

VALVE CHAMBERS AND WELLS



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100% reusable PE material



Resistant to Nordic climate



Safe to maintain



Resistant to mechanical damage



The PE material's guaranteed lifetime is 50 years



Dear customer!

Thank you for taking time review our catalogue of valve chambers and wells!

Here you will find information about valve chambers and wells, choices, how to install them and maintenance tips.

During developing valve chambers and wells the focus has been their long-term durability and comfortable and safe use.

STRONG valve chambers and wells are used to solve pressure pipeline node points. Even the most demanding customer will find the suitable valve chamber or well from us.

In addition to STRONG valve chambers and wells, our product range includes also pumping stations with submersible pumps, booster pumping stations, tanks, septic tanks and other products of the same brand

Detailed information about all our products is available at the address www.iwsgroup.ee/en.



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PRODUCT RANGE



HYDRANT WELLS

Hydrant wells are intended for underground installation of fire hydrants. It is a compact well equipped with a fire hydrant and a drain pipe.

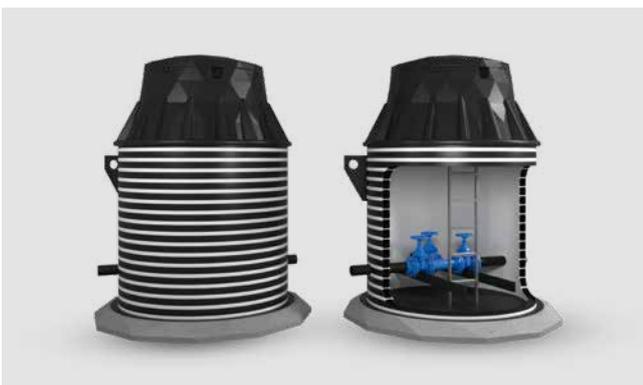
- Inside diameter of well: ID1000 mm
- Pressure piping: D110 mm
- Drain pipe: D50 mm
- Service opening: Insulated plastic cover or cast iron cover (40T)



AIR RELEASE WELLS

Air release wells are used to remove excessive air from the pressure pipes. Generally, air release valves are installed at the highest points of the pipeline profile. The diameter of the air release well is selected depending on the diameter of the pipelines, the number and dimensions of air release valves. This is a complete well with internal piping and suitable air release valve.

- Inside diameter of well: ID1000, 1200, 1400, 1600, 2000, 2400 mm
- Pressure piping: D32 up to 630 mm
- Service opening: Insulated plastic cover or cast iron cover (40T)



VALVE CHAMBERS

Valve chambers are used to open and close water supply and sewerage pipelines. The diameter of the valve chamber is selected depending on the diameter of the pipelines, the number and dimensions of valves. This is a complete chamber with internal piping and suitable valves. For the production of the chamber and the production drawing, the data are determined according to the project.

- Inside diameter of chamber: ID1000, 1200, 1400, 1600, 2000, 2400 mm
- Pressure piping: D32 up to 630 mm
- Service opening: Insulated plastic cover or cast iron cover (40T)



WATERMETER WELLS

Watermeter wells are used to measure the amount of water flowing through pressure pipes. The diameter of the watermeter well is selected depending on the diameter of the pipelines, the number and dimensions of watermeters. This is a complete well with internal piping and suitable watermeter. For the production of the watermeter well and the production drawing, the data are determined according to the project.

- Inside diameter of well: ID1000, 1200, 1400, 1600, 2000, 2400 mm
- Pressure piping: D32 up to 630 mm
- Service opening: Insulated plastic cover or cast iron cover (40T)

TECHNICAL CHARACTERISTICS

STRONG valve chambers and wells are made of PE-HD (high-density polyethylene), which is an elastic and durable type of plastic. Nowadays, PE is a common material used for manufacturing pumping stations, chambers, tanks,

wells and pressure pipes, because it is particularly durable in Nordic climate. The tank cylinder of STRONG valve chambers and wells are strong, made with ring stiffness of at least SN2 (2kN/m²) and from ID1200 recommended

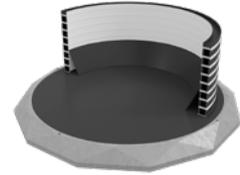
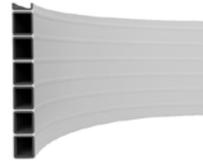
SN4 (4kN/m²), so they resist mechanical damage that may occur when installing or using the system. This is important for preventing wastewater leakage into soil or soil water penetration into the valve chamber or well.

