulting from parts sucked into the pump, motor damage caused by the tapering of the intake port or if the pump is operated with a closed or partially closed ball valve in the intake area, motor damage caused by persistent dry running, limescale damage resulting from the improper use of chemicals or the use of unsuitable chemicals, motor damage resulting from upstream external electronic components or damage resulting from damp in the driver.

Technical changes

Due to the constant further development of our products and to innovations that, in particular, serve to improve quality, safety, and technical progress, the manufacturer reserves the right to make technical changes.

Troubleshooting

If, despite the high standard of quality, faults should occur, please use the checklist below to rectify or restrict the problem. A number of faults are already detected and displayed by the electronics.

Malfunction	Cause	Remedy
The display does not light up and the LED flashes	a) Screensaver on	a) Press a button
The display does not light up and the LED does not flash	a) No mains voltage	a) Check the mains connection If the fault cannot be rectified, there is a driver fault. In this case, please contact the service team.
Status: COMM FU!	a) Control unit communications failed	a) Switch off the device and switch back on after 10 seconds
Status: Imax!	a) Overcurrent fault, motor overloaded	a) Check motor to make sure that it can move freely
Status: MOTOR?	a) Motor not detected	a) Check connection to motor, check plug
Status: TEMP!	a) Driver overheated	a) Let the driver cool down, lower the ambient temperature
Status: DRYRUN!	a) Motor has run dry or is drawing in air	a) Check the water level, check the pipes for leaks
Status: LOW VOLT!	a) Mains voltage too low b) Too many devices on one lead c) Mains lead too long	a) Check the mains voltage b) Reduce the number of devices c) Reduce the length of the lead, remove multi-socket strips *Device is working but cannot reach maximum power*

If you cannot rectify the fault by checking the lines (incorrect connections), mains voltage, and pump (smooth running, blockages), please contact your specialist dealer. In such cases, please be ready to state the serial number of the driver and of the motor. The serial numbers are on the blue serial number sticker or on the packaging.

Disposal

As per Directive 2002/96/EC, this product cannot be disposed of in normal household rubbish.

Within Germany, our customers can send old devices back to us free of charge for proper recycling or disposal. The WEEE number for reporting to the EAR (Germany registry of old electrical equipment) is:

DE 16546900

If you do not want to dispose of the product through us, you must bear the costs of disposing of the product in accordance with legal requirements. In doing so, you release us from our obligations as per Section 10 Paragraph 2 of the ElektroG (Electrical and Electronic Equipment Act) and absolve us from all upcoming claims from third parties.

Technical data:

Maximum flow rate	:	8.500 l/h
Rated flow rate	:	7.200 l/h

Discharge flow speed
	maximum:	4,2 m/s
	rated :	3,8 m/s

Delivery height	maximum:	6,0 m
	rated :	5,5 m

Rated input	:	4...100 W
Operating voltage	:	90...230V~, 50…60Hz

For details, see the characteristic curves in the appendix (fig. 10 et seq.). The following calibrated devices were used for the measurement process:

Power test	:	Zimmer LMG 310
Quantity measurement	:	Krohne Optiflux 2100C
Discharge flow speed	:	Dorstmann P670
Pressure test	:	Kobold 220X1K9 Cl. 0,25

Abyzz

Materials

The following components/substances come into contact with the medium being conveyed:

