



Pietrucha
Established 1960



Flood Protection Systems

Reliable and efficient protection against flooding



The Pietrucha Group

Proudly Polish, Truly International

The Pietrucha Group is an efficiently managed, competitive and innovative group of companies, which specializes in the manufacturing and distribution of top-class geosynthetic products as well as providing a comprehensive range of geotechnical services broadly used in civil engineering.

Products manufactured by the Pietrucha Group are delivered to nearly 3500 customers in 34 countries on 5 continents, especially in regions sensitive to the impact of climate change. Despite the scope and global reach of our operations, the Pietrucha Group has remained a family business, managed by a third generation of entrepreneurs.



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IBS used to protect urbanized area.

IBS Flood Protection Systems Advantages

In Poland, the Pietrucha Group is the sole distributor of the IBS mobile flood protection systems which allow for fast and efficient prevention against flood damage, protecting houses, retail buildings and industrial sites and urbanized areas. IBS systems are an advanced and effective alternative to temporary solutions such as sandbags or wooden barrages.

The quality and efficiency of IBS systems has been proved for many years when battling the forces of nature all over the world. The IBS system may also be used at industrial sites to construct tight barriers or temporary separating walls.

Efficient and durable solution

- IBS elements do not corrode and are resistant to atmospheric conditions.
- During floods the beams fill with water, strengthening the stability and tightness of the barrier.
- IBS barriers provide effective protection against uncontrolled bursting of water into buildings and are highly resistant to dynamic pressure.

Wide range of possible applications

- IBS systems may be used as part of a flood-protection system of urbanized areas, a tight barrier protecting buildings from water bursts, an industrial barrier, temporary separating wall or a gate.
- The IBS offer includes also trapdoors, windows, doors and gate covers.

Immediate assembly in emergencies

- IBS systems are light, durable, and can be ideally matched. They are easy to assemble.
- The dam seals immediately after the first beams are installed.
- Two persons are capable of assembling a full height 4 square meter flood protection gate in 10 minutes.
- Thanks to the limited number of elements, there is no risk of incorrect assembly.

Mobile and easy to store

- The system is stored in steel stillages equipped with a guiding system.



Modern protection against the effects of climate change

Research shows that as a result of climate change, the amount of rain falling annually will be rising, while the length of the dry periods will remain the same. This means that more rain will fall over a given period of time. As a result, there will be more rapid rainfalls traditionally occurring in the spring and summer.

Together with the climate change, rapid rainfalls may also occur in the winter and early fall. In case of frost free winters, the snowstorms may be replaced with rapid rainfalls.

Rapid rainfalls are especially damaging in urbanized areas with large surfaces that would not allow for water saturation. If the rainwater does not sink into the ground, it finds its way to the sewage system which very often does not cover the whole city area or does not have the sufficient intake capacity. In such cases, flash flooding may occur.

Who may benefit from the use of IBS?