Cover: PE, 50 mm of thermal isolation

Service opening: PE, 50 mm of thermal isolation

Tank cylinder: PE100, SN4, EN 13476, Nordic Polymark

Anchoring bottom: PE100 / reinforced concrete C35/45 XC2



Handrail: A4, telescopic, EN 14396

Ladder: A4, non-slippery, EN 14396

Cast iron cover: DN800, 40T, for ID1200-1600 chambers

Cast iron cover: 1300x700, 40T, for ID2000 chambers



INSTALLATION

LIFTING OF VALVE CHAMBERS OR WELLS

Use lift belts to lift a valve chambers or wells. If necessary, use a spreader bar. It is important to make sure that the lift belts do not damage any protruding parts. Do not put steel cables or chains around the valve chamber or well. When lifting the valve chamber or well use all available lifting eyes and guide ropes.



When lifting the valve chamber in a horizontal position, the weight of the concrete anchoring bottom plate of 1.5T and the resulting position of the gravity shell must be taken into account.



INSTALLATION OF VALVE CHAMBERS OR WELLS

1. A trench for the installation of a valve chamber or well shall be dug with a diameter of at least 1.2 meters larger than the diameter of the valve chamber or well. This is because there is enough space around the valve chamber or well installed in the trench to compact the backfill material.
2. The bottom of the trench is filled with filling material with a thickness of 300 mm and compacted.
3. When anchoring a valve chamber or well, proceed as described in the chapter: Anchoring.
4. Lift the valve chamber or well into the trench and make sure that the valve chamber or well is not inclined vertically.
5. Next, start backfilling the trench as described in Chapter: Backfill.
6. When the backfill reaches the inlet and outlet pipe height, connect the valve chamber or well to the water pressure pipes and carefully seal around the pipes.



Before pressurizing the valve chamber for the first time, the bolted connections of the pressure pipeline inside the chamber must be checked and, if necessary, overtightened.

INSTALLATION

REQUIREMENTS FOR THE FILLING MATERIAL

Sand, gravel, and crushed stone are suitable filler materials. The filler must be clean, freely flowing, and must not contain ice, snow, clay, organic substances, or too large or heavy objects that may damage chamber. Minimum required bulk density is 1,500 kg/m³.

Gravel

Gravel particle size must not be less than 3 mm or more than 20 mm.

Crushed stone

Crushed stone particle size must not be less than 3 mm or more than 16 mm.

Sand

The particle size must not exceed 3 mm.

Sand/gravel mixtures

Sand and gravel mixtures can be used if the components comply with the above requirements for gravel, crushed stone, and sand. Sand and gravel mixtures must be compacted as instructed below.

ANCHORING

Lifting force of groundwater

In order to neutralise the lifting force of groundwater and to ensure that the chamber remains securely in place, the chamber must be anchored. The anchoring base plate weight plus the chamber's weight and the weight of the soil on the base plate edges extending beyond the chamber's edges must be at least equal to the lifting force. Friction between the chamber's outer wall and the soil is usually not taken into account (it is left as a reserve). Calculated counterweight depends on maximum groundwater level (the safest bet is to consider groundwater level up to the ground surface as the maximum level) and the weight of an empty chamber. Then the lifting force equals to the chamber's volume.