Housing
Pump head
Impeller wheel   : ABS GF 20, PA-6

Flushing line   : PVC, PU
Shaft   : WCNi

Impeller   : Titanium grade 2
Screws   : Titanium grade 2

Bearings   : SSIC

O-ring
Bearing seat
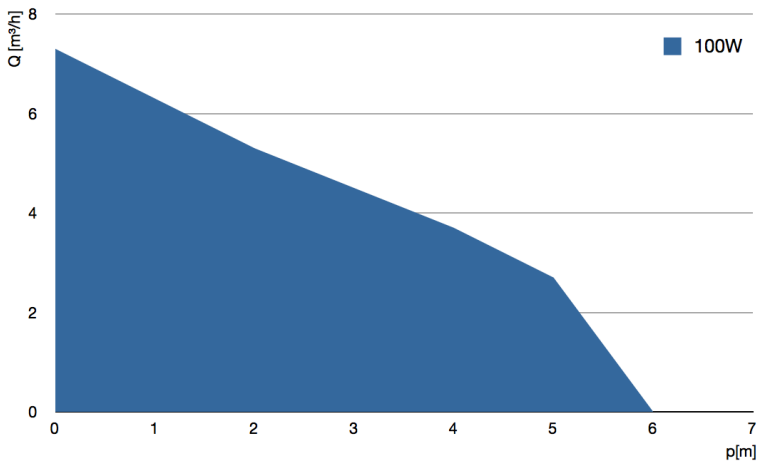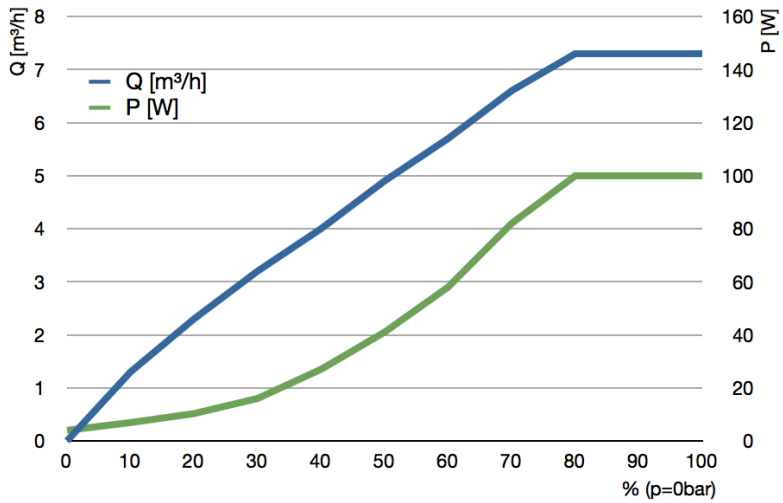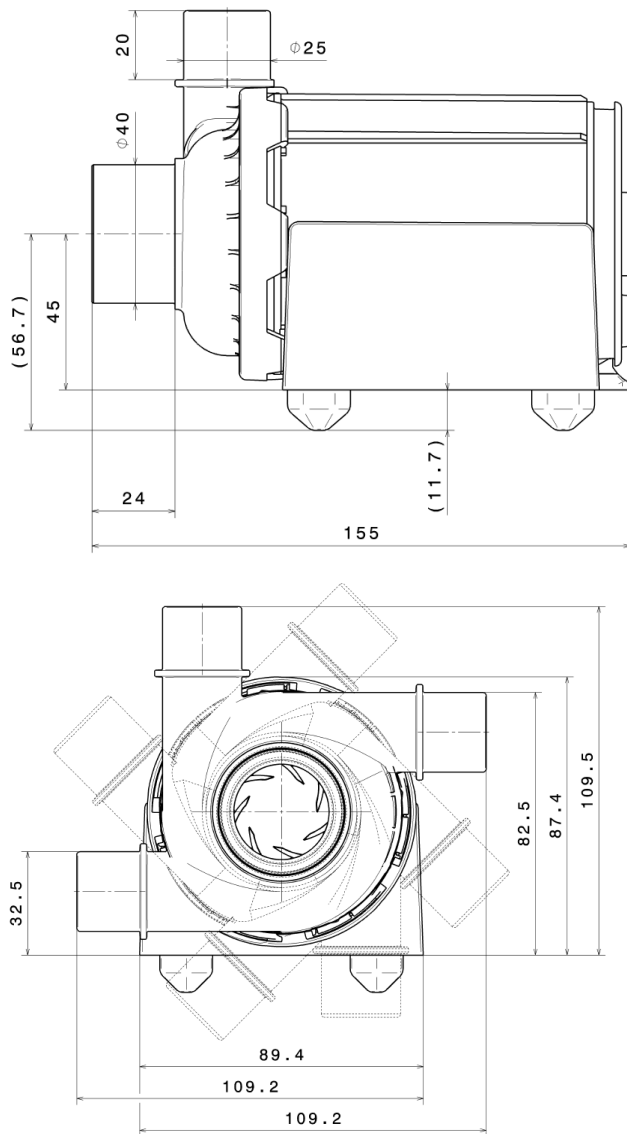Device feet   : NBR, CR, EPDM

Motor cable   : PU

Jointing compound   : PU

Fig. 10: *Flow charts*

![Abyzz logo]

Dimensions and weight

Fig. 11: *Dimensions pump A100*

CE declaration of conformity

CE

ven⊙tec.

GmbH
Am Nordkreuz 36
26180 Rastede

We hereby declare that the design of the pump system

Abyzz A200, A400, A200AS, IPX200, IPX400

complies with the following specifications:

EG-Richtlinie EMV 2004/108/EG

Applied harmonized standards:

DIN EN 61000-6-1
DIN EN 61000-6-2
DIN EN 61000-6-4
DIN EN 61000-3-2

This is a EMI class A product. In some environments it can cause electromagnetic interference. In this case, it obligates to the user to perform adequate measures.

Abyzz

<u>Test report</u>

Date : ____.____._____

Inspector : _____

Optical inspection : _____

Serial number driver : _____

Serial number motor : _____

Flow rate on test bench (nominal) : _____ l/h

Maximum head pressure : _____ bar

Max power consumption : _____ W

Rotation OK : _____

Noise level OK : _____

_____
(signature inspector, stamp)

Notes

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