Local authorities

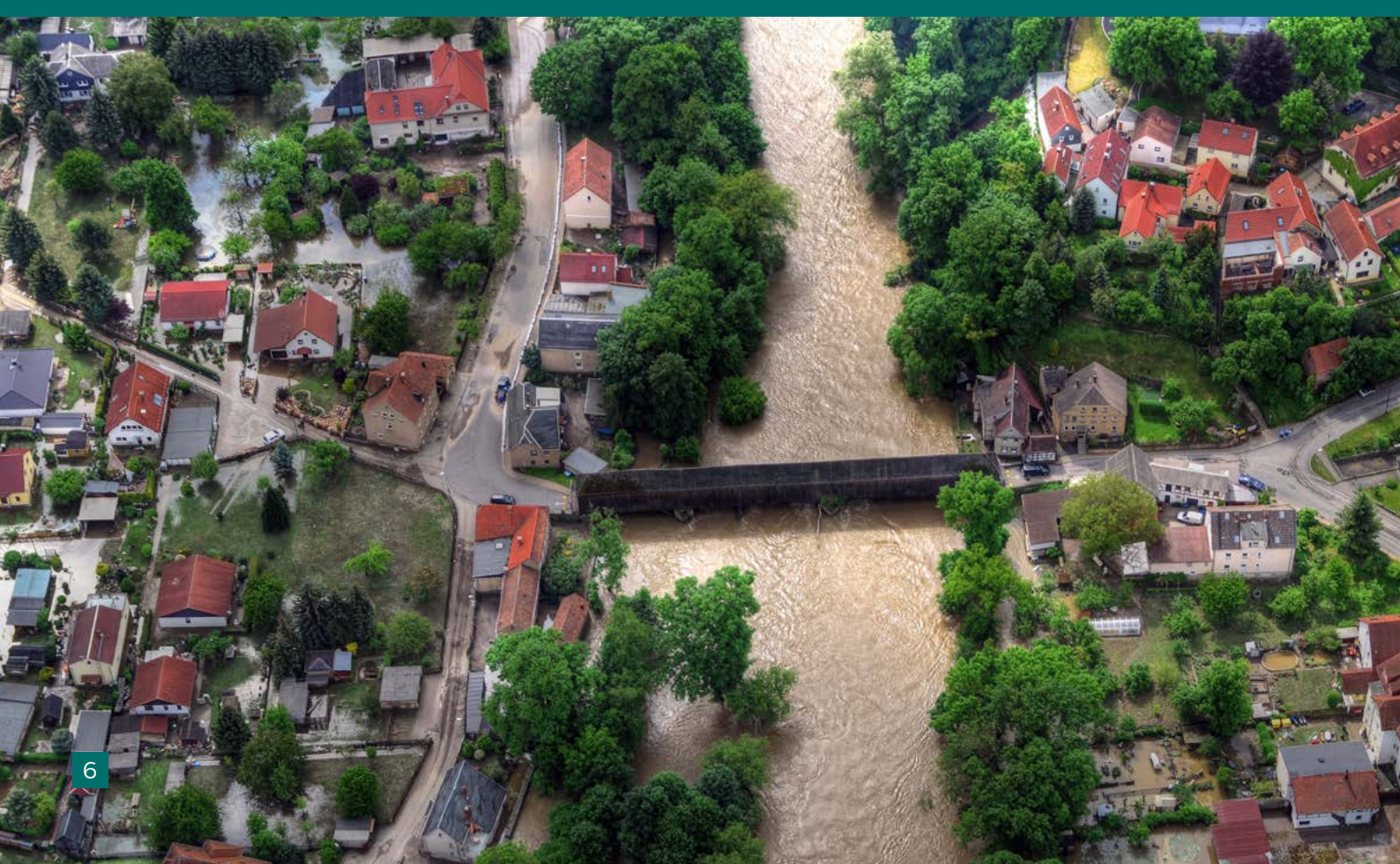


The battle against the forces of nature does not begin at the flood walls but rather in design studios where, upon the initiative of local authorities, the plans for construction or reinforcement of flood protection systems are drawn up.

Industrial sites



Water-tight industrial barriers are indispensable at plants where there is risk of contamination due to an uncontrolled leakage of harmful substances.



Owners of housing and retail sites



IBS provides effective protection for houses and commercial sites against damage caused by flooding.

Power plants, sewage farms and pumping stations



The tight and safe temporary separating walls may be used at power plants, sewage farms and pumping stations during maintenance works.

IBS Application



Urbanized Areas
Flood protection of urbanized areas.



Temporary cut-off walls
Temporary separation of walls at power plants, floodgates, water passes, sewage farms and pumping stations.



Houses
Protection of doors, windows and gates at housing and commercial real estate.



Industrial sites
Tight industrial barriers at manufacturing plants.



Existing flood protection systems
Reinforcement of floodwalls and additions to the existing flood protection systems.



Retail buildings
Protecting entrances to retail buildings against flooding.