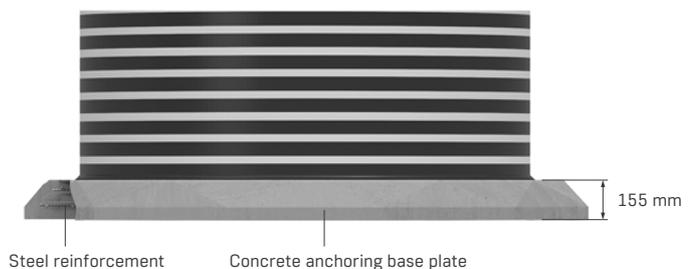
Concrete anchoring base plate

Reinforced concrete anchoring plates have already been added to the STRONG chambers ID1200, ID1400, 1500 and 1600 mm in production. A reinforced concrete anchor plate is added to the ID2000 chamber during production, to which three reinforced concrete anchor parts must be added in the trench. The dimensions and reinforcement of the anchoring plate are designed taking into account that the chamber, if properly installed, remains firmly in the ground to the maximum possible extent at groundwater level.

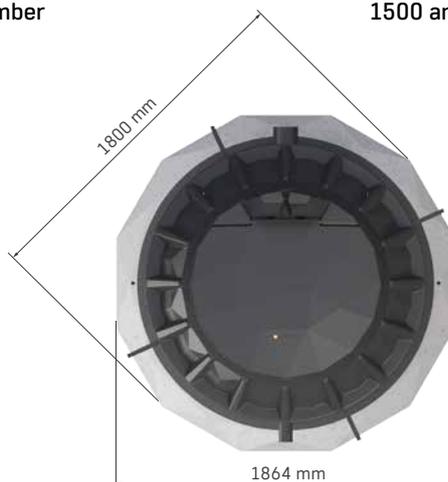
The chamber with anchoring plate is installed at a horizontal thickness of 300 mm from the standard density on mechanically compacted sand, gravel or crushed stone foundations to at least 95%. If soil conditions require so, sulphate-resistant concrete must be used. The need to change the environmental class of concrete must be notified and the conditions agreed before ordering the chamber.

Concrete anchoring plate data:

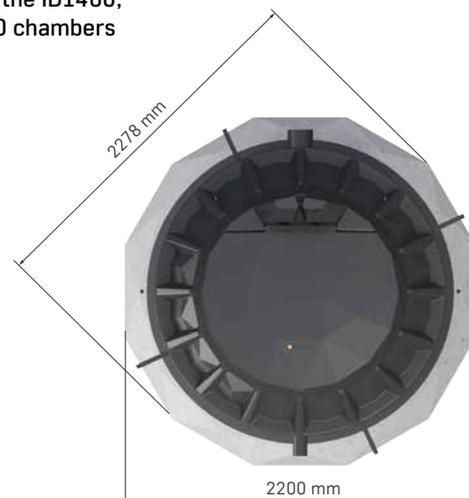
Concrete class: C35/45
Environmental class: XC2



The bottom of the ID1200 chamber



The bottom of the ID1400, 1500 and 1600 chambers

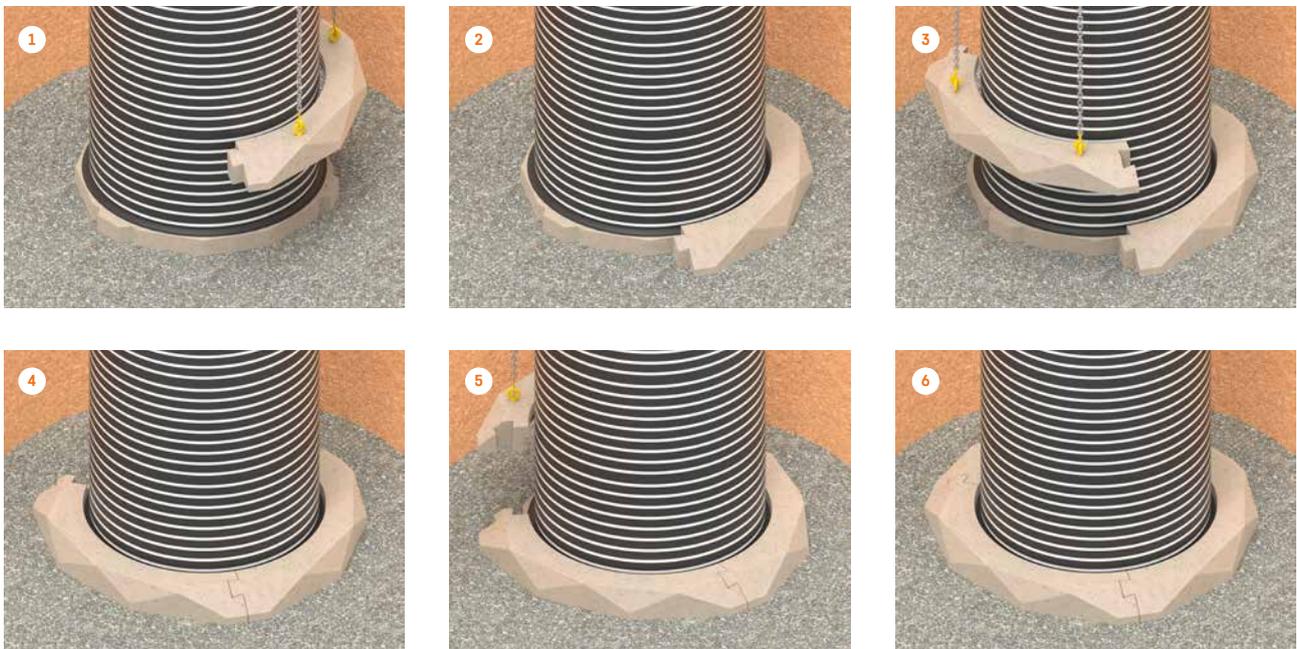


INSTALLATION

ID2000 chamber bottom and anchoring parts



Installation of the anchoring parts of the ID2000 chamber



INSTALLATION

BACKFILLING

The valve chamber or well trench is filled on all sides in 300 mm thick layers of gravel, crushed stone or sand, compacting each layer to 95% of the soil's natural density. In case of high soil water level or otherwise wet and heavy soil (e.g. clay soil), use only gravel or crushed stone as backfill material.

Take special care when compacting near the valve chambers or wells pipe connections to avoid any empty spaces remaining there.

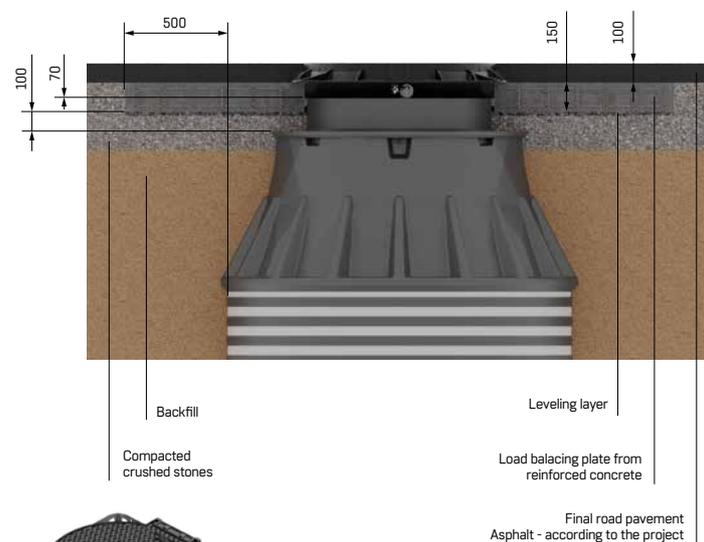
When installing the valve chamber or well to a green area, make sure the cover reaches at least 100 mm above the ground in order to prevent storm-water from entering the chamber.