Vertical system

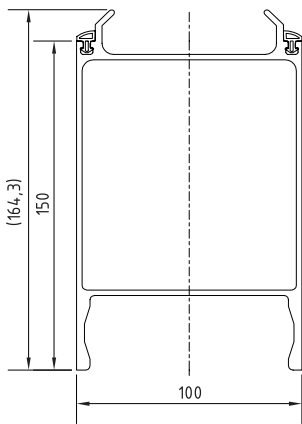
The system has been successfully tested in many countries around the world including Austria, the United Kingdom, Ireland, Germany, Poland and Malaysia.

Mobile elements

1. Barrier beams

The beams are identical and made of 4-5 mm thick aluminum. There are two types of beams available, light and heavy, and their length varies from 50 to 150 mm. The type and length of the beams depends on the project and the pressure the system is intended to bear.

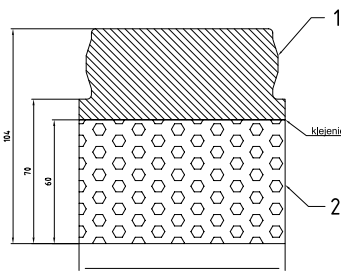
Symmetrical beams prevent mistakes being made during assembly, because there is no need to fix them in any predefined order. Each beam may serve as the ground beam. The vertical system may be assembled in stages, which enables fast assembly of the whole length of the wall at low water level and allows extra beams to be added as the water level rises.



2. Seals

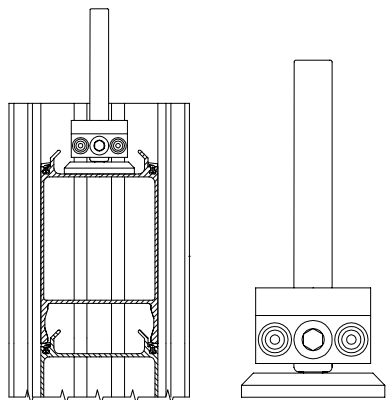
In all types of beams and posts disposable seals made of EPDM are used.

Ground seals: large-dimension rectangular seal: soft (2) and hard (1) containing a combination of polyurethane and polyethylene (PUR). The seals were specially designed to protect bottom leakage in cases of uneven ground.



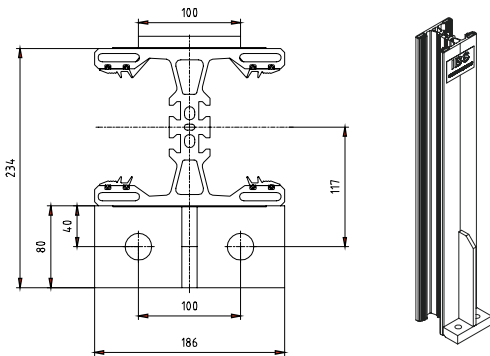
3. Compression keys

Compression keys are made of steel and are used to tightly press the beams and the ground seal together upon assembly.



4. Middle posts

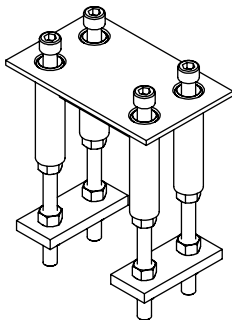
Middle posts consist of two connected elements: the base element mounted in the anchoring plates and the guiding element containing seals. The base element is made of upgraded st 37 steel and galvanized. At the bottom the base element has four cases located at screw holes, which means that it can be fixed quickly and easily to the anchoring plate. The guiding element is made of aluminum and its weight matches the weight of the system.



Fixed elements

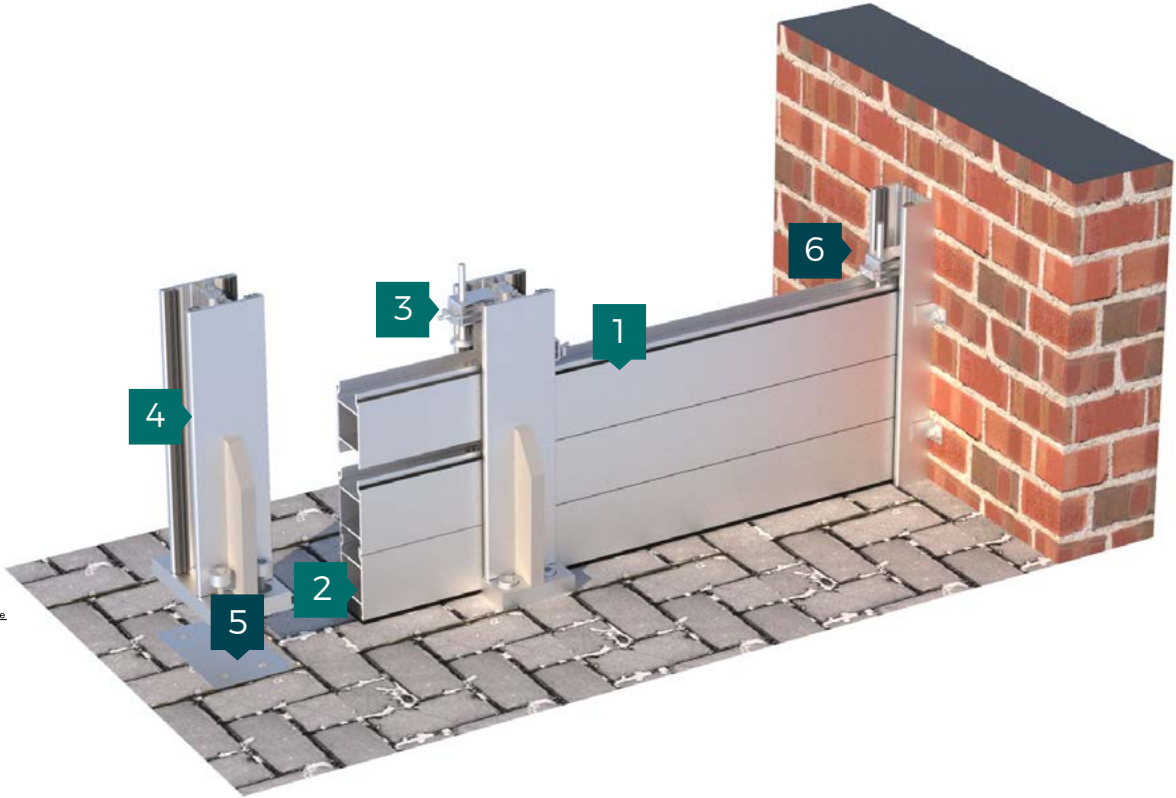
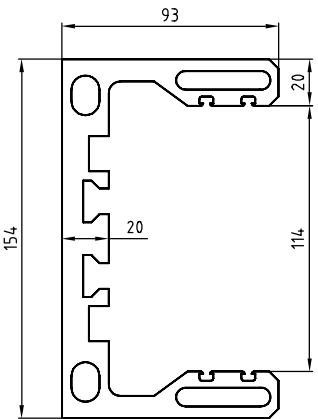
5. Anchoring plates

Anchoring plates are made of steel and are equipped with four self-aligning slots with an internal thread to mount the middle posts. The anchoring plates may be installed in the foundations or fixed to tight walls.



6. Posts

Posts are made of aluminum and are adjusted to the front or corner assembly, the latter used, inter alia, when protecting doors, windows, etc. Each post is equipped with an internal seal.