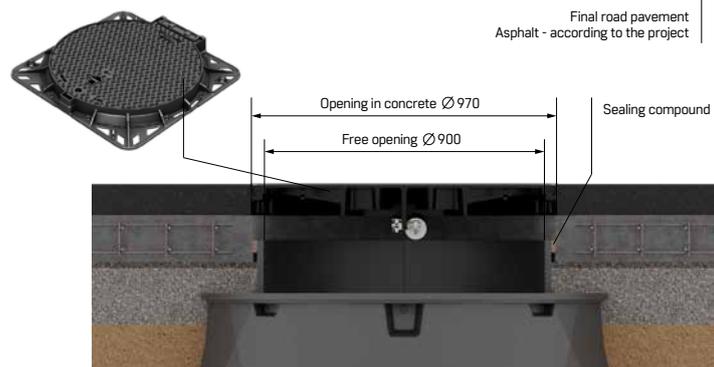
A valve chamber or well installed without full backfilled topsoil layer may shift due to the impact of soil water. Therefore, in the event of interruption of the trench filling, it must be ensured that the ground water does not get into the trench!

INSTALLATION UNDER TRAFFIC AREA

To avoid traffic load on a chamber installed under traffic area, the chamber must be covered by a 150 mm thick reinforced concrete load balancing plate. The plate must extend at least 500 mm beyond the chamber in all directions. The cover must be selected for the corresponding traffic load class (A15 to F900), the standard selection is D400 (40 T). The cover must rest on a reinforced concrete load balancing plate to avoid the load from being transferred to the chamber.



Reinforced concrete load balancing plate shall not remain lie to the service opening of chamber.



INSTALLATION OF DN800 CAST IRON COVERS IN AREA WITH TRAFFIC LOAD



1 Trench compacted with backfill material.



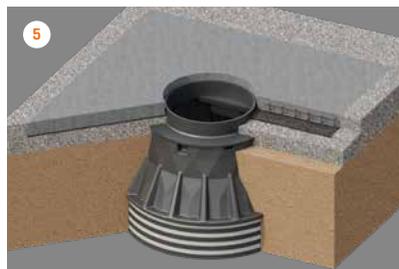
2 Add a layer of compacted crushed stone.



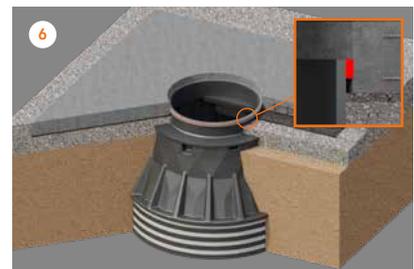
3 Install a leveling layer.



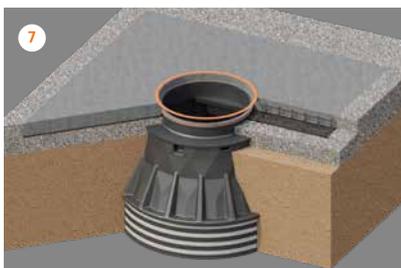
4 Add load balancing plate from reinforced concrete.



5 Add a layer of crushed stone around the load balancing plate.



6 Install the sealing compound between the reinforced concrete plate and the service opening of the chamber.



7 Install the sealing compound on top of the reinforced concrete plate (under the cast iron cover).



8 Install the cast iron cover.



9 During installation, check the opening direction of the cast iron cover in relation to the service ladder.



10 Fasten the cast iron cover at the corners with anchors bolts.



11 Install the final road pavement.

MAINTENANCE

1. If the valve chamber or well is equipped with gate valves, air release valve, watermeter or other device, maintenance must be performed in accordance with the device manufacturer's maintenance requirements.

2. If necessary, wash the inner walls of the valve chamber or well with pressurized water and clean the bottom sediment.
3. Repair or replace faulty parts!

Generally, the valve chamber or well tank cylinder and interior structures do not require any special maintenance.