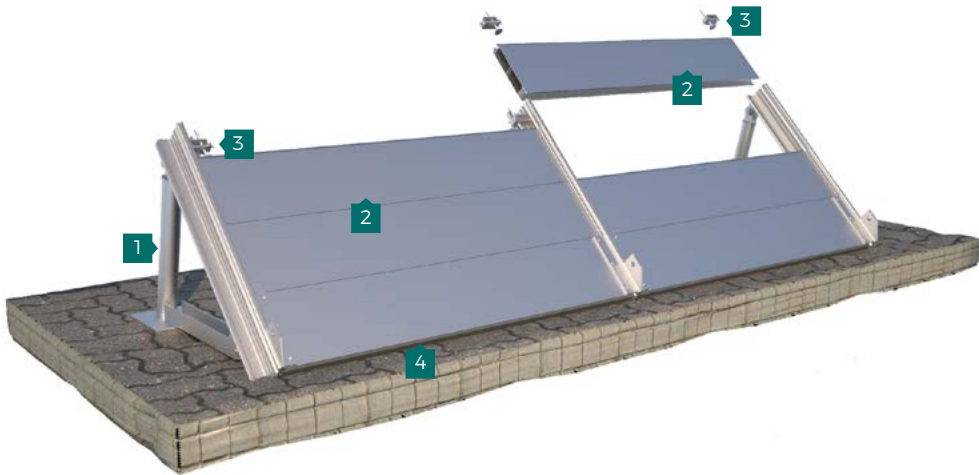
The sloping K-system

A fully mobile flood protection system which does not require any preparatory works at the place of assembly. The K-system has undergone rigorous testing in conditions of hydraulic pressure and may be used in cases in which the water level rises to 1.3 m.

Thanks to the modular construction, the K-system may easily be extended in any direction as well as adjusted to the terrain. The system compensates for ground irregularities up to 15 mm, curvatures with a radius exceeding 20 m and differences in height of up to 190 mm. Any leakages that may result from these limitations being exceeded may easily be eliminated using sandbags.

Elements of the system:

- 1. Middle post
- 2. Barrier beam
- 3. Compression key
- 4. Seal



Compression keys are used to tightly press the beams and the ground seal together upon assembly.

| Height | Number of beams | Beam dimension (cm) | Index |
|---------|-----------------|---------------------|--------------|
| 550 mm | 3 | 50x226 | IBS-K50-550 |
| 900 mm | 5 | 50x226 | IBS-K50-900 |
| 1300 mm | 7 | 50x226 | IBS-K50-1300 |

The K-system serves as excellent protection against tidal waves, since the water pressure force improves the stability of the construction.

Temporary separating walls

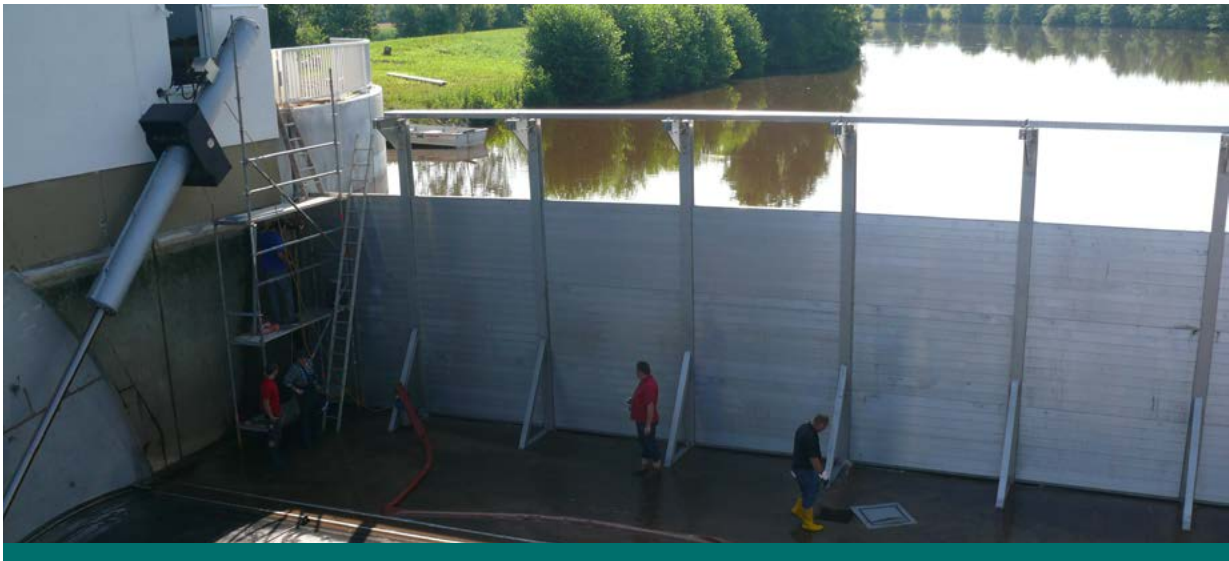
Light-weight and easy to assemble. A modern alternative to solutions using wooden beams.