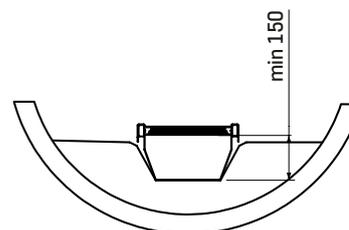
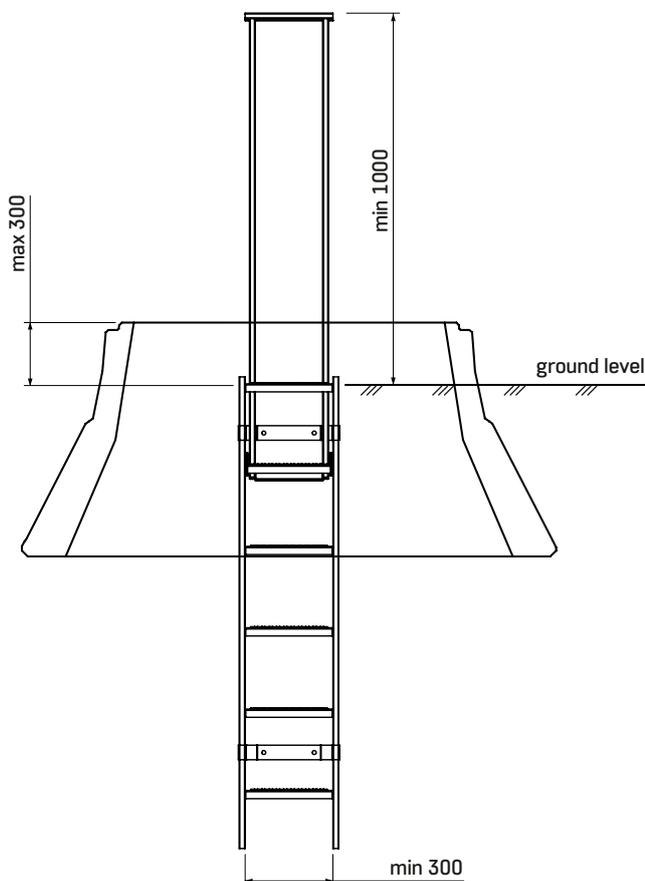
SAFETY

1. The employer of the valve chambers or wells maintenance personnel shall instruct the maintenance employees on the dangers of electric and toxic exhaust gases and shall provide the necessary protective equipment.

2. Before entering a valve chamber or well, the valve chamber or well must be ventilated!
3. Only one person at a time may stand on the valve chambers or wells service ladder and a single person must not carry along any items that are not lightweight and easy to use.

4. It is strictly prohibited to perform any works inside the valve chamber or well alone.

5. If safety requirements are ignored, no damage claims will be accepted.



Requirements of Standard EN14396

The chamber is serviced by people and needs to be entered from time to time, so special attention must be paid to safety. The requirements for ladders and handrails must be strictly observed. These are defined in the European Union standard EN14396.

WARRANTY

Innovative Water Systems undertakes the responsibility for the equipment's properties and for elimination of shortcomings becoming apparent during the equipment's use. The warranty terms stem from the legislation of the Republic of Estonia, and the warranty is first and foremost based on the manufacturers' warranties as long as they do not conflict with the laws of the Republic of Estonia. The warranty includes shortcomings of the equipment's or its individual elements' manufacture, materials or design.

1. General terms of warranty

- 1.1. The warranty is valid for 2 years
i.e. 24 months in case of the product's purposeful use.
- 1.2. The warranty period starts from the product's handover date.

2. Warranty's validity terms

- 2.1. The prerequisite is the regulations in force and the installation and operation manuals required to be followed upon installation, use and maintenance of the equipment. The warranty will be valid if the equipment has been maintained regularly and used according to the manufacturer's instructions.
- 2.2. The warranty does not include damage caused to third parties because of a faulty product; it also does not include loss of revenue or any other similar loss.
- 2.3. In case of a fault becoming apparent, the equipment shall be repaired, not replaced as a whole.

3. The warranty does not include:

- 3.1. training for installation, maintenance and use of the equipment;
- 3.2. repairs of transport damage and other mechanical damage (caused by vandalism, lightning, fire, etc.).

The warranty does not cover shortcomings caused by insufficient maintenance, incorrect installation and repairs, or normal wear. The warranty is also void if the equipment has been reconstructed.