Temporary separating walls are used to separate part of an industrial site during renovation or maintenance works. The walls offered by IBS are water-tight and easy to assemble and handle. They may be used at power plants, floodgates, water passes, sewage farms and pumping stations.

Advantages of the IBS tight industrial barriers

- wide range of application
- very high resistance to corrosion, mechanical durability
- simple assembly without the use of heavy equipment

In comparison to the traditional wooden solutions, the aluminum industrial barriers allow for costs optimization thanks to reducing the impregnation and maintenance costs. The IBS barriers weigh less, do not require constructing double walls and periodical replacement.



Temporary cut-off wall at floodgate.

Tight industrial barriers

Modern, durable and easy to assemble, tight industrial barriers are an excellent solution in emergencies.

Extremely durable and universal, the IBS tight industrial barriers are indispensable at plants where there is risk of contamination due to uncontrolled leakage of harmful substances.

We offer manual and automatic systems. We offer comprehensive services and an individual approach to each project, irrespective of its size or comprehensiveness.



Water-tight industrial barrier.

Door and window shields

We offer window and door covers and shields to be assembled inside or outside the building. The shields come in many sizes and may be opened in both directions without limiting the functionality of the protected site.



Flood protection of basement windows.

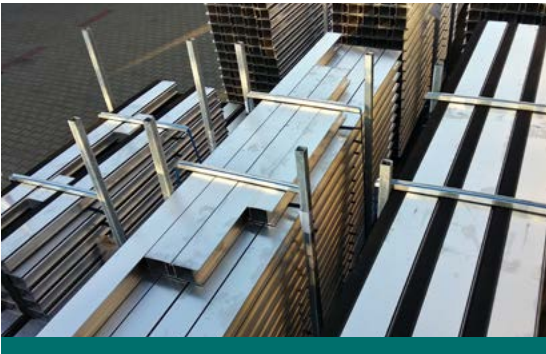
Glass flood protection barriers

IBS offers also glass barriers which may be used in flood-protection systems of urbanized areas.



Storage

The system may be stored in steel stillages equipped with a guiding system.



Selected projects



Grein, Austria
Vertical flood protection system
4,6 m



Kotowice-Paniowice, Poland
Modernization of embankment
1,2 m



Poznań, Poland
Flood protection of the Poznań University of Physical Education
0,6 m



Cracow, Poland
Protection of real estate
0,6 m



Catuny, Poland
Water gate
3,6 m



Gdańsk, Poland
Flood protection of the WWII Museum
1,5 m



Łódź, Poland
Water-tight industrial barrier.
0,4 m



Stalowa Wola, Poland
Flood protection of courthouse
0,6 m



Warsaw, Poland
Modernization of the Żerań water gate
3,6 m



Częstochowa, Poland
Modernization of embankment
1 m



Białystok, Poland
Flood protection of transformer station
0,3 m



Stasiopole, Poland
Flood protection of underground garage
0,3 m



📍 Balice
📄 **Flood protection of the Balice airport**
📏 0,6 m



📍 Warszawa
📄 **Flood protection of residential buildings**
📏 0,4 and 0,6 m



📍 Białobrzegi
📄 **Mobile flood barriers in a sewage treatment plant**
📏 1,65 and 1 m



📍 Łódź
📄 **Flood protection of a detached building**
📏 0,4 m



📍 Warsaw, Wybrzeże Helskie
📄 **Mobile flood barriers in Warsaw**
📏 from 0,2 to 1,8 m



Pietrucha
Established 1960

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